Reading motivation and reading comprehension growth in the later elementary years

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Abstract

Reading motivation has been viewed as a multifaceted construct with multiple constituents. Our investigation of motivational multiplicity expanded on previous literature by including motivation constructs (interest, perceived control, collaboration, involvement, and efficacy), text genres, specific versus general contexts, and the self-versus other evidence sources about motivation. We expected that this multiplicity would influence the identification of reading comprehension growth predictors. We obtained pre- and post-interview data, teacher ratings, motivation self-reports, and reading comprehension scores. Interviews showed motivation constructs to be semi-independent. Students’ reading motivations for narrative and information texts were not highly associated; and self-reports and other motivation reports were not highly associated, but situated and general reading motivations were correlated. Interview-based coding of motivation predicted reading comprehension growth, but reading comprehension did not predict motivation growth. Situated motivation for information books predicted general motivation growth according to multiple regression analyses. Implications for an engagement model of reading development were discussed.

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1. Introduction

Teaching students how to comprehend different text genres is an important goal for the elementary school years, especially for Grade 4 students and beyond, when students are expected to read a wide range of materials to gain knowledge and literary experience (Alexander & Jetton, 2000). A substantial correlate of reading comprehension in the later elementary grades is reading motivation, according to a variety of investigators (Gottfried, 1990; Hidi & Harackiewicz, 2000; Wigfield & Guthrie, 1997). This study examined reading motivation for its potential to explain students’ reading comprehension and to predict students’ growth in comprehension over time (Stipek, 2002).

The theoretical perspective for this study was Guthrie and Wigfield’s (2000) engagement model of reading comprehension development, which posited that reading comprehension is the consequence of an extended amount of engaged reading. Engaged reading is motivated, strategic, knowledge driven, and socially interactive; it is influenced by the kinds of classroom practices students experience (Guthrie & Cox, 2001). In previous work related to this model, we examined the nature of reading motivation, and also looked at how classroom practices influence children’s reading comprehension and motivation (e.g., Guthrie, Wigfield, & Perencevich, 2004; Guthrie, Wigfield, Barbosa et al., 2004; Wigfield & Guthrie, 1997). An important finding from this work is that reading motivation is multidimensional (see further discussion below). The present study builds on this work by both using interview methods to examine children’s multidimensional motivations for reading and looking at how growth in reading motivation relates to reading comprehension growth.

The interview methodology allowed us to study reading motivation more in-depth than has occurred in most previous research that primarily relied on student questionnaires. With respect to the relations of reading motivation and reading comprehension, Guthrie and Wigfield’s (2000) theoretical model suggests that motivation influences reading comprehension growth. Although reading motivation and reading comprehension are correlated (Baker & Wigfield, 1999; Wang & Guthrie, 2004), and laboratory studies suggest that motivational conditions can increase reading comprehension (Guthrie & Humenick, 2004), it is unknown whether reading motivation predicts reading comprehension growth in classroom contexts. The present study investigated this issue.

We further extended previous work on reading motivation by examining the multiplicity of children’s reading motivation. This multiplicity encompasses (a) the reading of different text genres, (b) the motivation for reading specific books and students’ more general reading motivation, and (c) diverse perspectives on students’ motivation as viewed by students, interviewers, and teachers. The types of reading studied consisted of narrative (fiction, chapter books, and novels) and information (trade books on science or history topics) books. We focused on these genres because they have been shown to vary in attractiveness to students (Guthrie & Greaney, 1991), and the assumption is often made that narrative books are more appealing to students. We were particularly interested in how children’s motivations for these different text genres relate to each other; these analyses would provide further information about the dimensionality of children’s motivation.

With respect to specific and general forms of motivation, following Hidi and Harackiewicz (2000), we assessed relations of children’s ‘situated’ reading motivation (e.g., interest in a particular book at a particular time) to their more general motivation to read. Finally, with respect to different perspectives on students’ motivation, as noted earlier, most research has relied on student self-reports measured on questionnaires. We went
beyond previous work by gathering the teacher ratings of students’ motivations, and the
interviewer ratings of student motivation based on students’ responses to the interview
questions. We assessed relations among these various sources of information about stu-
dent motivation.

Researchers using questionnaires have found that children’s motivation is multidimen-
sional in the later elementary grades. Through factor analytic assessment, at least nine
components of reading motivation have been distinguished (Baker & Wigfield, 1999; Wig-
field & Guthrie, 1997). These components include (a) curiosity or interest, (b) preference
for challenge, (c) involvement, (d) self-efficacy, (e) competition, (f) recognition, (g) grades,
h) social interaction, and (i) work avoidance. Several of these motivations are sufficiently
distinct and reliable that instructional interventions have influenced them separately. For
example, Wigfield, Guthrie, Tonks, and Perencevich (2004) showed that an intervention
supporting intrinsic motivations for reading increased curiosity, involvement, and prefer-
ence for challenge. Furthermore, the reading motivations that are more internal (such as
curiosity, preference for challenge, and involvement) have been distinguished in structural
equation modeling from the motivations that are more external (such as recognition, com-
petition, and grades) (Wang & Guthrie, 2004). The intrinsic motivation composite was
substantially associated with reading comprehension, with other variables controlled
(Wang & Guthrie, 2004). Given these results, we focused on interviewing children about
several of these motivations identified in previous research and central to the reading
engagement model.

Interest in reading is a motivational construct that has been described as a personal
investment (Alexander & Murphy, 1998) or a “relatively stable evaluative orientation
toward a certain domain” (Schiefele, 1999, p. 258). Highly interested readers have feelings
of involvement, stimulation, or enjoyment during reading, and tend to possess knowledge
in the domain of their interest (Renninger, 2000). Interest has been measured through rat-
tings of a specific text (Alexander, Jetton, & Kulikowich, 1995), or ratings of interest in a
domain that represent longer-term stable characteristics (Jetton & Alexander, 2001;
Schiefele, 1999). Interest has been shown to correlate with deep processing of individual
texts (Schiefele, 1999), reading grades for elementary school students (Sweet, Guthrie, &
Ng, 1998), and knowledge and strategies of college students within a course (Alexander
& Murphy, 1998). Renninger’s (1992) research with elementary school-aged children on
reading interest showed that children recall passages more fully if the passages were interest-
ing to them. However, little is known about the characteristics of children’s reading
interests, such as whether their interests are restricted to specific books, authors, or genres
(such as novels), or whether they are broader.

Perceived control over reading refers to students making choices or decisions about
reading, and being in control of their reading activities. Related empirically to Ryan
and Deci’s (2000) construct of autonomy, perceived control as defined by Skinner
(1995) is an individual’s “causal model about how the world works: about the likely causes
of desired and undesired events, about their own role in successes and failures, about the
responsiveness of other people, institutions, and social systems” (p. xvi). In this vein, a per-
son has internal control “if the person perceived that the event is contingent upon his own
behavior or relatively permanent characteristics” (Rotter, 1966, p. 1). A variety of studies
document that perceived control and choice in the later elementary grades are associated
with academic achievement in reading (Skinner, Wellborn, & Connell, 1990; Sweet et al.,
1998).
A third motivational aspect widely investigated is self-efficacy in reading. Based on Bandura’s (1977) definition, Schunk and Zimmerman (1997) defined self-efficacy as applied to reading in the following way: “Self-efficacy refers to beliefs a person has about his or her capabilities to learn or perform behaviors at designated levels” (p. 34). Central to the process of developing and maintaining self-efficacy is self-evaluation of capabilities and progress in skill acquisition. Positive self-evaluations lead students to feel efficacious about learning and motivate them to continue to work diligently.

The fourth motivational aspect is students’ involvement in reading. Following earlier work, we define involvement as students’ sense of immersion or absorption during reading and the investment of many hours reading books and materials (Reed & Schallert, 1993). The experience of high involvement in reading resembles the experience of “flow” (Csikszentmihalyi & LeFevre, 1989). Experience of flow frequently occurs when a person’s challenges (opportunities for action) are matched with the individual’s skills (capacities to act). Involvement in the later elementary grades can be measured by such self-reported items as, “I feel like I make friends with people in good books” (Wigfield & Guthrie, 1997, p. 432). Involvement is related to interest and other internal aspects of motivation (Reed & Schallert, 1993; Wigfield & Guthrie, 1997), but can be distinguished from interest because it refers more to experiential aspects of reading and time spent reading. Further, involvement refers not only to depth of experience, but also to amount of reading. As shown by indicators of involvement such as print exposure (Allen, Cipielewski, & Stanovich, 1992) and student self-reports of reading volume (Wigfield & Guthrie, 1997), students’ reading involvement is stable over time and is correlated with achievement.

A fifth aspect is collaboration and social interaction in reading. In this study, we viewed collaboration and social interaction in reading as a motivation construct referring to interpersonal behavior patterns. Similar to Brown’s (1997) usage in her investigations of communities of learners, collaborative students enjoy participating in group activities for reading, work effectively with others on reading and writing tasks, and enjoy talking about reactions to books. These behavioral patterns are associated with students’ reading grades (Sweet et al., 1998) and test scores (Baker & Wigfield, 1999).

We built on earlier work by interviewing children about these aspects of reading motivation to obtain their perspectives about the dimensionality of reading motivation. We also included questions intended to give students an opportunity to express motivations for reading that were unanticipated, and perhaps, new to us.

To investigate text-type as a source of the multiplicity of reading motivation, we interviewed children about their motivations for narrative and information texts. Many investigators who discuss elementary school-aged children’s reading focus on narrative texts (Schallert & Reed, 1997). This may be reasonable because narrative texts are predominate in reading instruction for the primary grades (1–2), and are supplemented by information books in the intermediate grades (3–5) (Duke, 2000). We were interested in children’s motivations for reading these two broad text genres, and particularly how they might relate to each other. We are not aware of any thorough empirical studies on the correlation of motivation for reading narrative versus information books.

In adult studies, there is evidence that some adults are “fiction” readers, whereas other adults are “nonfiction” readers (National Endowment of the Arts, 2004). Analyses of text comprehension processes show that motivational knowledge and affective processes are
important in interpreting narrative texts (Gamez, 2001). Thus, affective responses to liter-

ature may contribute to comprehending narrative texts. It is plausible that adults who seek
affective experiences in reading may be drawn to narrative texts. On the other hand, Alex-
ander (1997) suggested that there are distinct motivations that may contribute to compre-
hending expository text. Because such text is information-rich, the reader’s desire to
activate cognitive schema, and to expand the schema with new knowledge through read-

ing, may be central to motivation. This information-seeking disposition may be relatively
unique to reading expository text, and may energize the use of cognitive strategies for
understanding exposition. At the same time, the motivation to gain knowledge from infor-
mation text may not be as fully activated during narrative reading (Carr, Mizelle, & Cha-
rak, 1998). Thus, different internal motivations may drive the reading of information and
narrative texts, which was our rationale for interviewing students about these genres
separately.

We further examined the multiplicity of children’s reading motivation by investigating
the relations of children’s motivations for specific texts and their general reading moti-

vation. We followed Hidi and Harackiewicz’s (2000; see also Hidi, 1990) distinction between
situated interest and general interest. They argued that each type of interest has different
characteristics, with situated interest being more immediate and general interest being
more long-term. They also noted that situated interests sometimes turn into longer-term
interests. We wanted to investigate the relations between specific or situated motivations
for certain books and general reading motivation to see if these connections developed
across the course of the study.

The final part of our study of reading motivation multiplicity was to consider dif-

ferent sources of information on children’s motivation, rather than obtaining only stu-
dent questionnaire responses. Some researchers have used observer ratings of children’s
motivation for both primary (Onatsu-Arvilommi & Nurmi, 2000) and elementary-aged
children (Guthrie, Wigfield, Humenick, Perencevich, Taboada, & Barbosa, in press).
However, because no comparisons across these different kinds of data sources have
been made, we do not know whether students view their reading motivations in the
same way that other observers (teachers, parents, and outsiders) may perceive them.
Although teachers, for example, are obliged to infer the motivations from students’
behavior or speech, students report their motivations for reading directly. Of course,
teachers have many points of reference, such as other students, for making normative
judgments about students’ motivation levels. Students, on the other hand, have direct
access to their own motivation, but much less opportunity for comparison of their
motivations (such as self-efficacy) to the motivations of other students. Therefore, stu-
dents’ self-perceptions of motivation and teachers’ perceptions of students’ motivations
may be different.

Although understanding reading motivation is itself an important research goal, it
also is vital to investigate the relations of reading motivation to reading comprehen-
sion. The engagement perspective guiding this study proposes that when children are
motivated to read, they are more likely to be engaged in reading and, therefore, com-
prehend better. To assess this premise further, we investigated whether reading moti-
vation and reading comprehension relate to each other, and whether growth in one of
these constructs predicts growth in the other. Although the correlation of reading
motivation and reading achievement is well established for students in the later ele-
mentary grades (Gottfried, 1990; Wang & Guthrie, 2004), fewer investigations have
shown the extent that one of these variables is the precursor or antecedent of the other. One exception is Gottfried (1990), who reported that reading achievement on a standardized test at age 7 and age 8 predicted intrinsic motivation at age 9 (as measured by responses to her intrinsic motivation questionnaire, the CAIMI). However, Gottfried (1990) did not find that motivation at ages 7 or 8 predicted reading achievement at age 9.

For primary age students, Onatsu-Arvilommi and Nurmi (2000) reported reciprocal relationships between motivation and reading achievement from preschool to age 7. Preschool students who were rated low in decoding were rated lower in task orientation (enthusiasm for reading activities) and were rated higher in task anxiety than preschool students who scored higher in decoding. To complement this, preschool students who scored low in task orientation, scored lower in decoding at age 7 than preschool students who scored higher in task orientation. Guay, Marsh, and Boivin (2003) also found reciprocal relations between early elementary school children’s self-concepts of academic ability for reading, writing, and math and their academic achievement (as rated by teachers), which was confirmed in the primary grades by Lepola, Salonen, and Vauras (2000). However, few longitudinal studies have been conducted in the later elementary grades.

We examined the growth of reading achievement and motivation by comparing scores from September pretests and December posttests of Grade 4 students. Our procedure was similar to that of Allen et al. (1992) in examining the effects of print exposure on reading achievement and Onatsu-Arvilommi and Nurmi (2000) in investigating motivation in primary reading. When reading achievement at Time 2 was statistically controlled for reading achievement at Time 1, a third variable that was associated with achievement at Time 2 can be said to be a predictor of growth in reading achievement. In other words, when a posttest is controlled for a pretest statistically, the (non error) variance remaining in the posttest represents student change from pretest to posttest. If the mean change is positive, we can refer to the change as growth. Under these conditions, an independent variable, such as motivation, can be tested for its association with growth in reading comprehension. We assessed the relations of reading motivation and comprehension growth using the different motivation data sources (e.g., interviewer report, student self-report) just described.

To investigate reading motivation and its relation to reading comprehension growth, we were guided by the following questions:

1. What are the meanings and attributes, as expressed by fourth-grade children in interviews, of the following motivational constructs: interest, perceived control, self-efficacy, involvement, and collaboration, and other unanticipated constructs?
2. To what extent do these constructs relate to one another?
3. How do children’s motivations for reading narrative and information books relate to each another?
4. How do interviews, student self-reports, and teacher observations relate to one another as sources of evidence about student motivation?
5. How do students’ motivations for situated and general reading relate to one another?
6. To what extent does reading motivation predict reading comprehension growth, and to what extent does reading comprehension predict growth of reading motivation, using measures that vary according to text, source, and context?
2. Method

2.1. Participants

The study’s participants were fourth-grade students (N=31) from 8 classrooms in two mid-Atlantic state schools participating in a reading intervention (see Section 2.2). The students were nominated for participation by their teachers, and participated with parental permission. The eight teachers were asked to select four students each, one of higher than average reading ability for his/her class, one with lower than average reading ability, and two with average reading abilities. In one class, the teacher nominated three students; thus, the total sample size was 31. The participants were 16 girls and 15 boys. The sample was 58% European American, 23% African American, 6.5% Asian American, 6.5% Latino, and 6.5% were classified as “other.”

2.2. Classroom context

Students in this study participated in the reading program called concept-oriented reading instruction (CORI), an instructional program for elementary school children that merges reading strategy instruction, science instruction, and a set of motivational practices designed to enhance children’s intrinsic reading motivation (Guthrie et al., 2004, 2004). The 90-min daily reading intervention, implemented in the fall of the school year, was the main reading/language arts program for a total of 12 weeks. The instructional practices in CORI included the following: (a) emphasizing science content goals in a conceptual theme for reading instruction to provide children with a meaningful and involving learning environment; this included studying survival processes of diverse plants and animals in woodland and wetland biomes. More specifically, the program teaches survival in woodland and wetland habitats with the processes of locomotion, competition, respiration, feeding, predation, communication, defense, reproduction, adaptation to habitat, and niche; (b) providing hands-on science activities to stimulate children’s situational interest, which included observations of carnivorous plants and experiments on preferences of beetles; (c) using interesting texts (both informational and narrative) tied specifically to conceptual themes; (d) affording students some choices of which books to read and which activities to do; (e) promoting collaboration in reading instruction, and (f) teaching a set of reading strategies documented to be effective in fostering children’s reading comprehension, which included activating background knowledge, questioning, searching for information, organizing graphically, summarizing, and structuring stories, consistent with recommendations from the National Reading Panel in 2000. These six practices appear to foster children’s intrinsic reading motivation and their reading achievement (see Guthrie et al., 2004, 2004; Wigfield et al., 2004), which may have enabled us to observe more motivational phenomena than would have been possible in traditional classrooms.

2.3. Design and analyses

The overall study of the effectiveness of the reading intervention for increasing reading comprehension and reading motivation was a pre-post equivalent groups design. Measures
of reading comprehension and reading motivation were given before and immediately
after the 12-week intervention to children in CORI (Guthrie, Wigfield et al., 2004; Guthrie,
Wigfield, Barbosa et al., 2004).

During the course of the reading intervention, the 31 participants in this part of the
study were interviewed on two occasions (once in the second week of the project and once
in the eleventh week of the project). The purposes of the interviews were to examine char-
acteristics, patterns, and qualities of the students’ motivations for reading, as expressed by
the students themselves. For the two interviews with all children we used the “standardized
open-ended interview” (Patton, 1990, p. 280) to optimize comparability across interviews.
The interviewers were four doctoral students who were familiar with the reading interven-
tion. The interviews were audiotaped and transcribed. To analyze the transcripts, we used
“analytic induction” (LeCompte & Preissle, 1993, p. 254), which is an iterative procedure
where the transcripts are inspected, categories are induced, the transcripts are re-inspected
with these categories in mind, and the categories are revised as appropriate. The aim was
to enrich our understanding of the students’ internal reading motivations. As described in
more detail next, the interviews also were scored with respect to different levels of motiva-
tion expressed by each student in his/her responses to the interview questions. These scores
were used to examine correlations among the different aspects of motivation in question.
Multiple regression analyses were used to examine longitudinal relationships among the
identified motivational constructs and reading comprehension.

2.4. Procedure and measures

2.4.1. Semi-structured interviews

Semi-structured interviews explored reading motivation constructs that have received
extensive attention in the research literature: interest, perceived control, collaboration in
reading, self-efficacy, and involvement. As described previously, we primarily were inter-
ested in children’s internal reading motivations, which characterize this set of constructs.
Students were asked to bring to each interview two books that they had read in class or at
home, one expository (i.e., informational) and one narrative (e.g., novel, chapter book, or
folk tale) text. The interviewers asked questions that related to the particular books the
children brought, which provided indicators of their situated or specific motivations for
each book. They also asked more general questions about each aspect of reading motiva-
tion. The interview questions are presented in Appendix A.

The interviews were conducted in September and December, for a total of 62 interviews
with the 31 students. These dates were used because they matched the beginning and end
of the implementation of CORI in the schools, and we did not have access to students in
May. Each student was always interviewed by the same interviewer. The 30-min interviews
occurred during the language arts period, in a private area (i.e., conference room, isolated
section of library), and were tape-recorded. Technical difficulties with the tape recorders
resulted in the loss of data for six interviews; these students were balanced in gender
and reading level.

Each interview started with a few questions to build rapport, and then the students were
asked the questions about the constructs of interest, perceived control, collaboration,
efficacy, and involvement. For each construct, there were one or two questions asked
about each specific construct, and one or two about each general construct. When neces-
sary, the interviewers followed these questions with probes to get more detailed informa-
tion from the students. The same basic questions were asked in both the September and
the December interviews. After data collection, the audiotapes were literally transcribed,
with an average of approximately 9 pages per student for each interview, and an estimated
600 total pages of transcription.

2.4.2. Reading comprehension and motivation assessment

As part of the larger intervention study, students completed reading comprehension
and motivation assessments in September and December. Two reading comprehension
measures were used, an investigator-developed measure and the Gates-MacGinitie
Standardized Reading Comprehension Test. The investigator-developed assessment
involved students reading a set of self-selected reading passages from a 75-page packet
containing passages on the survival of plants and animals in different habitats. Stu-
dents initially wrote what they knew about the topic (to measure their background
knowledge), and then read the passages. After reading the passages, students wrote
(for 25 min) what they had learned to provide a measure of their comprehension.
Their writing was scored on a 1–6 rubric that indicated depth of their conceptual
knowledge gained from reading, with each rubric level indicating a deeper conceptual
knowledge. (See Taboada & Guthrie, 2004, for a detailed description of this measure
and the scoring rubric; we do not describe them in detail here because they are not
the major focus of this study). In addition, students completed the Gates-MacGinitie
Reading Comprehension Test, Level 3 Form S, to have a standardized reading test as
part of our assessment.

Two measures of student motivation were obtained. Students completed a shortened
version of the Motivations for Reading Questionnaire (MRQ) (Wigfield & Guthrie,
1997) that included the curiosity, preference for challenge, involvement, and efficacy items.
This shortened version had a total of 18 items. Students responded to these items on a 1–4
answer scale, and a sum of their responses to these items was created for purposes of data
analysis. The rationale for this sum was that these individual scales were much less reliable
than the total scale, correlate relatively highly with one another, and do not correlate with
other variables, such as reading comprehension, as highly as the full scale which represents
internal motivation.

At the conclusion of the project, teachers completed the Reading Engagement Index
(REI) that asked them to assess each student’s behavioral, cognitive, and motivational
engagement. The REI had eight items; one item assessed behavioral engagement, four
items assessed different aspects of motivation (intrinsic, efficacy, and social), and three
items assessed cognitive aspects of reading engagement (effort, strategies, and concepts).
Teachers rated each student on the 8 items, using a 1–4 scale from “Not true” to “Very
true.” A composite of the 8 items was created to reflect the teachers’ overall sense of stu-
dents’ motivational engagement, and to create a reliable variable to be used in the relation-
al and predictive analyses.

These comprehension and motivation measures were examined for reliability and valid-
ity. On the multiple text reading comprehension task, concurrent validity of this measure
was estimated by a correlation of \( r(110) = .58, p < .01 \) with a computer-based passage
comprehension task that was part of the larger assessment battery used in the project.
Across-time correlation for the September and the December administrations of this mea-
sure was \( r(108) = .63, p < .001 \). For the MRQ, Cronbach’s alpha was .75 for a composite
based on students’ responses to the items and its correlation across time was $r(105) = .41$, $p < .01$. For the REI, Cronbach’s $\alpha$ was .92.

### 2.4.3. Student interview coding

To code students’ responses to the interview questions, we developed a priori coding attributes for each construct based on existing literature. For example, for self-efficacy, two of these attributes were ‘confident reader’ and ‘believes self is a good reader.’ In addition, the investigators examined the interview transcripts to develop additional attributes for each construct. These attributes were quite focused. For example, self-efficacy reflected “belief in capacity for reading” and did not extend to constructs such as self-concept that may include identity or relation of reading to other aspects of self, such as sports ability or ethnicity. These attributes also reflected comments students made during the interview sessions about the different motivation constructs. The final category list for each motivation construct contained approximately 8–10 attributes that were a combination of the a priori attributes and attributes emerging from the interviews. These attributes provided a sense of the meaning of each motivation construct to the student, and are described in more detail in the results section.

Using this category list, transcript coding was completed in multiple parts to establish reliability among the coders. As noted above, an initial set of 12 transcripts was coded independently by the four interviewers using “analytic induction” (LeCompte & Preissle, 1993, p. 254). The coders read numbered transcripts line-by-line and coded segments of the lines using the a priori codes for each motivational construct. The line was used for convenience as a minimal unit of analysis to facilitate discussion among investigators. Often students’ statements spanned several lines, in which case the same code was applied to all the lines. Multiple codes were sometimes used for the same line if the students’ thoughts represented more than one construct. Meetings were held to compare codes and discuss any disagreements until consensus was reached, and also to develop new codes for each motivation category. This process allowed the coding categories to be refined and clarified to represent the motivational attributes of the fourth grade sample. Once consensus was reached, the remaining 43 transcripts were coded independently, by their original interviewers.

In addition, students’ responses were coded with respect to their level of motivation for each of the situated and general motivation constructs. Four levels of motivation were defined for each situated and general construct for the narrative and informational books. Coders used a quartile system to score students’ levels on all constructs in relation to other fourth graders. A rubric score of 1 was given to students who were judged to be in the bottom 25% of fourth-grade students on a construct; 2 indicated low-middle, 3 indicated high-middle, and 4 indicated the top 25%. This normative approach enabled us to optimize the observed differences in motivation among the students, which created variance to be examined quantitatively. Also, among the four levels there were clear, criterion-referenced differences that facilitated the assignment of the levels. For example, for situated interest, codes were defined as follows: 4 = high positive affect for specific book; 3 = moderate positive affect for specific book; 2 = indifference to specific book; and 1 = dislike of book. For general interest, codes were defined as follows: 4 = high positive affect for reading in general; 3 = moderate positive affect for reading in general; 2 = indifference to reading in general; and 1 = dislike of reading. The interviewers and principal investigators rated each
During the coding, four post hoc coding categories emerged from the data. We report them briefly here, but do not use them in the statistical analyses reported below. These categories included: (1) knowledge and information, (2) reading competence motivation, (3) extrinsic reading motivation, and (4) reading program regulation. Knowledge and information as a motivation for reading consisted of students’ reading to gain knowledge or information about topics or activities, and 48% of the students voluntarily reported this motivation for reading. Reading competence motivation emerged when students reported reading for the purpose of becoming a better reading or increasing their reading skills, and 28% of the students voluntarily reported this motivation for reading. Extrinsic reading motivation was operationally defined as externally driven reading, for instance to receive a reward or recognition, and 8% of the students voluntarily reported this motivation for reading. Reading program regulation referred to students’ statements about reading to comply with reading program requirements, and 17% of the students voluntarily reported this motivation for reading.

2.5. Scoring and variable creation

We created reading comprehension and reading motivation variables for the quantitative analyses, using children’s responses to the reading comprehension measures, their responses to the MRQ, teacher ratings on the REI, and children’s answers to the questions from the two motivation interviews.

2.5.1. Reading comprehension

Scores were created from the pretest (September) and posttest (December) reading comprehension assessments. As mentioned previously, children’s written responses were scored on a 1–6 knowledge rubric, so the range of scores was from 1 to 6. Each succeeding level on the rubric represented deeper conceptual and factual knowledge presented by the children’s writings. The standardized scale score from the Gates-MacGinitie Reading Comprehension Test was used in the analyses, as it is the most appropriate variable for statistical analyses.

2.5.2. Reading motivation questionnaire scores

Scores consisting of the sum of 18 items on intrinsic motivation and self-efficacy from the September and December administration of the MRQ were used in the statistical analyses; these scores could range from 18 to 72. Scores from the REI (completed by teachers in January) were created, which could range from 8 to 32. The rationale for using the full scale is that it is reliable (consistent) and predictive, whereas individual items in the scale are much less so.

2.5.3. Motivation interview scoring

General and situated motivation variables were created for the two interviews (September and December) completed with all students. The scores were the levels of reading motivation previously described, which ranged from 1 to 4 for each of the five motivational variables (interest, perceived control, efficacy, collaboration, and involvement). Scores for the situated variables were obtained for both expository and narrative text; thus, there...
were a total of 10 situated motivation variables in September and 10 in December. For the
general motivation variables, we did not construct separate scores for each text type
because the questions did not specify type of book; thus, there were five of these variables
in September and five in December.

For data analytic purposes, we created several composites from the situated variables,
to reduce the number of variables included in the analyses. The situated motivation com-
posite for September was the sum of all five situated motivation constructs for narrative
text, plus the sum of the five situated motivation constructs for information text for each
student in September, which ranged from 10 to 40. The situated motivation for narrative
text composite in September was the sum of all scores for the five situated constructs
for narrative books for each student in September, which ranged from 5 to 20. The situated
motivation for informational text composite in September was the sum of all scores for the
five situated constructs for information books for each student in September, which ran-
ged from 5 to 20. Two identical, situated measures were created from the December inter-
views. The rationale for creating these composites, rather than using individual variables,
was that the individual codes were based on relatively few statements from students, and
the codes for one motivation tended to be well associated with codes for other
motivations.

For the general motivation measures derived from the interview, we were most interest-
ed in examining their growth over time. Initial analyses of the five general motivation vari-
able (interest, perceived control, efficacy, collaboration, and involvement) showed that
efficacy and involvement showed growth from September to December. Therefore, we cre-
ated general motivation composites for September and December that were a sum of the
general efficacy and general involvement scores from the student interviews, which ranged
from 2 to 8. The rationale for this composite was that both of these constructs of efficacy
and involvement showed significant change during the instruction, whereas none of the
other constructs changed significantly. To identify the predictors of motivation change,
we needed a measure that changed across the observed period of time in this study. This
composite made it possible to examine the prediction of change in motivation by other
measures, such as reading comprehension, and the situated motivation measures. We do
not assume that this composite completely depicts student motivation; it instead represents
those aspects of motivation that changed over time in this study.

3. Results

3.1. Attributes of reading motivation

The first question of the study was: What are the meanings and attributes, as expressed
by fourth-grade children in interviews, of the following motivational constructs of reading
motivation: interest, perceived control, involvement, collaboration, and self-efficacy? To
address this question, we attempted to identify critical features of the motivational con-
structs as expressed by the students. For each motivation construct, we describe attributes
and qualities of the motivation constructs that were coded from students’ responses to the
interview questions, using some a priori coding categories and additional categories that
emerged from students’ responses.
3.1.1. Interest in reading

Initially, the construct of interest was characterized as students’ report or display of positive interactions with text and high positive affect toward text, topics in text, authors, and series. The examination of students’ responses to questions about what interested them about the books they brought to the interview revealed a number of characteristics or attributes of interest in reading from the children’s perspectives. Students with high interest typically exhibited the following: (a) the display of high, positive affect for a book or topic, such as saying they really liked the book, (b) statements of enjoyment of reading, (c) high coherence in content recall of text, or being able to provide a clear description of the contents of a book or books that they read, and (d) high detail in content recall of books that they found interesting. Other attributes that were important, but less frequently mentioned, included: (e) naming multiple topics, authors, or series of interest, which indicated that the student had favorite books, topics, or authors that he/she liked to read, (f) a statement about rereading all or part of a book, (g) pursuing a topic or an author through planning, or (h) connecting reading to personal experiences or feelings. Students coded as four usually showed a large majority of the attributes presented at the beginning of this section.

With respect to affect, the most highly interested students had positive affect toward books, favored certain authors, and enjoyed favorite topics. In contrast, the least interested readers reported that they did not have a favorite book, did not enjoy any authors, and always preferred other activities, such as bike riding or playing with friends. A predominant feature of the high interest readers was that they held extreme-well formed preferences for specific topics or genres. Some students preferred such topics as reptiles, while others preferred series such as *The Magic School Bus* or *Harry Potter*. Combined with their enthusiasm, these students displayed exceptional memory for the broad landscape, as well as the vivid details in the books they had read. They offered detailed plot lines or elaborated descriptions of such topics as animals, volcanoes, or baseball players. One interviewer challenge was to move the students beyond the extended narration of their favorite books into other motivational constructs of importance to the investigation. These high interest readers typically reread all or portions of books, pursued topics in and out of school, and connected reading to their personal experiences or feelings.

Also salient was the students’ deep comprehension and complex cognitive command of these texts that accompanied their enjoyment and enthusiasm. Students with high positive affect for a certain topic invariably had deep recollection of information or books about the topic, whereas students with low affect for reading on a topic displayed little recall and grasp of content. This suggests that high interest in reading is not limited to the strong, positive affect surrounding books, but also to the high comprehension, recall, and organization of knowledge in memory typical of these readers.

3.1.2. Perceived control

The construct of perceived control was defined initially as valuing choice related to reading, enjoying pursuing reading independently, and often choosing one’s own books to read. Specific attributes and qualities of this construct expressed most frequently by the children included: (a) choosing a specific book or books, (b) expressing preference for personal choice of books, as compared to having books chosen for them by teachers or other adults, (c) valuing choosing to read, and (d) frequently making choices about
books. Other attributes children mentioned included: (e) having strategies for finding or choosing books, (f) believing that choice enabled the student to be independent with respect to reading, (g) choice enabled students to find interesting books, (h) choice enabled students to find topics, and (i) choice enabled ownership of certain books or reading more generally.

Preferring to be in control and making their own choices about reading was characterized by a desire to select topics and books, to do so frequently. Students at the highest levels of this construct preferred to choose their own books and to control their reading activities. This control took the form of selecting topics, finding places to read, and reading during free time in and out of school. Choice did not function in a vacuum for these students, but was linked to the previously discussed attribute of interest. The purpose of control, as expressed by students, was to enable them to maintain reading activity in high-interest domains.

Not all students of this age preferred to choose their own books. Some expressed to us that teachers and parents made better choices of reading materials for them, and that when they were given opportunities to choose books they sometimes made mistakes. These students preferred the guidance of adults, rather than their own autonomy, in selecting reading materials. It would be interesting to see if this pattern changes as these students get older. Finally, some students reported that they liked both choosing their own books, and having close others choose books for them, showing that it is possible to be motivated by both.

3.1.3. Self-efficacy in reading

Initially self-efficacy for reading was defined as the belief in one’s capability to read well and to understand hard parts in books. Attributes implicit in this definition and emerging from students’ responses to the interview questions were: (a) belief in oneself as a good reader, (b) confidence in reading, and (c) knowledge and use of strategies in reading. Statements made by the students about how they knew they were efficacious (or were not efficacious) in reading included statements of reading capacity regarding: (d) ability to recognize most words, (e) ability to figure out the meaning of unfamiliar words, (f) a preference for challenging books, (g) statements about feedback from parents or teachers about being a good reader, or (h) statements about oneself as reading well or better than other students.

Thus, characteristics and attributes of self-efficacy in reading, as expressed by students, included beliefs about their capabilities at reading different texts, preferences for reading challenging books, and confidence in their reading skills. Students also explained how they arrived at their judgments of efficacy. Teacher and parent feedback were seen as key influences. In addition, students emphasized their ability at reading difficult words and “figuring out the hard parts” of books as crucial to their sense of efficacy. Somewhat surprisingly, only occasionally did understanding the book or connecting the book to one’s personal experience influence students’ judgments of efficacy. Thus, word skills and figuring out hard passages, rather than broader reading comprehension skills, seemed to have the strongest impact on fourth-grade students’ self-efficacy for specific books.

Based on students’ responses to the interview questions, it also appeared that generalized efficacy regarding “being a good reader” was a topic many students did not discuss with elaboration. Reports for their situated efficacy that were linked to a particular book
were well formed and detailed. However, students did not appear to have well formed conceptualizations of their generalized ability to read a wide variety of books in a wide variety of situations. Although a student may have stated, “I am a good reader,” we found that this usually referred to being competent in recognizing words in particular books. It did not frequently refer to comprehending texts across a variety of topics for diverse purposes. Perhaps a more general sense of efficacy develops later, after students have more experiences with books and reading.

3.1.4. Reading involvement

The construct of involvement was defined as the experience of being absorbed in reading, and spending extended amounts of time reading. Attributes of this construct emerging from students’ responses included statements about: (a) reading a lot, (b) reading daily, (c) getting lost (or absorbed) in books, (d) reading for a long amount of time, or (e) reading for aesthetic purposes, such as the enjoyment of language, scenes, or fictional characters. Some highly involved students stated that they had a regular time and/or place for reading, made plans to read, read multiple books at the same time, and read a series of books completely.

As with the other motivation constructs, students reported a wide range of involvement experiences. That is, some students reported becoming deeply immersed in books for long periods of time, while others reported that this simply has never occurred in their lives. In this investigation, we distinguished between involvement and interest by the students’ devotion of time to reading. Some students reported moderate to low involvement (short amounts of time), even though they reported substantially high interest in a specific topic. However, the reverse rarely occurred in which students had high involvement and time spent, while expressing lower interest. At the highest levels of involvement, these students planned for large amounts of time reading, had books available, and organized their personal activities to afford reading opportunities. These students also appeared to be capable readers. The most involved students read approximately 4 1/2 h per day in and out of school, according to our estimates. This contrasts to the least involved who read approximately 30 min per day total in and out of school (Guthrie, 2004).

3.1.5. Collaboration

This construct was defined as communicating orally or in writing with other individuals or groups about reading. From this definition and student responses to the interviews, the attributes of collaboration as a motivational construct included: (a) sharing or talking about books with friends or family, (b) reading together with friends or family, (c) borrowing books from friends or family, (d) talking about books with peers in class, (e) sharing writing about books with others, (f) talking with the teacher about reading, and (g) expressing enjoyment of reading books recommended by others. Some students also expressed very positive affect about collaborating with others on reading or sharing books with others.

Interacting socially and collaborating around reading occurred for some students, but not for the majority. The most collaborative students read daily with their parents and friends, usually outside of school. Some students enjoyed talking extensively with their teacher about the content and drama of what they were enjoying. Note, however, that this social and collaborative motivation for reading correlated least well with the
Other motivational constructs. Many students who had high interests, substantial involvement, and well formed self-efficacy were relatively solitary readers. Further, it appeared from a number of the students’ responses that the students’ degree of social connections to reading was influenced by the nature of their family relationships and personal bonds with friends. For example, several children told us they took care of younger siblings, and used reading as a way to pass the time with their brothers and sisters.

3.2. Relations of aspects of reading motivation

The second question was: To what extent do aspects of reading motivation relate to one another? For this research question, we focused on the five general motivation variables derived from the interviews done in September and December (see Table 1). In September, the correlations of the general motivation variables were uniformly statistically significant, with the median point for the correlations at $r(24) = .66$ ($p < .01$). While significant, this shows less than 44% of the variance shared among the motivations. In December, the median point of the correlations was $r(24) = .45$ ($p < .01$). The main reason for this decrease in the median point appears to be that the social motivation variable measured in December did not relate significantly to any other December motivation variable. However, the other motivations were correlated with each other with a median of $r(24) = .64$ ($p < .01$). Thus, it appears that the constructs are moderately correlated and, thus, semi-independent.

3.3. Relations of motivations for narrative and information books

The third research question was: How do children’s motivations for reading narrative and information books relate to one another? The relevant correlations are presented in Table 2; to reduce the number of correlations computed, the composite situated variables for narrative and information text were used in these analyses, rather than each individual variable. These motivations were fairly stable over time. Narrative reading motivation correlated with itself at $r(24) = .72$ ($p < .01$) in September and December, and information book reading correlated with itself at $r(24) = .68$ ($p < .01$) in September and December. However, within a time point, the two different motivations did not correlate as highly with each other. In September, narrative and information book reading motivations correlated at $r(24) = .57$ ($p < .01$), and in December, narrative and information book reading motivations correlated at $r(24) = .51$ ($p < .05$). These correlations were moderate, suggesting that motivations for reading narrative and information books are somewhat distinct.

The distinctions between narrative and information reading motivation can further be observed in these correlations with teacher ratings and reading achievement. In December, the teacher ratings of students’ motivation (REI) correlated significantly with narrative reading motivation, $r(24) = .67$ ($p < .01$). However, the teacher ratings did not correlate significantly with information book reading $r(24) = .37$ (ns). In September, the Gates-MacGinitie Reading Comprehension Test scores correlated significantly with narrative motivation, $r(24) = .52$ ($p < .01$), but not significantly with information motivation, $r(24) = .37$ (ns). In December, the Gates-MacGinitie Reading Comprehension Test scores correlated higher with narrative reading motivation $r(24) = .79$ ($p < .01$) than information
Table 1: Correlations among motivational constructs at two time points

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<td>8. Gen. interest-Dec.</td>
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<td>.42*</td>
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<td>.81**</td>
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<td>10. Gen. social-Dec.</td>
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<td>11. Gen. efficacy-Dec.</td>
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<td>12. Gen. involve-Dec.</td>
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<td>.44*</td>
<td>.69**</td>
<td>.86**</td>
<td>.86**</td>
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<td>.64**</td>
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<td>13. Gen. mot comp-Dec</td>
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<td>14. MRQ-Dec.</td>
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<td>15. Teach. rating-Dec.</td>
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Note. Gen., general. 
Gen. mot. comp., general motivation composite. 
Gen. involve., general involvement; Teach. rating = Teacher rating.
699 reading motivation, \( r(24) = .47 \ (p < .05) \). In sum, narrative reading motivation correlated highly with itself over time, with teacher ratings of students’ motivation, and with standardized reading comprehension. However, information reading motivation, although correlating well with itself over time, was much less well correlated with motivation for narrative, teacher ratings, and standardized reading comprehension.

3.4. Relations of multiple measures of motivation

The fourth question was: How do the students’ interviews, student self-reports on questionnaires, and teacher ratings relate to one another as sources of evidence about student motivation? The relevant correlations are presented in Tables 1 and 2. As discussed earlier, the general motivation variables related highly to one another at each interview time point (see Table 1). The situated variables related strongly to each other at each time point, and there was stability in their relations over time (see Table 2). Also, the General Motivational Composite (which is a combination of reading efficacy and involvement) in September-December correlated highly, \( r(30) = .86, p < .01 \), showing fairly high stability of these motivations across this time period. The General Motivational Composite correlated with the teacher ratings of students (Reading Engagement Index—REI) significantly in September, \( r(30) = -.59, p < .01 \), but only marginally in December, \( r(30) = .45, p < .10 \). The teacher ratings also correlated significantly with many of the situated and general motivation variables measured in September and December (see Tables 1 and 2). Thus, these correla-
tions show concurrent associations between the teachers’ ratings of reading engagement and the interview ratings of students’ motivations.

The students’ self-reported motivations from the MRQ correlated significantly with each other in September and December, \( r(425) = .63 \) (\( p < .01 \)). In December, the students’ self-reported motivations correlated with the REI at a lower level, \( r(425) = .25 \) (\( p < .01 \)). However, MRQ scores did not correlate significantly with any of the general motivation variables derived from the interviews as shown in Table 1, or with any of the situated motivation variables shown in Table 2. Therefore, outside observer (interviewers and teachers) ratings of students’ internal motivation correlated well with each other, but observers’ ratings did not correlate with students’ self-reports of their own motivations.

To examine whether this finding was a consequence of combining data across constructs of internal motivation, we performed a disaggregation. We identified three constructs on which we had teacher ratings, interviewer coding, and student self-reports (interest, self-efficacy, and involvement) and correlated them (see Table 3). The correlations within a method of measurement, and across constructs were moderate to high. The median of 9 within-measure correlation coefficients was \( r(24) = .58 \) (\( p < .001 \)). However, the correlations within a construct and across methods of measurement were relatively low. The median of 9 within-construct across methods correlation coefficients was \( r(24) = .24 \) (ns). The one across-method correlation that was significant was teacher ratings and self-report of efficacy which was \( r(24) = .26 \) (\( p < .05 \)). These results suggest that based on a single rating, in the case of teacher ratings or interviewer coding, and single scales in the case of self-report, the sources of evidence did not agree highly on the level of student motivation on each of the three constructs. Because this could be due to unreliability of single-item measurement, and did not lead to clear patterns of correlation across methods for the constructs, we believe it is best to use the composite data for most analyses.

3.5. Relations of situated and general motivation

The study’s fifth question was: How do students’ motivations for situated and general reading relate to one another? The relevant correlations are presented in Table 2; we used the situated and general composites for these analyses rather than the individual situated and general variables. As can be seen, in September, the situated composite correlated with the general reading motivation composite highly, \( r(24) = .85 \) (\( p < .01 \)). Likewise in December, the situated composite was highly correlated with the general reading motivation

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<th>Variables</th>
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<td>Efficacy (TR)</td>
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3.6. Predicting reading comprehension and reading motivation

Our study’s sixth question was: To what extent does reading motivation predict reading comprehension growth, and to what extent does reading comprehension predict growth of reading motivation, using measures that vary according to text, source, and context? This question was addressed with data represented in Table 4 and multiple regression analyses as shown in Tables 5 and 6. Two comprehension variables were used in these analyses, students’ Gates-MacGinitie scores and students’ scores on the multiple text comprehension measure. The motivation variables were general motivations from the September interviews, consisting of interest, involvement, efficacy, choice, and social. We also used the General Motivation Composite consisting of the combination of self-efficacy and involvement based on the interview coding. This variable was used in these analyses because it showed growth from September to December.

In Analysis #1 of Table 5, the dependent variable was the Gates-MacGinitie Reading Comprehension Test score in December. The independent variable that was entered first in the regression was the Gates-MacGinitie in September, to control for students’ initial reading comprehension. September Gates-MacGinitie scores predicted December Gates-MacGinitie scores significantly, \( R^2 = .56, p < .001 \). When this posttest was controlled for this pretest statistically, the (non error) variance remaining in the posttest represented

<table>
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<th>Variable</th>
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<td>3. General composite motivation-Sept.</td>
<td>30</td>
<td>5.5667</td>
<td>1.92414</td>
</tr>
<tr>
<td>4. Situated total motivation-Sept.</td>
<td>28</td>
<td>25.1071</td>
<td>6.41953</td>
</tr>
<tr>
<td>5. Situated narrative motivation-Sept.</td>
<td>31</td>
<td>13.0645</td>
<td>3.29581</td>
</tr>
<tr>
<td>7. MRQ-Sept.</td>
<td>461</td>
<td>59.0542</td>
<td>9.60589</td>
</tr>
<tr>
<td>8. Gates-MacGinitie-Dec.</td>
<td>29</td>
<td>497.41</td>
<td>49.441</td>
</tr>
<tr>
<td>9. Multiple text comprehension-Dec.</td>
<td>403</td>
<td>3.16</td>
<td>1.219</td>
</tr>
<tr>
<td>10. General composite motivation-Dec.</td>
<td>23</td>
<td>5.9130</td>
<td>1.95199</td>
</tr>
<tr>
<td>11. Situated total motivation-Dec.</td>
<td>22</td>
<td>24.8182</td>
<td>5.23392</td>
</tr>
<tr>
<td>12. Situated narrative motivation-Dec.</td>
<td>24</td>
<td>13.0000</td>
<td>2.79751</td>
</tr>
<tr>
<td>13. Situated info. motivation-Dec.</td>
<td>22</td>
<td>12.0000</td>
<td>3.22195</td>
</tr>
<tr>
<td>15. Teacher rating-Dec.</td>
<td>331</td>
<td>18.0604</td>
<td>4.54166</td>
</tr>
</tbody>
</table>
student change from pretest to posttest. As the mean change was positive, we can refer to the change as growth. Therefore, the next independent variable entered in the regression was tested for the significance of its association with growth in reading comprehension. When interest was entered as the independent motivation variable, it explained 12% of the variance in reading comprehension growth, which was statistically significant ($p < .008$).

As shown in Analysis #2 in Table 5, the motivation variable of choice explained 22% of the variance in reading comprehension growth, which was statistically significant ($p < .001$). Involvement explained 12% of the variance in reading comprehension growth, which was significant ($p < .006$). The variables of efficacy and social did not explain a sig-
significant amount of variance in comprehension growth. The General Motivation Composite in September accounted for 9% of the variance, which was significant at \( p < .05 \). This verifies that these general motivation variables significantly predicted growth in reading comprehension in these conditions (See Table 5.)

To examine the inverse, that reading comprehension would predict reading motivation growth, we conducted a multiple regression with the General Motivation Composite from the interviews in December as the dependent variable. The first independent variable was the General Motivation Composite from the interviews in September, which predicted the December scores significantly, \( R^2 = .77, \ p < .001 \). This afforded the opportunity to predict growth of reading motivation. The second independent variable was the Gates-MacGinitie Reading Comprehension Test score in September. This was not significantly associated with the general motivation dependent variable in December. Therefore, reading comprehension did not predict growth in reading motivation with these measures and this time period.

We further investigated whether motivation predicted comprehension growth using a profile analysis. We inspected a matrix of all the general motivations in the pre-assessment and post-assessment for all the students. It was evident that three profiles of students were present. Profile A consisted of 11 students who entered the study with high interest (3 or 4 in the coding scheme) and retained high interest through to the post assessment. Profile B consisted of 7 students who increased at least one level in either involvement or self-efficacy during the course of the study from pre-to post-assessment. Profile C consisted of 6 students who were low (all motivations at 2 or lower) at both the pre-and post-assessments. From Profile C, one outlier was removed.

We conducted an Analysis of Variance with group (Profiles A, B, and C) as the independent variable, and reading comprehension (Gates-MacGinitie) in December as the dependent variable and Gates-MacGinitie score in September as the covariate to investigate whether these profiles were associated with reading comprehension growth. The main effect was significant, \( F(2/17) = 7.11, \ p < .006 \). Post hoc tests showed that Profile A (high

![Fig. 1. Gain in reading comprehension associated with reading motivation profiles.](image-url)
interest) had higher growth than Profile C (low overall motivation) ($p < .002$). Profile B (motivation composite increase) had higher reading comprehension growth than Profile C ($p < .012$). However, Profile A and B were not significantly different from each other. Thus, the high interest profile group and the motivation composite gain group were both associated with more reading comprehension growth than the low general motivation profile. This is shown in Fig. 1.

Analysis #1 in Table 6 looked at how motivation predicted growth in reading comprehension as measured by the multiple text comprehension variable; the predictive relationship was not significant. We expect that this is attributable to the slightly lower reliability of the multiple text comprehension task than the Gates-MacGinitie Reading Comprehension Test. This result is consistent with the finding that the General Motivation Composite in December correlated higher with the Gates-MacGinitie in December ($r = .63$, $p < .01$), than with the multiple text comprehension score in December ($r = .47$, $p < .05$).

Similar multiple regression analyses were done using motivation as measured by student self-report on the MRQ. In the first, the Gates-MacGinitie score in December was the dependent variable, and the Gates-MacGinitie score in September was entered first as a controlling independent variable, and the September MRQ rating was entered second as the predictor. The MRQ rating did not add a statistically significant amount of explained variance. In the second analysis, the December MRQ rating was entered first as a controlling variable, and the Gates-MacGinitie score in September was entered as the predictor. The Gates-MacGinitie score did not add any statistically significant amount of explained variance. The self-reported motivation data did not yield any predictions of growth. Therefore, it is evident that the interview motivation data predicted reading comprehension growth, but the self-report motivation did not predict reading comprehension growth. This suggests that the multiplicity of source of evidence in motivation should be taken into account in predicting reading comprehension growth.

We were also interested in the predictors of the general reading motivation variable used in the previously described analyses. Because general reading motivation was associated with reading comprehension growth, it is valuable to examine the variables that may be associated with general reading motivation. We focused on certain situated motivation composites as possible predictors. In the first of these analyses (Analysis #2 in Table 6), the General Motivation Composite in December was the dependent variable, and the General Motivation Composite in September was the first independent variable, which accounted for 72% of the variance ($p < .001$). We next entered the situated motivation composite from December, which had an $R^2$ of .81, which meant that it accounted for an additional 9% of the variance beyond that accounted for by the September General Motivation Composite. This was statistically significant at $p < .001$. This result suggests that students who had relatively high situational motivation in December had increased in general motivation more than students who had relatively lower situational motivation in December. Note that multiple regression Analysis #1 in Table 6 showed that the situated motivation composite from September did not significantly predict growth in general motivation from September to December. It was not whether students entered the instruction with situated motivation, but whether students completed the instruction with situated motivation that was associated with their growth in general motivation for reading.
The next two analyses looked at whether general reading motivation growth was better predicted by the situated motivation for information books, or the situated motivation for narrative books. Analysis #3 of Table 6, shows a multiple regression with the General Motivation Composite in December as the dependent variable, and the General Motivation Composite in September the first independent variable; it accounted for 72% of the variance ($p < .001$). The variable of Situated Motivation for Information Books from December was entered next, which accounted for 6% of the variance, and was significant at $p < .05$. Thus, students’ motivation to read information books predicted growth in general reading motivation.

In Analysis #4, a multiple regression was conducted with the General Motivation Composite in December as the dependent variable, and the General Motivation Composite in September as the first independent variable, which accounted for 72% of the variance ($p < .001$). The next independent variable, Situated Motivation for Narrative Books measured in December, did not add significantly to the prediction of general motivation growth. The final analysis (Analysis #5 in Table 6) looked at whether the Situated Motivational total from September added to the prediction of General Motivation in December, beyond the variance predicted from the General Motivation Composite from September. As can be seen, the situated total composite from September did not add predictive power to the equation. Therefore, it appears that students’ situated motivation for information books in December explained a significant amount of variance in general reading motivation growth under the conditions of this study.

Our findings suggest that the multiplicity of situated reading motivation for different texts is important in understanding how situated motivation predicted general motivation. That is, motivation for reading information books predicted an increase in general motivation, but motivation for reading narrative books did not predict the increase in general motivation. Thus, understanding the text genre as a source of multiplicity in reading motivation is useful for understanding the growth of reading motivation.

4. Discussion

Researchers increasingly are calling for studies of motivation in specific domains, rather than treating motivation as a general phenomenon (Bong, 2004; Wigfield et al., 2004). This study was designed to investigate characteristics and attributes of elementary school-aged children’s motivations. We studied multiple aspects of reading motivation, including motivation for different types of texts, and varying sources of evidence for motivation. We also looked at how growth of reading motivation related to growth in reading comprehension, as well as how growth in reading motivation itself was predicted by multiple measures of motivation.

With respect to the characteristics and attributes of motivation, we focused on students’ internal motivations including: (1) interest, (2) perceived control, (3) self-efficacy, (4) involvement, and (5) collaboration. We chose these constructs because of their centrality to the engagement model of reading development (Guthrie & Wigfield, 2000), and their documented relations to reading comprehension. To date, little attempt has been made to examine the multidimensionality of these constructs based on interviews. These interviews elaborated and enriched our understanding of the nature of children’s reading motivation as seen by the children themselves.
For interest, it was quite apparent from students’ responses that interest and positive affect for reading invariably were associated with high cognitive recall and comprehension of text. Thus, when students were interested they were highly cognitively engaged, and students’ responses showed the interrelations of these two processes in ways that elaborate our understanding of these relations. As Renninger (2000) suggested, students with high interest are often quite knowledgeable in their preferred domain. They value the domain and their interest grows as their information base and cognitive commitment to it increase. This study illustrates the depth of these relations.

For perceived control, students at the highest level of this construct preferred to choose their own books, valued such choices highly, and had elaborate strategies for selecting books. Students for whom choice was important had ways of ensuring they had opportunities to make choices. Interestingly, however, we found that many of the students thought others, like parents and teachers, made better reading choices for them, and so they did not have a strong desire to choose what they read. Moreover, some students expressed that they like both making their own book choices, as well as having close, trusted others choose books for them. This suggests that perhaps students can be motivated by both personal choice and choices made by close others (Iyengar & Lepper, 1999). Our study supports findings from other researchers showing that choice in the classroom is quite complicated, and deserves to be investigated at a more micro-level (Stefanou, Perencevich, DiCintio, & Turner, 2004).

Empirical literature refers to perceived control as the belief that one’s behavior can influence one’s own experience or the external environment (Skinner et al., 1990). We observed that while perceived control in reading is important to highly motivated readers, such students do not engage in controlling behaviors for their own sake, but usually for the purposes of finding books, affording themselves reading experiences, and enjoying new authors who are personally relevant and linked to their knowledge of the world. Students who preferred to choose their own books saw such choices as a way for them to express their autonomy and ownership over their own reading, providing support for Ryan and Deci’s (2000) postulate that when students are autonomous they are intrinsically motivated.

In the interviews, students appeared to define their reading self-efficacy with respect to how well they handled difficult words and passages in books. Two additional findings were particularly interesting. First, students did not define reading efficacy in terms of broader reading comprehension skills, focusing instead on hard words or difficult passages. Thus, they defined efficacy quite specifically. Second, many students did not seem to have a clear sense of their general reading efficacy, or at least did not have a lot to say about it. Their sense of reading efficacy was tied to their word and sentence level skills. These two findings may have occurred because we interviewed fourth graders, who may still define their efficacy primarily with respect to specific skills. It would be interesting to do a similar study with older children to see if their sense of general reading efficacy is more clearly defined and expressed, as Bandura (1997) might predict.

Students’ involvement in reading was characterized by large amounts of time spent reading, absorption in different books, and the importance of reading as an activity for the students. Students highly involved in reading seem to define themselves as readers, and devote much time and energy to reading. Finally, several interesting findings emerged with respect to collaboration. First, a number of students reported that reading with others was important to them, and they had strong positive affect associated with collabora-
tion. However, a number of other children who seemed highly engaged in reading said they did not collaborate often. Some children also stated that their collaborations in reading were defined by relationships, rather than collaborations leading to relationships with others. Thus, collaboration with others did not appear a necessary condition for all children to engage fully in reading.

Across these constructs, there were a number of connections in the interviews, most notably those between interest and control or choice, and interest and involvement. Children expressing a great deal of interest in reading liked choosing what they read, and were highly involved in reading, whereas children less interested were not as involved in reading or did not think choosing what they read was that important. As just noted, collaboration in reading did not appear to connect as closely to the other reading motivations.

These connections were corroborated by the moderate correlations among the motivations especially in September, but also in December. In December, social collaboration failed to correlate significantly with the other motivations. From the standpoint of multidimensionality, these motivations were moderately associated statistically. The moderate association may be due to mutual effects. For example, a student with high involvement, immersed in many reading activities, is likely to gain high efficacy for reading due to the known effect of the amount of reading on reading competence (Cunningham & Stanovich, 1997). The associations among these five constructs suggest that they can be treated as semi-independent. While having somewhat distinctive qualities, these different aspects of internal motivation for reading can be combined in a composite in statistical analyses of the relation of internal motivation with other variables such as reading comprehension.

Another way the interviews provided a more elaborated understanding of children’s motivation is by revealing motivational constructs that had not appeared in the previous literature. We asked students about other reasons for their reading and aspects of their connections to books beyond the primary set of motivation constructs addressed. A substantial proportion of students reported that knowledge and information was what they were seeking in books. We did not create this as a formal construct nor place it in our rubric, because we did not systematically ask all students about the extent that they read for knowledge. However, many students volunteered that they wanted to learn about their favorite topic, enjoyed gaining information, or liked being very well informed in certain domains. Being knowledgeable was an explicit goal mentioned by many, and while it is a commonsense purpose for reading, it has not been formalized quantitatively in prior research as a motivational construct. We believe that reading for the purpose of knowledge development is a vitally important motivational attribute for future investigation.

The second issue we addressed with respect to reading motivation was its multiplicity across text genres. We examined children’s motivation for reading narrative and information books, asking about each book type in the interviews. Students’ motivations for both genres were reliable and stable (i.e., highly correlated) across time, but correlated with each other in the low to moderate range. These findings show that these motivations are semi-independent. We suggest that reading narrative texts is often affectively laden, and that readers adopt affective goals for narrative reading. They seek excitement, emotional relationship with characters, interpersonal drama, and a range of aesthetic experiences. Reading information books, in contrast, is energized by goals of reading for knowledge, seeking information, and the desire to explain our physical or cultural worlds. Thus, motivations for reading narrative and information books should be distinguished in
studying how motivation develops or how it relates to other factors such as reading comprehension.

Further, reading motivation for narrative texts correlated with teachers’ ratings, and standardized reading comprehension, but reading motivation for information books did not correlate significantly with either of these other variables. This may be due to inaccessibility of information books in classrooms and, thus, students cannot do wide reading of this sort. Therefore, students with this motivation do not have as much opportunity to learn key comprehension strategies, such as inferencing and self-questioning. Finally, teachers did not perceive this motivation for information books to reflect “real” internal motivation (judging from the non-significant correlation of teacher ratings and student self-report of motivation for information book reading) and, thus, may not have encouraged it as much as narrative reading, which may result in slightly lowered comprehension.

We further examined the multiplicity of motivation by looking at different sources or types of evidence about students’ motivation. Do students’ self-reports yield similar findings to reports of others, such as interviewers or teachers? We found some interesting patterns here. The teacher’s rating of student motivation (REI) correlated positively with the interview-based general composite in September and December. As “others,” teachers and interviewers concurred on the levels of students’ motivations. The picture for self-reported motivations was different, however. Although the MRQ showed reliability by correlating with itself in September and December, the MRQ did not correlate significantly with the interview composite in September or December. The MRQ correlated modestly with the teacher ratings in September and December. It appeared that students’ perceptions of their motivations were not associated highly with the interviewers’ perceptions of students’ motivations, or the teachers’ perceptions of students’ engagement in reading.

This low association between self-reports and observer reports of students’ motivations could be due to the normative vs. absolute basis for the reports. When asked about a motivation, such as interest in a narrative book, a student expressed an affect such as “it’s exciting” or “it’s boring.” The expression was based on an absolute criterion of how they felt, and how strongly they felt. Individuals do not reference such statements about their interest, involvement, value of autonomy, or collaboration to the affects of other students. However, the observers in this study made normative ratings. They each rated students’ levels of interest in reading, for example, in comparison to other students in the class. As a consequence, motivation as perceived by the self is not isomorphic with motivation as perceived by others. Thus, multiplicity of source of evidence appears to contribute to multiplicity of reading motivation.

It is possible there is a difference between asking observers to rate student’s on the characteristic of whether “I believe the child is confident or efficacious” or whether “I believe the child feels himself/herself to be confident or efficacious.” The latter may correlate with children’s self-report more highly than the former. If so, the different measures used here may have actually measured slightly different motivational constructs. It is also possible that the measures tapped the same construct, but some children’s absolute scale is broader than others. That is, some students with strong affective responses may rate their reading motivation high and convert this motivation to broad and deep reading. Other students with relatively weaker affective responses may rate their reading motivation high, but do not devote a high amount of cognitive effort or volitional strategies to reading broadly or deeply. These issues appear to warrant further research. At present, it appears that when the purpose of measuring motivation is to relate it to achievement, then teacher...
or observer ratings are desirable, but when the purpose is to understand the students’ felt
affects, then self-reports may be advantageous.

We attempted to investigate the growth of reading comprehension and reading motiva-
tion, taking into account these observed sources of multiplicity. Our findings were that
reading motivation from the interviews predicted growth in reading comprehension. That
is, students’ motivational level in September predicted their increases in comprehension on
the standardized test from September to December. These data suggest that upon entering
fourth grade, motivation was a contributor to comprehension growth in this time period.
However, the inverse did not occur. Reading comprehension level of students measured
from interview coding did not influence their motivation growth, according to the multiple
regression analyses. Also, student self-reported motivation on the MRQ did not predict
reading comprehension growth. Consequently, the source of evidence for motivation
determined whether growth predictions were found. Thus, multiplicity with respect to
source of data is important in studying growth patterns. We found that reading compre-
hension growth was predicted by motivation as observed by interviewers, but not as self-
reported by students. Note that one limitation of this study is that the number of students
in these regression analyses was relatively low. This may limit the generalizability to other
samples, and may also obscure some possible relationships. These relationships should be
studied further in larger samples of children of different ages.

For this age group, Gottfried (1990) previously reported that reading achievement on a
standardized test at ages 7 and 8 predicted intrinsic motivation at age 9. From this it might
be inferred that comprehension was a precursor, and perhaps a causal variable, influencing
the development of motivation. The difference between our findings and those of Gottfried
could be attributed to the different ages of the students in the two studies. Differences
could also be due to the contrast in evidence for motivation. We used an interview,
whereas she used student self-reports on a questionnaire to measure motivation. The stud-
ies also differed in time span (we examined 3 months and she examined 12 months). Clear-
ly, further research is needed on the topic of motivational and comprehension growth in
this age group.

We believe that the interviews shed light on the growth pattern that we observed. Our
enriched understanding of the motivational attributes of students in this investigation
points toward important cognitive and conceptual attributes or correlates, of the motiva-
tional constructs. For example, students who had high interest, based on their positive
affect and enthusiasm for specific topics or authors, also had high memory for plots
and topics, which implies high comprehension for the books they read. Students with
low interest had dramatically lower memory, and presumably lower comprehension, dur-
ing their reading. A highly interested reader, in other words, does not merely have positive
affective responses separable from other portions of his reading process. These students
appear also to comprehend deeply. Therefore, as these highly involved, highly interested,
highly efficacious students enter fourth grade, they are readers who consume a lot of books
and comprehend them at relatively substantial levels. This high comprehension for a sub-
stantial number of books plausibly leads to improvement in their reading comprehension.
Furthermore, students highly interested in reading appeared to have strong, personal
attachments to certain topics in reading and reading as an activity. They expressed own-
ership over the topics, and personal relatedness to the characters in books.

In contrast, the students with low involvement (low amounts of time spent reading),
low efficacy (doubting their capability), and low interest (no favorite topics or authors)
in September, were not likely to create for themselves the literacy opportunities that would enable them to increase in comprehension. Their motivational attributes did not afford enough encounters at sufficient depth to improve their reading comprehension.

We also observed predictors of growth in students’ general reading motivation. Our finding was that students’ level of situated motivation in December predicted their growth in general motivation from September to December. The situated motivation referred to the degree of involvement in particular books, time spent reading specific books of high interest, and efficacy for reading specific texts that were brought to the interview. It is important to note that this predictive measure occurred in December, but not in September. Students with situated motivation in September did not necessarily show more general motivation growth. However, students with situated motivation in December showed more motivation growth than students with lower situated motivation in December. This suggests that if students had acquired a high-level involvement for specific books and efficacy for specific books, then their general motivation growth had increased during the time period of the investigation. Of course, these are correlational data and the direction of causality is unknown. It is possible that students who increased in general motivation were able to increase their own situated involvement and efficacy by finding books they were confident in reading and spending a substantial amount of time with them. More studies should be done to elaborate and explain this relationship between situated motivation and growth of generalized reading motivation. However, these findings provide one possible way in which situated and general motivation may connect, and so provide an empirical assessment of some of Hidi and Harackiewicz’s (2000) expectations. It would be interesting to build on this research by conducting interview studies with children at different ages, to capture more fully their sense of their specific and general reading motivations for different genres, and how they relate to reading comprehension.

5. Uncited references

Guthrie et al. (2006), Skinner and Belmont (1993).

Appendix A. Interview questions

Narrative Book:

Warm-up
1. Where did you get this book?
2. What is it about?

Interest
3. Was this book interesting? Tell me more about that.
4. What kinds of books are interesting to you?

Perceived control
6. Did you choose this book?
7. Why did you pick this one?
8. Do you like it more when someone else gives you a book or when you pick out a book by yourself?

Collaboration
10. Did you talk to anyone about this book?
11. Did you read this book aloud with anyone?

**Efficacy**
13. Were you good at reading this book? What made you think that?
14. Were there any hard parts in this book? What did you do when you came to those parts?

**Involvement**
16. About how long did it take you to read this book? How many days, and how many minutes each day?
16a. When do you usually read?
17. Was this book so good you couldn’t stop reading it?

**Information Book:**

**Warm-up**
19. Where did you get this book?
20. What is it about?

**Interest**
21. Was this book interesting? Tell me more about that.

**Perceived control**
23. Did you choose this book?
24. Why did you pick this one?

**Collaboration**
26. Did you talk to anyone about this book?
27. Did you read this book aloud with anyone?
28. Do you ever talk about or read books with other people?

**Efficacy**
30. Were you good at reading this book? What makes you think that?
31. Were there any hard parts in this book? What did you do when you came to those parts?
32. How do you know whether you are a good reader?

**Involvement**
34. About how long did it take you to read this book? How many days, and how many minutes each day?
34a. When do you usually read?
35. Was this book so good you couldn’t stop reading it?
36. How often do you spend a lot of time reading a book?

**Broader Reading Questions**
37. What is your all-time favorite book?
38. What do you like best about reading?
39. Do you think of yourself as a reader? Why or why not?
40. Why do you spend time reading?
41. Are there other things you like to read besides books?
42. Is reading important to you? What makes you think that?
43. What do you like to do for fun?
References


