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ABSTRACT

A study assessed dimensions of children's reading motivations by giving them a revised version of the Motivations for Reading Questionnaire (MRQ). The MRQ is designed to assess 11 possible dimensions of reading motivations, including reading efficacy, several intrinsic and several extrinsic reading motivations, social aspects of reading, and the desire to avoid reading. Approximately 600 fifth- and sixth-grade children completed the MRQ as part of a larger intervention study designed to increase children's reading comprehension and enjoyment of reading. Analyses of children's responses to the MRQ showed that many of these dimensions can be identified, and measured reliably. Scales based on the different dimensions related positively to one another, and negatively to the desire to avoid reading. Several of the scales related to children's reports of their reading frequency, and to their performance on four measures of reading achievement. (Contains 40 references and 8 tables of data.) (Author/RS)

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The Nature of Children's Motivations for Reading, and Their Relations to Reading Frequency and Reading Performance

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About the National Reading Research Center

The National Reading Research Center (NRRC) is funded by the Office of Educational Research and Improvement of the U.S. Department of Education to conduct research on reading and reading instruction. The NRRC is operated by a consortium of the University of Georgia and the University of Maryland College Park in collaboration with researchers at several institutions nationwide.

The NRRC's mission is to discover and document those conditions in homes, schools, and communities that encourage children to become skilled, enthusiastic, lifelong readers. NRRC researchers are committed to advancing the development of instructional programs sensitive to the cognitive, sociocultural, and motivational factors that affect children's success in reading. NRRC researchers from a variety of disciplines conduct studies with teachers and students from widely diverse cultural and socioeconomic backgrounds in pre-kindergarten through grade 12 classrooms. Research projects deal with the influence of family and family-school interactions on the development of literacy; the interaction of sociocultural factors and motivation to read; the impact of literature-based reading programs on reading achievement; the effects of reading strategies instruction on comprehension and critical thinking in literature, science, and history; the influence of innovative group participation structures on motivation and learning; the potential of computer technology to enhance literacy; and the development of methods and standards for alternative literacy assessments.

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Abstract. *We assessed dimensions of children's reading motivations, by giving them a revised version of the Motivations for Reading Questionnaire (MRQ). The MRQ is designed to assess 11 possible dimensions of reading motivations, including reading efficacy, several intrinsic and several extrinsic reading motivations, social aspects of reading, and the desire to avoid reading. Approximately 600 fifth- and sixth-grade children completed the MRQ as part of a larger intervention study designed to increase children's reading comprehension and enjoyment of reading. Analyses of children's responses to the MRQ showed that many of these dimensions can be identified, and measured reliably. Scales based on the different dimensions related positively to one another, and negatively to the desire to avoid reading. Several of the scales related to children's reports of their reading frequency, and to their performance on four measures of reading achievement.*

Much of the research on children's reading has investigated the cognitive aspects of reading, and we have learned much about these aspects of reading (e.g., see Barr, Kamil, Mosenthal, & Pearson, 1991; Ruddell, Ruddell, & Singer, 1994 for reviews). Yet because reading is an effortful activity that children often can choose to do or not to do, it also requires *motivation* for children to engage in literacy activities. Motivation theorists try to understand the choices people make about which activities to do, the extent to which they persist at those activities, and the level of effort they exert. However, because most reading researchers have focused on cognitive aspects of reading, we still do not understand fully the nature of children's reading motivations. The engagement perspective on reading that undergirds much of the work at the National Reading

Research Center (NRRC) focuses on both cognitive and motivational aspects of engagement in reading (see Baker, Afflerbach, & Reinking, 1996; Guthrie, McGough, Bennett, & Rice, 1996). Researchers at the NRRC are beginning to study the nature of children's reading motivations, along with continuing to study cognitive aspects of reading.

In this report, we present results of a study of children's motivations for reading. This project is a follow-up to an earlier study of children's reading motivations that provided evidence of different aspects or dimensions of children's reading motivations (Wigfield & Guthrie, 1995). The purposes of the present study were to assess further the nature of children's reading motivations, assess relations of the various dimensions of reading motivations to children's reading frequency, and assess relations of reading motivations to different measures of children's reading performance. We begin this report with a consideration of the motivational constructs that informed the development of a questionnaire measure of children's motivations for reading (see Eccles, Wigfield, & Schiefele, in press; Oldfather & Wigfield, 1996; and Wigfield & Guthrie, 1995, for more detailed reviews of research on these motivational constructs).

Many current motivation theorists propose that individuals' beliefs, values, and goals for achievement play a crucial role in their decisions about which activities to do, how long to do them, and how much effort to put into them (e.g., Bandura, 1977; Eccles et al., 1983; Nicholls, 1990; Stipek & Mac Iver, 1989; Weiner, 1992 Wigfield & Eccles, 1992). A variety of beliefs and values have been studied; the most prominent of these are *competence and efficacy beliefs*, *achievement values*, *achievement goals*, and *intrinsic/extrinsic motivation*.

Competence beliefs are children's evaluations of their ability in different areas. Researchers have documented that children's and adolescents' competence beliefs relate to and predict their achievement performance in different achievement domains like math and reading (e.g., Eccles et al., 1983; Meece, Wigfield, & Eccles, 1990; Nicholls, 1979a). That is, when children's and adolescents' competence beliefs are more positive, they tend to perform better.

Bandura's (1977) construct of *self-efficacy* deals with individuals' expectancies about being able to do tasks, and he proposed that individuals' efficacy expectations for different achievement tasks are a major determinant of activity choice, willingness to expend effort, and persistence. In work with school-aged children Schunk and his colleagues have demonstrated that students' sense of efficacy relates to their academic performance (see Schunk, 1991b, for a review). They also have shown that training students both to be more efficacious and to believe they are more efficacious improves children's achievement in different subject areas such as math and reading (e.g., Schunk & Rice, 1993). An important implication of the work on ability and efficacy beliefs for motivation for reading is that when children believe they are competent and efficacious at reading, they should be more likely to engage in reading.

Individuals' *valuing* of an activity refers to their incentives for doing different activities,

or their reasons for engaging or not engaging in an activity. Subjective task values are crucial to motivation and engagement; even if individuals believe they are competent and efficacious at an activity, they may not engage in it if they have no incentive for doing so.

Eccles, Wigfield, and their colleagues have done much of the recent work on the nature of children's and adolescents' subjective task values, and how their values relate to their performance and choice of different activities (see Wigfield, 1994; Wigfield & Eccles, 1992, for reviews). One important finding from this work is that students' ability beliefs and expectancies for success predict their performance in mathematics and English. However, children's subjective task values predict both intentions and actual decisions to keep taking mathematics and English (Eccles et al., 1983; Meece et al., 1990). These findings suggest that students' valuing of reading may be one of the more important predictors of their engagement in reading activities.

In related work, Pintrich and De Groot (1990) looked at how students' valuing of achievement related to their cognitive strategy use. They found that seventh-grade students' perceived self-efficacy and valuing of science and English learning related positively to their reported use of cognitive strategies and self-regulation in those two subject areas. However, in their regression analyses predicting different measures of performance from the motivational variables, strategy use, and perceived self-regulation, they found that the cognitive strategy and self-regulation scales directly predicted performance, whereas efficacy beliefs and values did not. Pintrich and De Groot (1990) suggested that the effects of self-efficacy and values on performance were mediated through the other measures. They argued that students' self-efficacy may facilitate their cognitive engagement, and that their subjective task values relate to their choices about whether to become engaged, but their use of cognitive strategies and self-regulation relate more directly to performance. These results show how motivation and cognition can work together to facilitate (or impede) performance on different school subjects Pintrich and Schrauben (1992) provide a theoretical model describing relations between motivation and cognition (see also Pintrich, Marx, & Boyle, 1993). In terms of reading, these findings suggest that students who believe they are efficacious at reading and value it as an activity should use more elaborate cognitive strategies as they read, and thus read better.

Currently, motivation researchers are also quite interested in children's *achievement goals*, which (like values) is a construct referring to the reasons or purposes children have for doing different activities. Some researchers studying children's goals (e.g., Ames, 1992; Dweck & Leggett, 1988; Nicholls, 1979b; Nicholls, Cheung, Lauer, & Patashnick, 1989) defined different broad goal orientations toward achievement (e.g., goals to learn or master material, or goals to outperform others), and discussed how these goal orientations influence motivation. Others (e.g., Schunk, 1991a) looked at more particular aspects of goals, such as whether they are distal or proximal, or general or specific. Still others (e.g., Wentzel, 1991, in press) proposed that students have multiple goals in achievement settings,

including both academic and social goals. Such goal orientations and goals influence children's approach to achievement.

Intrinsic motivation refers to being motivated, curious, and interested in an activity for its own sake, rather than for "extrinsic" reasons such as working for a reward or grade (see Deci & Ryan, 1985; Harter, 1981). One aspect of intrinsic motivation is becoming totally involved in the activity one is doing. Many readers have experienced what Csikszentmihalyi (1978) describes as the "flow experience," losing track of time and self-awareness when becoming completely involved in an activity such as reading a book. Oldfather (1992) presented a social constructivist conception of intrinsic motivation identified as the Continuing Impulse to Learn (CIL). CIL is defined as an ongoing participation in learning that is motivated by the learner's thoughts and feelings that emerge from the learner's processes of constructing meaning. An important implication of these theorists' work is that readers' engagement in reading will be greatly facilitated when they are intrinsically motivated to read and find personal meaning in the reading that they do.

In the reading field, the motivational construct most similar to intrinsic motivation is children's interest in reading (see Alexander, Kulikowich, & Jetton, 1994, for a review of the work on interest's effects on text comprehension). Researchers have examined how interest affects comprehension. For instance, Renninger (1992) found in studies of fifth- and sixth-grade children that interest in the materials enhanced comprehension, even of materials that were difficult for children. Thus, interest in reading is an important motivational variable influencing reading performance.

In sum, different motivations have been shown to relate to individuals' engagement in different tasks, including reading. These include ability and efficacy beliefs, valuing of achievement, achievement goals, and intrinsic and extrinsic motivations. To explore these relations more specifically in the reading domain, Wigfield & Guthrie (1995) developed a questionnaire measure of children's motivations for reading; this measure is discussed next.

The Motivations for Reading Questionnaire (MRQ)

The MRQ was designed to assess 11 different possible dimensions of reading motivations (see Wigfield & Guthrie, 1995; and Wigfield, Guthrie, & McGough, 1996, for a more complete discussion of the development of the original version of the questionnaire). The dimensions were derived from the work on motivational constructs reviewed in the previous section, as well as from interviews with children about what motivates them to read. The first two dimensions are based on the competence and efficacy belief constructs, and also include the notion that reading often is something that requires hard work to accomplish. These dimensions are *Reading Efficacy*, the belief that one can be successful at reading, and *Reading Challenge*, the satisfaction of mastering or assimilating complex ideas in text.

The next set of dimensions are based in the work on intrinsic motivation, values, and

goals. These dimensions encompass both intrinsic and extrinsic aspects of reading motivations as well as learning and performance goals. The dimensions based on intrinsic motivations and values and learning goals include *Reading Curiosity*, the desire to learn about a particular topic of interest to the child; *Reading Topics Aesthetically Enjoyed*, or the enjoyment of experiencing different kinds of literary or informational texts; and *Importance of Reading*, which is a dimension taken from Eccles' and Wigfield's work on subjective task values (e.g., Eccles et al., 1983; Wigfield & Eccles, 1992). The notion of aesthetic enjoyment gained from reading refers to the pleasure gained from reading a well-written book or article on a topic one finds interesting. Although this construct likely is similar in certain ways to being motivated out of intrinsic interest, it is something that may be unique to the reading area, and so is different from traditional definitions of intrinsic motivation. Several dimensions reflect more extrinsic motivations and performance goals. These include *Recognition for Reading*, the pleasure in receiving a tangible form of recognition for success in reading; *Reading for Grades*, the desire to be favorably evaluated by the teacher, and *Competition in Reading*, the desire to outperform others in reading. These different motivations reflect the fact that children do much of their reading in school, where their reading performance is evaluated and compared to others' performance. Thus, recognition, grades, and competition may figure prominently in their motivations for reading.

The final dimensions include social aspects of reading, because reading often is a social activity. One proposed dimension is *Social Reasons for Reading*, or the process of sharing the meanings gained from reading with friends and family. A second is *Compliance*, or reading because of an external goal or requirement. These dimensions are based on the work on achievement goals in the motivation literature. With the exception of Wentzel's (1991, in press) work in the general motivation literature, social goals for achievement have not often been discussed. Such goals seem essential for reading motivation. Finally, a set of items asked students what they do not like about reading; this dimension was called *Reading Work Avoidance*.

The original MRQ contained 82 items to measure these different constructs. The questionnaire was given to approximately 100 fourth- and fifth-grade students twice over the course of a school year. Various statistical analyses were conducted to assess the proposed dimensions of reading motivations, and to determine whether the items had good psychometric qualities (see Wigfield & Guthrie, 1995, for more detailed description). These analyses included basic descriptive statistics to look at the skewness of the items, item-total correlations to see how each item related to the dimension it was proposed to measure, internal consistency reliabilites to assess how reliable the different proposed dimensions are, and factor analyses to assess the structure of the data set. These analyses showed that a number of the proposed dimensions could be clearly identified and had good internal consistency reliabilites. These dimensions included Reading Efficacy, Reading Challenge, Curiosity, Aesthetic Enjoyment, Recognition, Social, Compe-

tition, and Reading Work Avoidance. Based on these analyses 28 of the original items were dropped, so that the revised MRQ contained 54 items.

Wigfield and Guthrie (1995) also obtained information about children's reading frequencies from two different measures. They administered to children the Reading Activities Inventory (Guthrie, McGough, & Wigfield, 1994), a measure that asks children to list titles of different kinds of books they recently read, and to indicate how often they read different kinds of books. They also obtained a measure of children's reading frequency in a school-based reading program that encouraged children to read books. Wigfield and Guthrie related the dimensions of reading motivations to these measures of reading frequency. The dimensions relating most strongly included Social, Reading Efficacy, Curiosity, Aesthetic Enjoyment, Recognition, Grades, and Reading Importance. Thus both more intrinsic and more extrinsic reasons for reading related to children's reading frequencies, although overall it appeared that the intrinsic motivations for reading related more strongly to reading frequency than did the extrinsic motivations.

Because the results of this initial study were encouraging, the present study was conducted to assess further the nature of children's reading motivations and how those reading motivations relate to children's reported reading frequency and reading performance. The following questions were addressed:

1. What are the different dimensions of children's motivations for reading? We predict that the various dimensions can be identified and measured reliably.

2. What is the mean level of children's reading motivations? This question was addressed to see which of the dimensions of reading motivations children endorsed most and least.

3. How do children's reading motivations relate to their reading frequency and reading performance? Based on results of the first study, we predicted that the intrinsic motivations would relate most strongly and positively to reading frequency and performance. Reading Work Avoidance was expected to relate negatively to these measures.

Method

Sample

Children participating in this project were taking part in a larger project being conducted in a large mid-Atlantic city (see Baker, Scher, & Fernandez-Fein, 1995, for a more detailed description of the project). This school-based project was designed to enhance children's reading achievement and school participation, by providing them with experiences with a rich literature- based curriculum called the Junior Great Books (JGB) Curriculum. The curriculum is designed to provide students exposure to a variety of excellent stories, give them opportunities to discuss the stories interpretively with their teachers and with other students, and write their own reactions to the stories.

Through these activities reading comprehension should be enhanced.

The larger project took place in six schools in the city, and participating children were in fifth and sixth grades. Half of the classrooms participated in the program, and the other half served as comparison classrooms. The comparison classrooms received the school district's regular reading curriculum. There were 650 children participating in the project, with the sample evenly divided between boys and girls. Forty-five percent of the sample were African American children, 53% were Caucasian, and the other 2% were Asian and Hispanic children. Because in this report we are concerned with overall relations of reading motivations to reading performance, we conducted the analyses reported below on the entire sample.

Measures

The Motivations for Reading Questionnaire. This 54-item questionnaire is designed to assess the 11 different aspects of reading motivations described earlier. The items and the motivational dimension each measures are presented in Table 1. Children answered each item on a 1 to 4 scale, with answer choices ranging from "very different from me" to "a lot like me." Along with the items assessing motivation, two items assessing reading frequency were included. These two items were taken from the Reading Activity Inventory developed by Guthrie et al. (1994). One asked if children had read a book for fun in the last week, and if so, to give the title or author. The second asked children to say how often they read a book for fun; this question was answered on a 1 to 4 scale. These questions were asked to get a self-report measure of children's reading frequency.

Gates-MacGinitie Reading Test. Children completed the two subscales of the Level 5/6 version of the Gates-MacGinitie Reading Test, 3rd edition Forms K and L (MacGinitie & MacGinitie, 1989), in the fall and spring of the school year. The two subscales of the test are: (1) the vocabulary subtest, which is a 45-item test of children's reading vocabulary; and (2) the comprehension subtest, which contains 14 reading passages and 48 questions about those passages. This test provides a general indication of children's level of reading achievement; it is a frequently used reading test that has excellent reliability. The test was scored following procedures given in the testing manual.

Performance Assessment measure. Children also completed an additional measure of their reading performance, one developed specifically for this project. This measure was designed to assess the higher-order reading and thinking skills the JGB curriculum is designed to enhance. Four short stories appropriate for grades 5 and 6 were selected, and two types of open-ended questions were generated for each. These kinds of questions are considered *interpretive* and *evaluative* in the JGB curriculum. Interpretive questions were based on material in the story, but had no right or wrong answers. Students could give several plausible answers based on information available in the story. Evaluative questions required children to go beyond the information given in the story to draw conclusions or state their opinions. A scoring rubric, based on the Maryland State

Table 1. Scales and Factor Loadings on The Motivations for Reading Questionnaire

	Scales	Factor Loadings
	READING EFFICACY	
3.	I know that I will do well in reading next year	.71
9.	I am a good reader	.71
15.	I learn more from reading than most students in the class	.70
50.	In comparison to my other school subjects I am best at reading	.70
	READING CHALLENGE	
2.	I like hard, challenging books	.65
7.	I like it when the questions in books make me think	.67
26.	I usually learn difficult things by reading	.60
44.	If the project is interesting, I can read difficult material	.68
48.	If a book is interesting I don't care how hard it is to read	.68
	READING CURIOSITY	
5.	If the teacher discusses something interesting, I might read more about it	.61
8.	I read about my hobbies to learn more about them	.60
13.	I read to learn new information about topics that interest me	.72
16.	I like to read about new things	.75
20.	If I am reading about an interesting topic, I sometimes lose track of time	.44
45.	I enjoy reading books about people in different countries	.62
	READING TOPICS AESTHETICALLY ENJOYED	
10.	I read stories about fantasy and make believe	.53
24.	I make pictures in my mind when I read	.60
33.	I like mysteries	.61
30.	I feel like I make friends with people in good books	.55
41.	I enjoy a long, involved story or fiction book	.67
46.	I read a lot of adventure stories	.68
	IMPORTANCE OF READING	
53.	It is very important to me to be a good reader	.89
54.	In comparison to other activities I do, it is very important to me to be a good reader	.89
	READING RECOGNITION	
14.	My friends sometimes tell me I am a good reader	.61
17.	I like hearing the teacher say I read well	.73
29.	I am happy when someone recognizes my reading	.75
31.	My parents often tell me what a good job I am doing in reading	.65
36.	I like to get compliments for my reading	.72

	READING FOR GRADES	
19.	I look forward to finding out my reading grade	.70
37.	Grades are a good way to see how well you are doing in reading	.80
39.	I read to improve my grades	.74
40.	My parents ask me about my reading grade	.62
	READING COMPETITION	
12.	I like being the only one who knows an answer in something we read	.54
18.	I like being the best at reading	.72
22.	It is important for me to see my name on a list of good readers	.58
43.	I try to get more answers right than my friends	.75
49.	I like to finish my reading before other students	.77
51.	I am willing to work hard to read better than my friends	.78
	SOCIAL REASONS FOR READING	
1.	I visit the library often with my family	.43
11.	I often read to my brother or my sister	.47
20.	I sometimes read to my parents	.69
21.	My friends and I like to trade things to read	.66
34.	I talk to my friends about what I am reading	.73
38.	I like to help my friends with their schoolwork in reading	.62
42.	I like to tell my family about what I am reading	.72
	COMPLIANCE	
*4.	I do as little schoolwork as possible in reading	-30
*6.	I read because I have to	-13
25.	I always do my reading work exactly as the teacher wants it	.66
32.	Finishing every reading assignment is very important to me	.79
47.	I always try to finish my reading on time	.80
	READING WORK AVOIDANCE	
23.	I don't like reading something when the words are too difficult	.64
27.	I don't like vocabulary questions	.68
28.	Complicated stories are no fun to read	.72
52.	I don't like it when there are too many people in the story	.55

Note. Numbers in front of the items indicate placement in the questionnaire. Asterisks indicate the items were not used in scale construction for that construct. Factor loadings are from the analyses of the item sets for each separate proposed dimension of reading motivation.

scoring rubric, based on the Maryland State Performance Assessment scoring rubric, was developed by Baker et al. (1995) and used to score the answers to these questions. Two independent scorers scored students' responses; the average agreement of the scorers was 75%, and disagreements were resolved through discussion (see Baker et al., 1995, for more details on this measure and how it is scored).

Procedure

All measures first were given in September and early October of the school year, before the intervention part of the project began. The measures were given over a 3-day period; the performance assessment was given on one day, the motivation measure and the Gates-MacGinitie Vocabulary test on day two, and the Gates-MacGinitie Reading Comprehension Test on day three. The measures were administered by project staff. For the performance assessment, children read one story and answered an interpretive and evaluative question about it. Students were given 45 min to read the story and answer the questions.

For the MRQ, children were told they were going to answer questions about their reading, and that the questions had no right or wrong answers. They were given three practice items before beginning the actual questionnaire. Children were allowed to read the questions on their own; the questionnaire administrators were available to answer questions the children had about wording of the items.

For the Gates-MacGinitie tests, the standardized instructions provided in the test manual were used to guide test administration. Students were given 20 min to work on the vocabulary test, and 35 min to do the reading comprehension test.

In the late spring of the school year, the performance assessment and Gates-MacGinitie tests were administered again, with counterbalancing of stories in the performance assessment and alternate forms in the Gates-MacGinitie.

Results

Results are organized around the three research questions: (1) What are the different dimensions of children's motivations for reading? (2) What is the mean level of children's motivations? (3) How do children's reading motivations relate to their reading frequency and reading performance?

Dimensions of Children's Motivations for Reading

Descriptive analyses of the items showed that they were not skewed, and so all of the items were retained in the subsequent analyses. We first computed internal consistency reliabilities for each of the motivation scales listed in Table 1 to determine the degree to which the items formed coherent scales. In this report, these scales will be called the "original" motivation scales. The reliabilities for these scales are shown in Table 2. Reliabilities greater than .70 indicate reasonably good internal consistency. Five of the original scales had internal consistency reliabilities greater than .70: Social, Challenge, Recognition, Competition, and Importance. The reliability of three other scales approached .70: Reading Efficacy, Curi-

Table 2. Reliabilities for the Original Motivation Scales

SCALE NAME	# ITEMS	ALPHA
Efficacy	4	.66
Challenge	5	.72
Curiosity	6	.69
Aesthetic	6	.66
Important	2	.76
Recognition	5	.74
Grades	4	.68
Competition	6	.78
Social	7	.75
Compliance	5	.47
Compliance	3	.68
Work Avoidance	4	.55

osity, and Aesthetic Enjoyment. Two scales (Compliance and Reading Work Avoidance) had lower reliabilities. For the Compliance scale, the reliability analysis showed that two items lowered the scale's reliability. We therefore computed the reliability of a 3-item scale, dropping those two items.

Item-total correlations also were computed; these indicate the extent to which individual items correlate with the overall scale score. Item-total correlations were conducted for all 11 of the original scales. For all the scales except Compliance, each item showed moderately positive to highly positive correlations with the scale score. The lowest of these item-total correlations was .47 for one of the social items and the Social scale score, and the highest was .89 for one of the importance items and the Importance scale score. For Compliance, the first two items on the original scale (see Table 1) correlated highly with the scale score; the other three items did not.

Factor analyses. Exploratory factor analysis provides an indication of the underlying structure of a set of correlations, to see if the relations can be described or understood as a smaller set of latent variables or factors. Two main kinds of factor analyses were done on the motivation items. First, the items proposed to assess each of the original scales were analyzed separately, to see if each loaded on the proposed dimension. Second, all of the items were analyzed together to see how many factors emerged when all items were included.

Researchers using exploratory factor analyses have to make two decisions about each analysis: first, how many factors are appropriate to retain, and second, whether an item loads on a given factor. A commonly used rule guiding the first decision is to retain as many factors as there are eigenvalues greater than 1 in the analysis; this is called Kaiser's criterion. Another rule is to inspect the slope of the eigenvalues (with the plot showing the

eigenvalues on the y-axis and the items on the x-axis). Cattell (1966) proposed that one retain factors until the slope of the line flattens; this is called the scree test. Both of these rules were used in this study to decide how many factors to retain. There is no absolute rule for deciding whether an item loads on a given factor, although many researchers use a cut off of .40 in making that decision; that rule was followed here.

Considering first the analyses of each separate item set, for all of the scales except Compliance the eigenvalues in each analysis showed that a one factor-solution was appropriate. For Compliance, two eigenvalues were greater than one, suggesting that two factors described this scale. Second, for all the scales but Compliance, all of the items proposed to load on a particular factor did so, with factor loadings greater than .40 (the factor loadings are presented in Table 1). For Compliance, the first two items (see Table 1) did not load in the one-factor solution. When a two-factor solution was run, these items formed a separate factor. These analyses, along with the reliability analyses and item-total correlations, lend credence to all of the original scales, except Compliance. Because there appear to be two factors for Compliance, internal consistency reliabilities were assessed for scales suggested by the two factors (the first two items, and the last three items). The alpha was .37 for the first two items, and .68 for the last three. The three-item scale was retained in subsequent analyses of the original scales, even though it differed slightly from the original scale in Study 1.

A number of different factor analyses were conducted on the 54-item set. Using the eigenvalue-greater-than-1 rule, 13 factors were initially retained. However, several of the factors in this analysis were not meaningful, containing three or fewer items. The scree test indicated that somewhere between six and nine factors were appropriate to retain. We focus on these different factor solutions in describing the results. That is, because there is some question about exactly how many factors to interpret, we looked at the six-, seven-, eight-, and nine-factor solutions to see if common factors emerged in the different analyses. Similarity in the factors across the different analyses provides an indication that those factors are the most robust.

Several factors emerged clearly in these different analyses, with some of the factors representing one of the motivational dimensions, and others representing two or three of the dimensions. The individual motivation dimensions that emerged most clearly in these factor analyses were *Competition*, *Social*, and *Work Avoidance*. Across the six- through nine-factor solutions these factors were relatively consistent (although in some of the analyses an item or two from another dimension would load with these items).

Two factors emerged that were a combination of items from two of the proposed motivation dimensions. These were *Efficacy and Recognition*, and *Challenge and Curiosity*. One factor represented a combination of three of the proposed dimensions: *Grades*, *Compliance*, *and Importance*. Finally, an additional factor included a combination of the first two items

Table 3. Reliabilities for the Factor-Based Motivation Scales

FACTOR LABEL	3 ITEMS	ALPHA
Social	9	.81
Competition	6	.78
Reading Work Avoidance	4	.55
Challenge-Curiosity	9	.80
Efficacy-Recognition	9	.85
Aesthetic-Compliance	4	.43
Compliance-Grades-Importance	11	.86

from the *Compliance* scale and some of the items assessing *Aesthetic and Curiosity*.

Reliabilities for scales derived from these factors were computed; these are presented in Table 3. As can be seen in the table, all the reliabilites were high, with the major exception of the Aesthetic-Compliance scale. Because of this low reliability, this scale is not considered in further analyses. The reliability for the Work Avoidance scale also was not exceptionally high, but because this factor was so clearly defined in many different factor solutions it was retained in the subsequent analyses.

As another way to assess the relative distinctiveness of the motivational dimensions, correlations of the original scales with one another and correlations of the factor-based scales with one another were computed. These correlations are presented in Table 4. Looking first at the original scales, it can be seen that in general the correlations among the different scales are positive and in the moderate range, with all of the positive correlations significant. The major exception to this pattern is the Work Avoidance scale, which relates negatively to all of the other scales except Competition. Of the positive correlations, the strongest (e.g., above .50) were between Social with Curious, Aesthetic, and Recognition; Compliance with Recognition, Grades, and Importance; Efficacy with Recognition, Grades, Challenge, and Competition; Curious with Aesthetic, Recognition, Grades, and Challenge; Aesthetic with Recognition and Challenge; Recognition with Grades and Importance; and Grades with Importance.

With respect to the factor-based scales, the strongest positive correlations are between Social with Curiosity-Challenge, Recognition-Efficacy, and Grades-Importance-Compliance; Competition with Recognition-Efficacy; Curiosity-Challenge with Recognition-Efficacy and Grades-Importance-Compliance; and Recognition-Efficacy with Grades-Importance-Compliance. Work Avoidance related negatively to all of the other factor-based scales except for Competition, to which it related positively.

Because the various analyses show that both the original and factor-based reading motivation scales can be measured reliably, the analyses to answer the second and third research questions were conducted for the original scales as well as for the factor-based scales in which some of the dimensions are combined.

Table 4. Correlations of the Motivation Scales (Decimals Omitted)

ORIGINAL SCALES	1	2	3	4	5	6	7	8	9	10
Social (1)	1.0									
Compliance (2)	32**	1.0								
Efficacy (3)	48**	47**	1.0							
Curiosity (4)	55**	44**	47**	1.0						
Aesthetic (5)	58**	41**	46**	57**	1.0					
Recognition (6)	58**	53**	58**	54**	51**	1.0				
Grades (7)	47**	58**	52**	51**	47**	61**	1.0			
Challenge (8)	49**	43**	54**	62**	65**	51**	49**	1.0		
Competition (9)	25**	36**	50**	28**	34**	47**	41**	32**	1.0	
Importance (10)	37**	56**	48**	42**	35**	53**	57**	43**	43**	1.0
Work Avoidance (11)	-07	-01	-09*	-09*	-09*	-04	-01	-17**	16**	-03
FACTOR BASED SCALES	**1**	**2**	**3**	**4**	**5**	**6**				
Social (1)	1.0									
Competition (2)	31**	1.0								
Work Avoidance (3)	-09*	14**	1.0							
Curiosity-Challenge (4)	66**	30*	-15**	1.0						
Recognition-Efficacy (5)	57**	59**	-03	61**	1.0					
Grades-Importance-Compliance (6)	63**	46**	-02	58**	73**	1.0				

Note. The 3-item compliance scale was used in the analysis of the original scales.

This was done to provide further information about both kinds of scales.

Mean Level of Children's Reading Motivations

Table 5 shows the mean level of children's reading motivations, for both the original and factor-based scales. These means give information about which of the reading motivations children endorse most and endorse least. Paired *t*-tests were run to assess the significance of the differences between these means. For the original scales, all the means are significantly different from one another,

Table 5. Mean Level of Children's Reading Motivation

	M	*SD*
Original Scales		
Grades	3.58	.59
Efficacy	3.09	.65
Importance	3.40	.79
Compliance (3 item)	3.37	.67
Recognition	3.25	.66
Curiosity	3.20	.61
Aesthetic	3.14	.62
Challenge	3.08	.66
Competition	3.05	.73
Social	2.62	.71
Work Avoidance	2.43	.76
Factor-Based Scales		
Recognition-Efficacy	3.44	.57
Grades-Importance-Compliance	3.34	.57
Curiosity-Challenge	3.13	.60
Competition	2.92	.74
Work Avoidance	2.43	.76

with the exception of Importance and Compliance; Recognition and Curiosity; and Challenge and Competition. All the factor-based means are significantly different from one another. As can be seen in the table, both more extrinsic motivations like Recognition and Grades and more intrinsic motivations like Importance and Curiosity have the highest mean scores, whereas Social Reasons for Reading and Reading Work Avoidance have the lowest scores. Thus relative to the other motivation scales, children do not seem to be motivated to read for social reasons, and do not express a desire to avoid work in reading.

Relations of Children's Reading Motivations to Reported Reading Frequency and Reading Performance

Reading frequency. Correlations of children's reports of their reading frequency to their motivation using both the original scales and the factor-based scales are presented in Table 6. In both sets of analyses, all of the relations were positive, with the exception of those for the Work Avoidance scale, which were negative. In the analysis of the original scales, the following related most strongly to having read a book last week: Challenge,

Table 6. Relations of Children's Reading Motivation to Their Reading Frequencies

	Read Book Last Week	Read Often
Original Motivation Scales		
Efficacy	.30**	.37**
Challenge	.37**	.46**
Curiosity	.29**	.40**
Aesthetic	.36***	.44**
Importance of Reading	.22**	.25**
Recognition	.25**	.34**
Grades	.22**	.30*
Competition	.16**	.16**
Social	.28**	.44**
Compliance (3 item)	.22**	.31**
Work Avoidance	-.14**	-.13*
Factor-Based Motivation Scales		
Social	.27**	.47**
Competition	.18**	.17**
Work Avoidance	-.14**	-.13**
Curiosity-Challenge	.33**	.48**
Recognition-Efficacy	.28**	.35**
Grades-Importance-Compliance	.25**	.36**

Aesthetic, Efficacy, and Curiosity. The scales relating most strongly to children's reports of how often they read were Challenge, Social, Aesthetic Enjoyment, and Curiosity. For the factor-based scales, those relating most strongly to having read a book last week were Curiosity-Challenge, Recognition-Efficacy, and Social. The factor-based scales relating most strongly to how often children read were Curiosity-Challenge and Social.

Reading performance. Relations of reading motivations to reading performance were examined by regressing reading performance on children's reading motivations. The analyses were conducted for both the original and the factor-based scales. Because the fall to spring data collection period resulted in attrition from the sample, two analyses were done for both the original and factor-based scales. One analysis included the four performance measures from the fall, and one included the four performance measures from the spring. The analyses were done this way because a deletion of missing data to include only those participants with complete data on all measures at both the fall and spring data collection times greatly reduced the sample size. In these regression analyses, all of the predictor variables were entered into the regression equation at one time, because we made no a priori predictions

Table 7. Regressions of Reading Performance on Original Reading Motivation Scales

Dependent Variable	Predictor	Beta	Overall *R-square*
GM Vocabulary, Fall	Work Avoidance	-.20	.09
	Social	-.25	
GM Comprehension, Fall	Work Avoidance	-.25	.13
	Aesthetic	.15	
	Efficacy	.14	
	Social	-.29	
Performance Assessment Interpretative Score, Fall	Social	-.14	.07
	Competition	-.15	
	Challenge	-.16	
	Efficacy	.15	
Performance Assessment Evaluative Score, Fall	Work Avoidance	-.12	.08
	Compliance (3 item)	.21	
GM Vocabulary, Spring	Work Avoidance	-.17	.13
	Aesthetic	.25	
	Social	-.36	
GM Comprehension, Spring	Work Avoidance	-.26	.15
	Aesthetic	.21	
	Social	-.28	
	Competition	-.14	
	Recognition	.21	
Performance Assessment Interpretative Score, Spring	Work Avoidance	-.17	.10
	Aesthetic	.20	
	Social	-.27	
Performance Assessment Evaluative Score, Spring	Work Avoidance	-.24	.09
	Efficacy	.16	

about which of the motivation scales would relate to reading performance. In the analysis of the original scales, 10 predictors were entered. Compliance was not entered because of its low reliability. In the analysis of the factor-based scales, 6 predictors were entered. Aesthetic-Compliance was not entered because of its low reliability.

The results of the regression analyses for the original scales are presented in Table 7. As can be seen in the table, the original motivation scales accounted for between 6 and 15% of the variance in the performance measures, with somewhat more variance accounted for in Gates-MacGinitie (GM) scores than in the performance assessment (PA) scores. The mo-

Table 8. Regressions of Reading Performance on Factor-Based Reading Motivation Scales

Dependent Variable	Predictor	Beta	Overall *R-square*
GM Vocabulary, Fall	Work Avoidance	-.22	.11
	Recognition-Efficacy	.14	
	Social	-.25	
GM Comprehension, Fall	Work Avoidance	-.27	.12
	Social	-.24	
Performance Assessment Interpretative Score, Fall	Work Avoidance	-.11	.06
	Recognition-Efficacy	.25	
	Social	-.15	
	Competition	-.14	
Performance Assessment Evaluative Score, Fall	Work Avoidance	-.11	.06
	Curiosity-Challenge	-.20	
	Grades-Compliance-Importance	.20	
GM Vocabulary, Spring	Work Avoidance	-.17	.12
	Recognition-Efficacy	.30	
	Social	-.23	
	Grades-Compliance-Importance	-.21	
GM Comprehension, Spring	Work Avoidance	-.26	.13
	Recognition-Efficacy	.30	
Performance Assessment Interpretative Score, Spring	Work Avoidance	-.16	.11
	Recognition-Efficacy	.36	
	Social	-.19	
	Competition	-.19	
Performance Assessment Evaluative Score, Spring	Work Avoidance	-.22	.08
	Recognition-Efficacy	.24	

tivation scales predicting most consistently the GM scores were Reading Work Avoidance and Social. Both of these scales negatively predicted GM scores, indicating that children with higher scores on these motivation scales had lower GM scores. Aesthetic was the most consistent positive predictor of GM scores; children with higher scores on the Aesthetic scale tended to score higher on the GM measures. Other positive predictors were Recognition and Efficacy, and another negative predictor was Competition.

The original motivation scales most consistently predicting the PA measures included Work Avoidance and Social, both of which were negative predictors. The negative relations indicate that children scoring higher on these motivation scales tended to score lower

on the PA measures. Efficacy predicted two of the PA scales positively, which means that children with higher Efficacy scores tended to have higher PA scores. Other positive predictors included Compliance and Aesthetic Enjoyment. Other negative predictors included Challenge and Competition.

The results of the regression analyses for the factor-based scales are presented in Table 8. These motivation scales accounted for between 6 and 13% of the variance in the various performance measures, again with more variance accounted for in the GM scores than PA scores. The factor-based motivation scales most consistently predicting GM scores negatively included Work Avoidance and Social, whereas Recognition-Efficacy was the most consistent positive predictor of GM scores. The factor-based motivation scores most consistently predicting PA scores negatively included Work Avoidance, Social, and Competition; children scoring higher on these motivation scales tended to score lower on the PA measures. The most consistent positive predictor was Recognition-Efficacy.

Discussion

To become lifelong literacy learners, children must be motivated to engage in literacy activities, as well as acquire the cognitive skills needed to read. This study provides some important new information about the nature of children's reading motivations, how those motivations relate to children's reading frequencies, and to their reading performance. Results extend and complement the results of the earlier study of children's reading motivations (Wigfield & Guthrie, 1995). The discussion of the findings is organized around the three research questions.

Dimensions of Children's Reading Motivations

One clear finding from this study is that there are different dimensions of reading motivations that can be measured reliably. The proposed scales in this study, which were based on analyses of the data set collected as part of the earlier study of reading motivations, in general showed good internal consistency reliabilities. The only exceptions were the reliabilities for the original Compliance scale, and (to a lesser extent) the Work Avoidance scale. A 3-item Compliance scale based on factor results of the present study showed good internal consistency reliabilites. Overall, the reliabilites obtained for the original scales in this study are quite similar to those obtained with the same scales in the first study.

Other analyses also show that different motivation dimensions can be identified. The item-total correlations showed that (with the exception of the Compliance scale) all the items proposed to be part of a given scale related moderately-strongly to strongly. Furthermore, the factor analyses of each separate item set also showed that all of the items proposed to load on a scale indeed did load on the assessed factor, and that one-factor solutions best described the data. The only exception to this pattern again was the Compliance scale.

However, the factor analysis of the entire 54-item set did not clearly identify all 11 of the proposed dimensions of reading motivations. Three of the dimensions (Social, Competition, Work Avoidance) were clearly identified in

the factor analysis, 6 dimensions paired together (Efficacy-Recognition, Curiosity-Challenge, Aesthetic-Negative Compliance), and items from 3 dimensions (Grades, Compliance, Importance) formed one factor. This analysis shows that there are different aspects of reading motivations, but these results do not clearly document that all the proposed dimensions are distinct.

Based on the factor analyses of the separate item sets and the reliability analyses of those item sets, we believe it is appropriate to treat the different dimensions as separate (the Compliance dimension is an exception). However, we also believe that the scales derived from the factor analyses are in a sense more meaningful, because these scales reflect children's responses to the questionnaire, rather than our conceptualization of the different dimensions. Therefore, as a general rule we suggest using the factor-based scales from the MRQ. We also believe it is important to continue to assess the factor structure of this instrument, to refine the scales further.

Mean Level of Children's Reading Motivations

The analysis of the mean scores on the different scales showed that some of the children's reported motivations were quite strong, and others were weaker. The analyses of the original scales showed that a combination of intrinsic (e.g., Importance, Curiosity) and extrinsic (Grades, Recognition) scales were among the highest rated scales. For the factor-based scales, the Recognition-Efficacy and Grades-Importance Compliance scales were rated highest. In both analyses, the lowest mean scores were for Social Reasons for Reading, and Reading Work Avoidance. These results mean that children do not seem to be highly motivated to read for social reasons, such as reading with friends and family. Instead, they rated the more "individualistic" dimensions more highly. The relatively low mean score on Reading Work Avoidance means that children are saying they do not shy away from difficult reading activities.

Relations of Reading Motivations to Reading Frequency and Reading Performance

Another important issue addressed was how the different dimensions of reading motivations related to the frequency with which children read. The correlational analyses showed that nearly all of the original scales related to children's reported frequency, with the Challenge, Aesthetic, Efficacy, and Curiosity dimensions of children's reading motivations relating most strongly. For the factor-based scales, the Curiosity-Challenge, Recognition-Efficacy, and Social scales correlated most strongly with reading frequencies. Wigfield and Guthrie (1995) found that both intrinsic and extrinsic motivations related to reading frequency; in this study, it was the intrinsic motivations that related more strongly to reported reading frequency. These results provide further support for the notion that children will be more engaged in reading when they read for intrinsic reasons (see Guthrie et al., in press). Although there are different dimensions of motivation that correlate with the frequency with which children read, our results suggest that teachers should focus on encouraging

children to read for more intrinsic kinds of reasons.

We found that several of the motivation scales were significant predictors of children's scores on the Gates-MacGinitie Reading Test and the performance assessment measures developed for this study. In the analyses of both the original scales and the factor-based scales, Reading Work Avoidance and Social Reasons for Reading were the most consistent negative predictors. The most consistent positive predictors from the analyses of the original scales included Aesthetic Enjoyment and Efficacy; and in the analysis of the factor-based scales, the Recognition-Efficacy scale. Other positive predictors included Recognition and Compliance, and other negative predictors included Competition and Challenge.

These results provide some important support in the reading domain for the contentions of motivation theorists. Children's reading performance is positively predicted by their self-efficacy and enjoyment of reading, and negatively predicted by the extent to which they do not like to work at reading, and (to a lesser extent) the degree to which they are motivated to outperform others. The finding that Social Reasons for Reading related negatively to reading performance was surprising. We expected that the relations of this dimension to reading performance would be positive, but they were not. As mentioned earlier, the mean level of this scale is relatively low, indicating that children do not rate social reasons for reading as one of their stronger motivations. Nevertheless, it is a negative predictor of reading performance. Perhaps if children get too involved with social aspects of reading, it interferes with their mastery of basic reading skills. Further exploration of this relationship is needed to explain why it is negative rather than positive.

In conclusion, we found that there are different dimensions of reading motivations, and that these dimensions relate to children's reported reading frequencies and performance on reading tests. Further examination of the dimensions of reading motivations is needed. Two especially important research questions that should be addresses are how do these motivations develop, and how are they influenced by different kinds of reading instruction?

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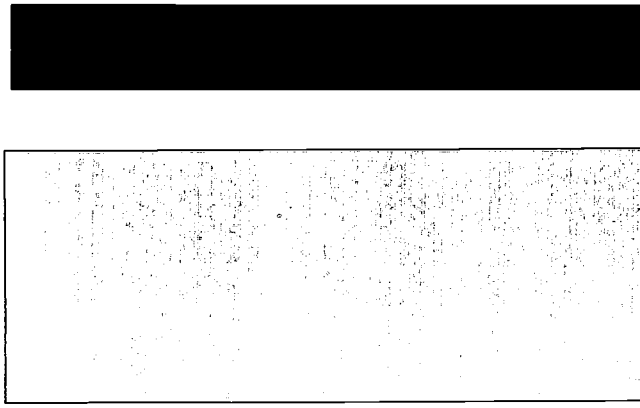

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