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## Child, Teacher, and Parent Reports of Motivation and Their Predictive Relations to Reading Achievement and Reading Quantity

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THE FLORIDA STATE UNIVERSITY  
COLLEGE OF ARTS AND SCIENCES

CHILD, TEACHER, AND PARENT REPORTS OF MOTIVATION AND THEIR  
PREDICTIVE RELATIONS TO READING ACHIEVEMENT AND READING QUANTITY

By

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## ABSTRACT

This study examined the relative usefulness of information about motivation for reading provided by three informants (child, teacher, and parent). Motivational ratings were obtained in a third grade sample ( $N = 150$  children) and were used to predict outcomes involving reading quantity and reading achievement. Each child, teacher and parent completed equivalent measures of reading motivation. In addition, the children were administered a measure of reading quantity, the Title Recognition Test (TRT), and parents completed a Parent Reading Quantity (PRQ) question, which assessed minutes per day in which their child read for pleasure. The reading achievement outcomes included the children's two scale scores on the Florida Comprehensive Achievement Test (FCAT).

Dominance analysis, a method that allows the evaluation of all pairwise combinations of variables, revealed that the teacher report of reading motivation consistently accounted for the most unique variance in both measures of reading achievement. Partial dominance of the parent report was established for the reading quantity outcome of PRQ; however, the reports from all three informants were equally predictive of TRT scores. The child report of motivation did not appear to contribute significantly to the prediction of reading outcomes above and beyond teacher and parent report. Although child report of motivation is the most commonly utilized, the results of this study suggest that teacher report appears to be the most important predictor of reading achievement, and may form a better assessment of reading motivation.

## INTRODUCTION

Recent evidence suggests that reading motivation influences the amount of time spent reading, irrespective of reading skill level (Cox & Guthrie, 2001; Shapiro & Whitney, 1997; Wigfield & Guthrie, 1997). In turn, amount of time spent reading and reading success have demonstrated reciprocal causation (Allen, Cipielewski, & Stanovich, 1992; Cunningham & Stanovich, 1992, 1997). Therefore, increasing attention has been paid to the factors influencing children's reading motivation, inasmuch as it appears to influence a wide variety of downstream literacy skills.

As students proceed through middle school, research has demonstrated that reading motivation and positive reading attitudes decline (Chapman & Tunmer, 1997; Gottfried, 1985; Guthrie & Davis, 2003; McKenna, Kear, & Ellsworth, 1995). This decline in positive reading attitude may occur because children distinguish, with increasing age, between feeling competent in reading and liking reading (Chapman & Tunmer, 1995). Although there is an overall decline in students' perceptions of themselves as readers, the drop is most severe for less able readers (Chapman & Tunmer, 1997; McKenna et al., 1995; Wigfield & Guthrie, 1997). For instance, as perceptions of reading competency drop, motivation likewise decreases, a relation which is most pronounced among less able readers.

In the study of reading motivation, it has become evident that teachers' concern for motivation is a natural outcome of students' declining reading motivation. Furthermore, teachers in numerous surveys have identified reading motivation as a primary concern (Baumann, Hoffman, Moon, & Duffy-Hexter, 1998; O'Flahavan, Gambrell, Guthrie, Stahl, & Alvermann, 1992; Veenman, 1984). Despite the clear interest in this topic, it is noteworthy that classroom observational studies reveal that many teachers know little about creating effective contexts that will enhance both motivation and achievement (e.g., Pressley, Wharton-McDonald, Mistretta-Hampston, & Echevarria, 1998; Tracy & Morrow, 1998). In an effort to resolve this issue, a number of studies have examined the topic of children's reading motivation.

Among empirical studies of reading motivation, three broad types of research have emerged. First, predictors of motivation have been widely investigated (Baker & Scher, 2002; Greaney & Hegarty, 1987; Sonnenschein & Munsterman, 2002; Sonnenschein, Baker, Serpell, & Schmidt, 2000). The majority of these studies implicate the home environment, namely the attitudes held by parents towards reading, as having a role in fostering reading motivation (Baker & Scher, 2002; Sonnenschein, et al., 2000). Also relevant to the development of positive reading attitudes, is the context of children's early reading experiences (Greaney & Hegarty, 1987; Sonnenschein & Munsterman, 2002). More specifically, a relationship has been suggested among the frequency of reading to the child, the availability of reading materials in the home, and positive reading attitudes in children (Greaney & Hegarty, 1987).

The second major subset of research in reading motivation is devoted to developing empirically-validated strategies to support reading motivation. For example, research indicates that paired reading strategies for parents and children (Overett & Donald, 1998), parents reading entertaining materials to their children, and children selecting materials that relate to their interests, all increase children's reading motivation in the home (Baker, 2003). In the classroom, research-supported strategies include access to books in the classroom, opportunities to self-

select books, familiarity with books, and social interactions with others about books (Gambrell, 1996). Related findings indicate that the usage of reliable word identification strategies (Chapman & Tunmer, 2003) and increased comprehension strategies are associated with increased self-efficacy (Schunk & Zimmerman, 1997; Schunk & Rice, 1992), reading success, and the disposition to read widely (Guthrie, Schafer, Wang, & Afflerbach, 1995; Cox & Guthrie, 2001; Schunk & Zimmerman, 1997).

The third body of research in the study of reading motivation has examined the relation between motivation and reading outcomes. For instance, it appears that children who are self-motivated are better readers (Anderson, Wilson, & Fielding, 1988; Morrow, 1992; Taylor, Frye, & Maruyama, 1990). The National Assessment of Educational Progress (NAEP) Reading Report Card for the Nation and the States suggests that students who reported reading frequently for fun exhibited higher reading scores than students who did not (Campbell, Donohue, Reese, & Phillips, 1996). Similarly, NAEP data indicate that among fourth-graders, daily reading quantity has a positive relationship with reading achievement (Donahue, Voelkl, Campbell, & Maseo, 1999; Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001). Gambrell et al. (1996) suggested that the construct of motivation can modify the experience of learning itself. For example, data indicate that students who read actively and frequently, improve their comprehension of text as a consequence, suggesting that amount of reading may have a causal relationship with reading comprehension skill (Cipielewski & Stanovich, 1992; Wigfield & Guthrie, 1997).

Although a number of studies have illustrated the relationship between motivation and the proficiency of the reader, this does not necessarily imply a causal relation. For example, reading quantity and reading achievement have been shown to demonstrate reciprocal causation (Cunningham & Stanovich, 1997). This relationship could exist because motivation drives reading quantity and therefore, proficiency. It is also plausible that proficiency drives subjective enjoyment and reading quantity, and therefore motivation. Taken together, the current body of literature regarding reading motivation suggests that motivation plays a central role in reading success; however, the precise function of motivation is still unclear.

Irrespective of causal relations, children with high intrinsic reading motivation have been shown to read more frequently than children with low intrinsic motivation (Wigfield & Guthrie, 1997). Intrinsic motivation is defined primarily in terms of three features: reading curiosity, reading involvement, and importance. Extrinsic motivation, in comparison, is comprised of three different features: reading for grades; competition in reading; and recognition for reading or the satisfaction in receiving a concrete form of recognition for success. More importantly, composite scores on intrinsic motivation demonstrate significantly better predictive power than scores on extrinsic motivation as they relate to reading quantity and breadth (Wigfield & Guthrie, 1997).

Although progress has been made in understanding children's reading motivation, many unanswered questions remain. For example, the mechanism behind the reciprocal relationship between motivation and reading achievement needs further examination. The extent to which motivation is a consequence of reading achievement, or vice versa, is not well defined at present. It is also possible that the correlation of achievement and reading quantity is mediated by reading motivation, and thus the three variables of reading quantity, achievement, and motivation need to be measured simultaneously to be further evaluated (Baker & Wigfield, 1999; Wigfield & Guthrie, 1997). Another area of further investigation relates to the differentiation of motives for reading in the different settings of home and school (Wigfield & Guthrie, 1997).

In order to advance the scientific understanding of the relationship between motivation and reading growth, reliable, valid measures of reading motivation are needed. Researchers still

do not know a great deal about the nature of reading motivation, and so further conceptualization and more accurate measurement of children's reading motivation is crucial for a more complete understanding of this complex issue. There are three broad types of instruments used to measure reading motivation: child self-report, teacher report, and parent report. The most commonly used include the Motivation for Reading Questionnaire (Wigfield & Guthrie, 1997), Motivation to Read Profile (Gambrell et al., 1996), Motivation to Read Scale (Baker & Scher, 2002), Reading Self-Concept Scale (Chapman & Tunmer, 1995), and Elementary Reading Attitude Survey (McKenna & Kear, 1990), which are all child self-report. Three other measures, the Reader Self Perception Profile (Henk & Melnick, 1995), Teacher Perceptions Questionnaire (Sweet, Guthrie, & Ng, 1998), and Parent Survey (Blum et al., 1995) do not appear to be used as widely.

These instruments appraise a variety of aspects of children's reading motivation. For example, the Motivation for Reading Questionnaire (Wigfield & Guthrie, 1997) measures self-efficacy, intrinsic and extrinsic goals, and social motives. Another measure, the Motivation to Read Profile (Gambrell et al., 1996), taps students' perceived competence in reading, performance relative to peers, and value of reading activities. In contrast, the Elementary Reading Attitude Survey (ERAS) (McKenna & Kear, 1990) measures students' attitudes toward both school-based and recreational forms of reading.

Criterion validity for reading motivation instruments is generally determined using the outcomes of reading achievement and quantity. The presence of a relationship between reading motivation and achievement has been established in correlational studies over the past twenty years. Table 1 displays results from several of these studies, indicating a wide range of correlations ( $r = .01 - .88$ ) between reading motivation and achievement. Several factors, such as the aspect of motivation assessed, informant, age of subjects and dimension of achievement measured, appear to impact the range of correlations. Specifically, the motivation instruments evaluate a number of different aspects of motivation, such as self-efficacy, self-concept, and intrinsic and extrinsic motivation, relevant to both academic and recreational reading. Further, the measures also differ regarding whether teacher or child report was utilized. For instance, teacher report appears to have a stronger relationship with achievement than child report. Another factor that affects the correlations between reading motivation and achievement is the age of subjects. For example, Chapman and Tunmer (1995) found higher correlations between motivation and achievement for eight year-old subjects compared to five year-old participants. An additional difference among studies in Table 1 is the dimension of reading achievement being assessed, such as vocabulary, reading comprehension, or report card grades. While several of the studies seem to indicate that the type of achievement measure may impact the correlation between motivation and achievement, it is difficult to distinguish robust patterns in the literature.

Empirical studies have also demonstrated criterion validity between measures of children's reading motivation and quantity. Several studies illustrated in Table 2 have examined the relationship between motivation and different measures of reading quantity. The correlations found in these studies vary widely ( $r = .01 - .51$ ), indicating a highly variable relationship between reading motivation and reading quantity. This is likely due to disparate reading quantity measures used in the studies, such as self-report, teacher report, recognition checklist, and daily activity diaries. Difficulty discerning strong patterns regarding the relationship between reading motivation and quantity is evident across the studies. It is also conceivable that the different dimensions assessed by the various motivation measures, such as whether academic or recreational forms of reading were targeted, may also be affecting the correlation between motivation and reading quantity. For instance, Allen et al. (1992) found a stronger relationship

between reading quantity and the recreational subtest of the Elementary Reading Attitude Survey (ERAS), compared to the academic subtest of the ERAS (McKenna & Kear, 1990).

The major purpose for this study was to examine motivation assessments from multiple informants and their predictive relations to appropriate outcomes in order to obtain a more accurate idea of the relative usefulness of these informants in assessing children's reading motivation. Whereas most reading motivation studies only utilize a single informant, other domains of behavioral science research have demonstrated the utility of including different informants in the same study. Research suggests that multiple informants each contribute unique information about the child's behavior (Achenbach, McConaughy, & Howell, 1987; DuPaul, 1991; DuPaul, Power, McGoey, Ikeda, & Anastopoulos, 1998; Rowe & Kandel, 1997).

However, the use of multiple informants has been questioned for several reasons: 1) parents, teachers and children may differ in reliability (test-retest reliability); 2) the informants may differ in their capacity to discern specific behaviors; 3) certain sources may be more adept at assessing some child behaviors than others; and 4) the reports of the different informants may have varying predictive power for future outcomes (Edelbrock, Costello, Dulcan, Conover, & Kalas, 1986; Edelbrock, Costello, Dulcan, Kalas, & Conover, 1985; Hart, Lahey, Loeber, & Hanson, 1994; Loeber, Green, Lahey, & Stouthamer-Loeber, 1989, 1991). For instance, the usefulness of child report has also been questioned in comparison to teacher and parent report (Kamphaus & Frick, 2002; Loeber et al., 1989, 1991).

An examination of the utility of different informants has several important implications for child assessment. First, error variance may be decreased by using appropriate informants for certain behaviors, and as a consequence, predictive and diagnostic validity of assessments may improve. Second, research may generate vastly different and more consistent findings when based on a well-grounded choice of informants (Loeber, Green, & Lahey, 1990). The implications of utilizing multiple informants appear to be relevant to the assessment of children's reading motivation and progress in the field of children's reading motivation. Further, the convergent and criterion validity of child, teacher, and parent reports of children's reading motivation has not been systematically studied within the same investigation. Additional research is required to assess separate influences for different respondents and determine the best source(s) of information regarding students' reading motivation. This exploratory study proposed to examine the convergence between different sources and criterions of motivation.

The current study sought to facilitate scientific understanding in the area of reading motivation by examining different informants (child, teacher and parent) of motivation and their relations to reading achievement and reading quantity. A common set of equivalent reading motivation items was administered to the child, teacher and parent. In addition, child specific questions related to reading motivation were also administered to the child and then compared to the common items for the parent, teacher, and child. Dominance analysis and hierarchical regression analysis was used to: 1) examine which informant (child, teacher, or parent) of the common items relating to reading motivation proved to be the most important predictor of reading outcomes; 2) determine the relative importance of the subscales of the dominant predictor for each reading outcome; and 3) examine if the most important informant of the common items demonstrated more predictive validity than the child specific items.

Table 1  
*Studies Correlating Reading Motivation and Reading Achievement*

Authors	Year	Age or grade	N	Reading motivation measure	Reading achievement test	Correlation
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Recreational & Academic subtests)	Vocabulary checklist z score	.40 (Rec) .07 (Acad)
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Recreational & Academic subtests)	Vocabulary z score (PPVT, MAT Reading Instruction subtest, G-MRT Vocabulary subtest)	.12 (Rec) -.20. (Acad)
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Recreational & Academic subtests)	General Knowledge z score (Peabody Individual Achievement Test General Information subtest, WISC-R, Kaufman Battery for Children Biddles subtest)	.08 (Rec) -.23 (Acad)
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Recreational & Academic subtests)	Educational Records Bureau Aptitude Achievement Test (ERB) (Vocabulary subtest)	.30 (Rec) .06 (Acad)
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Recreational & Academic subtests)	Educational Records Bureau Aptitude Achievement Test (Reading Comprehension subtest)	.23 (Rec) -.10 (Acad)
Baker & Wigfield	1999	Grade 5, 6	270	Motivation for Reading Questionnaire (highest subscale correlation)	Comprehensive Test for Basic Skills	-.24
Baker & Wigfield	1999	Grade 5, 6	270	Motivation for Reading Questionnaire (highest subscale correlation)	Gates-McGinitie Reading Tests Level 5/6 (z score of Vocabulary & Comprehension subtests, Form K for 5 <sup>th</sup> and Form L for 6 <sup>th</sup> )	-.26

Table 1-continued

Authors	Year	Age or grade	N	Reading motivation measure	Reading achievement test	Correlation
Baker & Wigfield	1999	Grade 5, 6	109 African American 116 Caucasian	Motivation for Reading Questionnaire (subscale ranges)	Comprehensive Test for Basic Skills	.01 to -.34 (AA) .04 to .25 (C)
Cox & Guthrie	2001	Grade 3, 5	251	Motivation for Reading Questionnaire (abbreviated version)	Comprehensive Test for Basic Skills	.09 (3 <sup>rd</sup> ) .02 (5 <sup>th</sup> )
Chapman & Tunmer	1995	Age 5	143	Reading Self-Concept Scale	Specially prepared pseudo-word naming	.22
Chapman & Tunmer	1995	Age 5	143	Reading Self-Concept Scale	Specially prepared spelling test	.17
Chapman & Tunmer	1995	Age 5	143	Reading Self-Concept Scale	Diagnostic Survey (Word Identification task)	.22
Chapman & Tunmer	1995	Age 5	143	Reading Self-Concept Scale	Diagnostic Survey (Letter Identification task)	.17
Chapman & Tunmer	1995	Age 8, 9	99 (age 8) 103 (age 9)	Reading Self-Concept Scale	Progressive Achievement Tests of Reading Comprehension (Parts 2 & 3)	.47 (age 8) .60 (age 9)
Chapman & Tunmer	1997	Age 7	118	Reading Self-Concept Scale	Burt Word Reading Test (New Zealand Revision) & Comprehension subtest of Neale Analysis of Reading Ability (Revised) Factor Score	.35
Gottfried	1990	Age 9	107	Young Children's Academic Intrinsic Motivation Inventory (Reading subtest)	Woodcock-Johnson Psycho-Educational Battery (Reading subscore) Teacher-rated reading achievement	.21 .34

Table 1-continued

Authors	Year	Age or grade	N	Reading motivation measure	Reading achievement test	Correlation
Greaney & Hegarty	1987	Grade 5	138	Functions of Reading Scale (Enjoyment)	Drumcondra English test, Level III (sum of vocabulary & comprehension subtests scores)	.44
				Attitude toward reading scale		.43
Guthrie et al.	2004	Grade 3	361	Motivation for Reading Questionnaire (motivation composite)	Specially prepared test of passage comprehension	.24 (pre-intervention) .82 (post-intervention)
Guthrie et al.	2004	Grade 3	448	Teacher rating of student's self-efficacy	Specially prepared test of passage comprehension	.59 (pre-intervention) .75 (post-intervention)
Guthrie et al.	2004	Grade 3	448	Teacher rating of student's intrinsic motivation	Specially prepared test of passage comprehension	.34 (pre-intervention) .75 (post-intervention)
Guthrie et al.	2004	Grade 3	448	Teacher rating of student's extrinsic motivation	Specially prepared test of passage comprehension	.30 (pre-intervention) .50 (post-intervention)
Guthrie et al.	2004	Grade 3	448	Teacher rating of student's self-efficacy	Gates-McGinitie Reading Test (Comprehension Test, Level 3, Form S)	.81
Guthrie et al.	2004	Grade 3	448	Teacher rating of student's intrinsic motivation	Gates-McGinitie Reading Test (Comprehension Test, Level 3, Form S)	.88
Guthrie et al.	2004	Grade 3	448	Teacher rating of student's extrinsic motivation	Gates-McGinitie Reading Test (Comprehension Test, Level 3, Form S)	.49

Table 1-continued

Authors	Year	Age or grade	N	Reading motivation measure	Reading achievement test	Correlation
Henk & Melnick	1991	Grade 4-6	223	Reader Self-Perception Scale	Iowa Test of Basic Skills (Reading subtest)	.28
Henk & Melnick	1992	Grade 4-6	402	Reader Self-Perception Scale	Stanford Achievement Test	.39
Henk & Melnick	1992	Grade 4 & 6	<625	Reading Self-Perception Scale (mean subscale correlations)	Tests of Essential Learning and Language Skills (Total Reading scores)	.20 to .35
Lynch	2002	Ages 8-9	66	Reader Self-Perception Scale	Test of Early Reading Ability-2 (Total score from Alphabet, Meaning, & Convention categories)	.21
Lynch	2003	Grade 2	56	Reading Self-Efficacy Beliefs Interview	Specially prepared word recognition test	.51
Lynch	2003	Grade 2	56	Reading Self-Efficacy Beliefs Interview	Specially prepared sight word knowledge test	.42
Lynch	2003	Grade 2	56	Reading Self-Efficacy Beliefs Interview	Teacher-rated decoding skill	.49
Lynch	2003	Grade 2	56	Reading Self-Efficacy Beliefs Interview	Teacher-rated comprehension	.36
Lynch	2003	Grade 2	56	Reading Attitudes Interview	Specially prepared word recognition test	.35
Lynch	2003	Grade 2	56	Reading Attitudes Interview	Specially prepared sight word knowledge test	.32
Lynch	2003	Grade 2	56	Reading Attitudes Interview	Teacher-rated decoding skill	.31
Lynch	2003	Grade 2	56	Reading Attitudes Interview	Teacher-rated comprehension	.17
Sweet, Guthrie, & Ng	1992	Grades 3-6	374	Motivation for Reading Questionnaire (subscale correlation ranges)	Report card grades	.45 to .79

Table 2

*Studies Correlating Reading Motivation and Reading Quantity*

Authors	Year	Age or grade	N	Reading motivation measure	Reading quantity measure	Correlation
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Recreation subtest)	Title Recognition Test (form 1 & 2)	.39 (form 1) .37 (form 2)
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Academic subtest)	Title Recognition Test (form 1 & 2)	-.05 (form 1) .12 (form 2)
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Recreation subtest)	Book Reading Diary Author Recognition Test Comic Recognition Test	.37 (BRD) .34 (ART) .24 (CRT)
Allen, Cipielewski, & Stanovich	1992	Grade 5	44	Elementary Reading Attitude Survey (Academic subtest)	Book Reading Diary Author Recognition Test Comic Recognition Test	-.08 (BRD) -.05 (ART) .03 (CRT)
Baker & Wigfield	1999	Grade 5, 6	353	Motivation for Reading Questionnaire (subscale ranges)	Reading Activity Inventory	.14 to .51
Cox & Guthrie	2001	Grade 3, 5	251	Motivation for Reading Questionnaire	Reading Activity Inventory (Reading for enjoyment)	.34 (3 <sup>rd</sup> ) .39 (5 <sup>th</sup> )
Cox & Guthrie	2001	Grade 3, 5	251	Motivation for Reading Questionnaire	Reading Activity Inventory (Reading for school)	.43 (3 <sup>rd</sup> ) .26 (5 <sup>th</sup> )
Greaney & Hegarty	1987	Grade 5	138	Functions of Reading Scale (Enjoyment)  Attitude Toward Reading Scale	Book Reading Diary	.39  .42

Table 2-continued

Authors	Year	Age or grade	N	Reading motivation measure	Reading quantity measure	Correlation
Guthrie & Wigfield	1999	Grade 3, 5	154 (3 <sup>rd</sup> ) 117 (5 <sup>th</sup> )	Motivation for Reading Questionnaire	Reading Activity Inventory	.37
Guthrie & Wigfield	1999	Grade 3, 5	154 (3 <sup>rd</sup> ) 117 (5 <sup>th</sup> )	Reading Efficacy	Reading Activity Inventory	.24
Lynch	2003	Grade 2	39	Reading Self-Efficacy Beliefs Interview	Teacher-rated book reading frequency	.61
				Reading Attitudes Interview		.35
Lynch	2003	Grade 2	49	Reading Self-Efficacy Beliefs Interview	Title Recognition Test	.16
				Reading Attitudes Interview		-.09
Wigfield & Guthrie	1997	Grade 4, 5	59 (4 <sup>th</sup> ) 46 (5 <sup>th</sup> )	Motivation for Reading Questionnaire (subscale ranges), 1991-1992	Out of school reading amount	.04 to .31 (fall) .09 to .37 (spring)
Wigfield & Guthrie	1997	Grade 4, 5	59 (4 <sup>th</sup> ) 46 (5 <sup>th</sup> )	Motivation for Reading Questionnaire (subscale ranges), 1992-1993		.01 to .36 (fall) .06 to .32 (spring)
Wigfield & Guthrie	1997	Grade 4, 5	59 (4 <sup>th</sup> ) 46 (5 <sup>th</sup> )	Motivation for Reading Questionnaire (subscale ranges)	Reading Activity Inventory	.06 to .35 (fall) .15 to .51 (spring)

## METHOD

### Participants

One hundred and fifty third-grade students, their parents, and their teachers from a suburban school district in Tallahassee, Florida participated in the study during the spring of 2004. Students were drawn from several different elementary schools representing middle-to-low socio-economic backgrounds. Consent forms and the parent motivation scales were sent home with all children in the classrooms of teachers who agreed to participate in the study. The sample consisted of 79 girls (52.7%) and 71 boys (47.3%). The ethnic composition of this sample was comprised of 56.0% African American, .7% Asian, 36.0% Caucasian, 2.7% Hispanic, and 4.7% Other. The age of the sample ranged from 8 years to 11 years ( $M = 8.99$  years,  $SD = .68$ ). Approximately 51.4% of the sample was eligible for free/reduced lunch status, which is generally representative of enrollment for the state of Florida.

### Reading Achievement Measures

#### Florida Comprehensive Assessment Test Sunshine State Standards (FCAT-SSS)

Reading. In order to index achievement, student scores on the FCAT-SSS were obtained. The FCAT-SSS is a criterion referenced, standardized test designed to determine if students in Florida public schools in grades 3 to 10 are meeting the Sunshine State Standards. The test is administered every spring and assesses students' achievement in reading and mathematics. The Standards state the tasks that are being taught to and learned by Florida students at each grade level. Before students in grade 3 can advance to grade 4, they are required to demonstrate certain benchmarks in reading ability. The FCAT-SSS questions assess these Standards and vary in difficulty in order to measure all students' proficiency levels (Florida Department of Education, 2001). Students achieve a score that is reported on a scale of 100 to 500, with a mean score of 300 and standard deviation of 50 (Florida Department of Education, 2001). The reported reliability of the FCAT-SSS reading section ranges from .86 to .91 (Florida Department of Education, 2002). In the reading section of the FCAT-SSS, third-grade students are expected to read passages and then answer multiple-choice questions about the passage. Identification of the author's purpose, understanding of conflict resolution and plot development, recognition and arrangement of events in chronological order, determination of the main idea of a text, and identification of relevant facts and details are the reading comprehension skills tapped by the FCAT-SSS Reading (Florida Department of Education, 2004).

#### Florida Comprehensive Assessment Test Norm-Referenced Test (FCAT-NRT) Reading.

Student scores on the FCAT-NRT also served as a measure of achievement. The FCAT-NRT is a norm-referenced, standardized test that compares the performance of Florida public school students in grades 3 to 10 to a national sample of students. The FCAT-NRT scores are obtained from a Florida version of the Stanford Achievement Test, version 9 (SAT-9), published by Harcourt Educational Measurement. The questions on the FCAT-NRT vary in difficulty to assess all students' advancement (Florida Department of Education, 2001). This test is administered every spring and assesses students' achievement in reading comprehension and mathematics problems solving. Students obtain scale scores, denoting a student's performance on the test, which are used for comparison from year to year. The Reading Comprehension scale scores range from 527 to 817 (Florida Department of Education, 2003). In the Reading Comprehension

section of the FCAT-NRT, students read functional, recreational, and textual passages and then answer multiple-choice questions about the passage. Synthesis and evaluation of explicitly stated information, comprehension of explicitly stated relationships, and formation of an interpretation based on explicitly stated materials are the reading comprehension skills tapped by the FCAT-NRT Reading (Florida Department of Education, 2004).

#### Reading Quantity Measures

Title Recognition Test (TRT). Print exposure was measured with the TRT (Cunningham & Stanovich, 1990), a checklist-with-foils recognition measure (Cipielewski & Stanovich, 1992; Cunningham & Stanovich, 1990, 1991, 1997; Echols, West, Stanovich, & Zehr, 1996; Stanovich & Cunningham, 1992, 1993; Stanovich, West, & Harrison, 1995). Recognition checklist measures have shown convergent validity with other methods of measuring reading experience (Allen et al., 1992) and reading behavior in natural settings (West, Stanovich & Mitchell, 1993). For example, it has been shown that the checklist recognition instruments measure out-of-school print exposure at least as well as time consuming diaries (Allen et al., 1992; Echols et al., 1996), and they have improved reliability over interview or questionnaire instruments (Anderson et al., 1988). The TRT for children was constructed as a parallel of recognition measures that have been utilized to examine amount of print exposure in adult populations (Stanovich & West, 1989). Actual children's book titles were interspersed among foils that were not actual book titles, and the subjects identified the real titles.

The checklist-with-foils method offers several advantages over traditional measures (Cunningham & Stanovich, 1991). This method is immune from the propensity to provide socially desirable responses, particularly in socially esteemed activities such as reading (Furnham, 1986; Paulhus, 1984). The TRT also has the advantage of freedom from subjective judgments. The number of foils checked will detect guessing, and thus, guessing is not beneficial. The TRT is unique from other checklist measures in that it contains foils to control differential response bias (West et al., 1993). This procedure provides estimates of individual differences in print exposure in a single, brief five to ten minute session. Finally, the TRT is comprised of uncomplicated cognitive tasks, as it does not demand retrospective activity estimates, or extensive, long-term cooperation from subjects such as in daily dairies.

The version of the TRT (Cunningham, 2003) that was used in this study was analogous to the children's measure used in prior research on print exposure effects (Cunningham & Stanovich, 1990, 1991, 1992). This version included 100 items, 69 of which were actual book titles and 31 of which were foils (see Appendix A). The titles were chosen from a sample of book titles produced by groups of children in Cunningham's pilot investigations. The book titles were compiled through consultation with teachers and reading education professionals knowledgeable about current trends in children's literature, and analysis of different lists of children's titles. Titles were excluded that were a prominent part of the classroom curriculum in the specific schools participating in this study. As reading motivation increases, out-of-school reading was expected to increase; thus, out-of-school, rather than school-directed reading, was targeted. Following the authors' recommendation (Cunningham & Stanovich, 1990), versions of the TRT were individually designed for each classroom and differed necessarily somewhat in item content.

The instructions for the TRT were read to each participant individually and were printed on their response sheets. Administration time for the TRT was approximately five minutes. The number of correct targets and foils identified were recorded for each participant. Scoring on the TRT was established by subtracting the proportion of foils that were checked from the proportion

of the correct items checked, as recommended by Cunningham & Stanovich (1991). In the version used in this study, the reliability of the number of correct items checked, as recommended by the authors (Cunningham and Stanovich, 1990), was used to calculate Cronbach's alpha ( $\alpha = .91$ ), which falls within the estimated range for the TRT (e.g., Cunningham & Stanovich, 1991).

Parent Reading Quantity Measure (PRO). Four questions constructed by the author were completed by the parents to tap reading quantity (see Appendix B). Parents were asked to report the following: number of minutes per day their child spends reading for pleasure, number of minutes per day the child spends reading books assigned by school, number of times per month the child visits the library, and a ranking (on a scale of 1 to 3, with 1 being most preferred) of their child's preference for three different types of reading material (books, comic books, and magazines). The PRQ question regarding amount of time the child spends reading for pleasure was included as a reading outcome variable in the dominance analyses, while the remaining items were utilized only in descriptive analyses.

#### Reading Motivation Measures

Reading Motivation Scale for Children (RMS-C), Reading Motivation Scale for Teachers (RMS-T), and Reading Motivation Scale for Parents (RMS-P). The RMS-C, RMS-T and RMS-P were utilized to index children's reading motivation on a 6-point Likert scale (see Appendix C, D, and E) and were comprised of 35 items each. The RMS-C also contained an additional set of 27 child specific items not found on the RMS-P or RMS-T. The format was similar to Harter's well-researched Self-Perception Profile for Children (1985), which utilized forced-choice. This format diminished the likelihood for socially desirable responses and offered the child enough choices to qualify their responses (Harter, 1985). For example, in the RMS-C, the child was first asked to decide which kind of child was more like him or her, and then asked whether this was sort of true, mostly true, or really true for him or her. This implied that half of the children in the child's environment saw themselves one way, and the other half saw themselves in the opposite way. This question format legitimized either choice and has performed well empirically (e.g., Harter, 1982).

Scale development of the three motivation measures followed DeVellis's (2003) guidelines. Initial item selection for the RMS-C, RMS-T, and RMS-P was based on an examination of the literature on reading motivation, interest, competence, perceived control, and test anxiety instruments used in prior research with elementary students. A list of articles referenced during item generation is provided in Appendix F. The selection criteria for the initial pool of items included: (a) developmental appropriateness for third graders; (b) face validity regarding relevant aspects of reading motivation (i.e., interest, competence, perceived control and test anxiety); (c) appropriateness for three informants; and (d) suitability for forced-choice Likert format. A panel of graduate students and experts in the reading and motivation fields reviewed the items for inclusion in the scales following Crocker and Algina's (1986) recommendations: (a) accuracy, (b) bias, (c) grammar, (d) readability level, (e) relevance to instrument specifications, and (f) technical flaws. Each of the Reading Motivation Scales included four constructs of motivation: reading interest, reading competence, perceived control in reading experiences, and FCAT test anxiety. Within each subscale, items that reflected high motivation in the first half of the statement and items that demonstrated low motivation in the first half of the statement were randomized in order to avoid response set.

The RMS-C was administered individually in an interview format and the standardized instructions were read to each child (see Appendix G). They were given response sheets with

pictorial representations (in the form of different sized circles) of the different response categories (see Appendix H). A sample item was included for practice but was not scored. Scoring for each item on all three measures was on a scale of 1 to 6, where a score of 1 denoted low motivation for reading, and a score of 6 indicated high motivation for reading.

#### Procedure

During the spring of 2004, the children, their parents, and their teachers were administered equivalent items assessing motivation (RMS-C, RMS-T and RMS-P) to determine which informant was the most important predictor of reading quantity as measured by the Title Recognition Test (TRT), Parent Reading Quantity Measure (RPQ), and reading achievement as measured by the Florida Comprehensive Achievement Tests Sunshine State Standards (FCAT-SSS) and the Florida Comprehensive Achievement Tests Norm-Referenced Test (FCAT-NRT). Each child was administered additional child specific questions on the RMS-C that were not administered to the parents and teachers.

Teacher consent forms were administered to all teachers in the third-grade at the selected schools. Completion time for the RMS-T was approximately 10 minutes. Thirteen teachers participated in the study and completed RMS-Ts on participating children in their reading class. Permission forms, motivation scales, and reading quantity questions for the parents were sent home with all children in a class in which the teacher agreed to participate. Completion time for the measures was approximately 10 minutes. The RMS-C and TRT were administered individually to each participating child. Each child was tested on the two measures for approximately 30 minutes by a trained examiner or the author. The participants were tested in an empty room, a teacher planning room, or a quiet section of the library. Student testers were trained on the administration of the TRT and RMS-C for approximately five hours by the author and demonstrated proficiency prior to testing the children.

## RESULTS

### Preliminary Data Analyses and Descriptive Statistics

The dataset for 155 cases was inspected for missing data, outliers, skewness, and kurtosis. FCAT scores of two students were unavailable, and thus, these students were omitted from the final sample. Twenty-six missing data points were identified on the three reading motivation surveys. Regression imputation procedure was used to handle missing data because less than 5% of the data were missing and the dataset was large (Tabachnick & Fidell, 2001). Six missing data points were found on the Parent Reading Quantity (PRQ) question, “minutes a day a child reads for pleasure.” Mean imputation procedure for estimating missing data on the PRQ was used instead of regression imputation because the measure included only one data point, and again less than 5% of the data were missing. Sixteen outliers (twelve for the PRQ and four for the FCAT) were identified and replaced with the median  $\pm$  two quartile ranges. Further inspection of the PRQ scores revealed an atypical distribution in which an ordinal scaling of the scores appeared most appropriate. The PRQ variable was categorized into five units: one signified less than or equal to five minutes, two represented greater than five minutes to fifteen minutes, three indicated greater than fifteen and less than thirty minutes, four signified thirty to less than forty minutes, and five represented forty minutes and above read per day.

Missing data points were also examined for variables not used in the dominance analyses. Mean imputation was used to handle the nineteen missing data points on the Parent Reading Quantity question, “minutes a day child reads for school, ” and nineteen univariate outliers were replaced with the median  $\pm$  two quartile ranges. In addition, nineteen missing data points were identified on the other parent reading quantity questions and these cases were excluded from the descriptive analyses.

Cases were sorted by Mahalanobis distance to determine the presence of multivariate outliers. For a case to be identified as an outlier, a conservative probability estimate,  $p < .001$  was utilized; this procedure revealed three multivariate outliers. All three outliers were deleted, as recommended by Tabachnick & Fidell (2001), leaving 150 cases for analysis. The resulting skewness and kurtosis values fell within acceptable ranges. Multicollinearity was not evident in any of the variables included in the dominance analyses.

Means, standard deviations, reliabilities, and intercorrelations are reported in Table 3. The RMS-C was shown to have the highest mean score ( $M = 148.87$ ), while the RMS-T demonstrated the lowest mean score ( $M = 138.80$ ). Good levels of reliability were achieved for each motivation survey. The RMS-T demonstrated the highest reliability ( $\alpha = .97$ ) and the RMS-C was found to have the lowest reliability ( $\alpha = .85$ ) of the three reports of motivation. The reliabilities for the subscales of the RMS-T and RMS-P also fell within generally acceptable ranges. Overall analysis of reliability for the Title Recognition Test was found to be .91. Frequency analyses for the RMS-C, RMS-T, and RMS-P revealed that none of the six qualifiers per item were endorsed over 90% on any of the motivation measures. The two reading achievement outcomes, FCAT-SSS and FCAT-NRT, correlated most highly ( $r = .72$ ,  $r = .76$ , respectively) with the RMS-T out of the three informants of reading motivation. Of the four subscales on the teacher report of motivation, the Competence subscale correlated the strongest with the FCAT-SSS and FCAT-NRT outcomes ( $r = .74$ ,  $r = .76$ , respectively). In contrast, parent

report of motivation correlated most strongly out of the three informants of motivation with the reading quantity outcomes, TRT and PRQ ( $r = .26$ ,  $r = .35$ , respectively). Specifically, the Competence subscale of the four RMS-P subscales demonstrated the strongest relationship with the TRT outcome ( $r = .26$ ), while the Interest subscale showed the strongest relationship with the PRQ outcome ( $r = .43$ ). Finally, the parent item, “minutes per day child reads for school,” did not correlate significantly with any of the reports of reading motivation.

#### Data Analytic Strategy

Recent research has relied heavily on multiple regression techniques to examine relationships between predictors and a dependent variable. However, the relative importance of a variable in predicting an outcome is not often addressed in multiple regression. Although regression can evaluate the direct, indirect, unique, and total relationship of a predictor with an outcome variable, this method has difficulty assessing the relative impact of a predictor on an outcome variable because predictors are often correlated with one another. The weaknesses of determining variable importance are largely due to different definitions used to define importance that are not necessarily consistent (Azen & Budescu, 2003; Budescu, 1993; Darlington, 1968). Budescu (1993) stated three requirements that a method evaluating importance must satisfy. First, importance should be defined in terms of the contribution of the variable in reducing the amount of error in predicting the criterion. Second, the method should allow for a direct comparison of relative importance that is independent of the ordering of variables in the model. Third, importance should demonstrate direct, partial, and total effects of a variable upon a criterion. Dominance analysis fulfills these three conditions.

Dominance analysis (Azen & Budescu, 2003; Budescu, 1993) has several benefits for examining the importance of a predictor over other regression-based methods. First, results are invariant under all subsets of predictors in the model. In addition, other indicators of importance are satisfied when dominance is determined. More specifically, if one variable dominates another, then the relationship of the nondominant variable to the outcome variable would be significantly smaller than the zero-order relationship of the dominant variable with the outcome variable. In addition, the mean semi-partial and partial correlation of the dominant variable with the outcome variable is also statistically greater than the nondominant variable.

Dominance analysis can be defined as an extension of the multiple regression technique that examines all possible sets of pairwise comparisons in order to determine their relative contribution to predicting a criterion. This method of analysis utilizes results from multiple regression to assess if a variable is regarded as “dominant” over another. If the predictive ability of that variable exceeds another, both in the presence of all other combinations of predictors in a model, and alone, complete dominance is determined. Partial dominance is established if a variable is at least as predictive as another alone, but not in the presence of all other possible combinations of predictors. Additionally, the predictors being examined could be found to be of equal importance.

Dominance analysis was used to assess the relative value of the information provided by three informants (child, parent and teacher) about reading motivation when that information was used to predict reading achievement (FCAT-SSS and FCAT-NRT) and reading quantity (TRT and PRQ). In addition, the relative importance of the subscales of the dominant predictor for each reading outcome was assessed, for a total of seven dominance analyses.

#### Evaluation of Dominance Analyses

Analyses involving the FCAT-SSS. The results are presented in Table 4a and 4b. Each table consists of two parts. The first part (a) contains information obtained from a regular series

of hierarchical multiple regressions. The first table offers the  $(2^3 - 1) = 7$  squared multiple correlations of all the possible models involving the three predictors ( $p = 3$ ). Specifically the  $R^2$  values, both unique and total, for all possible combinations of predictors, are included in this part. The first column presents the variables in each submodel and the second column states the fit of that model, the total  $R^2$ . The additional columns report the unique contributions of a specific predictor, both alone and in the presence of all possible combinations of other predictors. For example, in Table 4a, the first row shows that teacher report accounted for 52% of the variance in FCAT-SSS reading achievement, while parent report accounted for 2% of the variance in reading achievement above and beyond the 52% accounted for by teacher report. Child report accounted for 5% additional variance above and beyond the 52% accounted for by teacher report.

In the rows that list combinations of two variables as predictors, the unique variances accounted for by the predictors not included in the regression are listed in the columns. For example, in the fourth row, teacher report and parent report jointly accounted for 54% of the variance in FCAT-SSS reading achievement. Additionally, child report accounted for 4% of the variance in reading achievement after controlling for teacher and parent reports.

The second part (b) of the table summarizes the pairwise comparisons of the unique variances accounted for pairs of predictors along with the 95% confidence intervals of those differences. These tables contain the new components added by dominance analysis. The first column presents the  $R^2$  differences between the two predictors, both alone and in the presence of all other predictors. The second column lists the asymptotic standard error for that comparison, and the third and fourth columns provide the lower and upper bounds of the 95% confidence interval. This standard error was originally developed by Olkin and Finn (1995). Alf and Graf (1999) used a simplified method of determining the variances and covariances of squared multiple correlations for calculating the standard error, which is shown in the second column. In order for an  $R^2$  difference between two predictors to be significant at the .05 levels, the bounds of the confidence interval must not contain zero. For example, in Table 4b, for the comparison of teacher and parent reports, there was a difference in the unique contribution of each of .22 (.24 - .02 from the first section of the table). The standard error was .064, and the 95% confidence interval in Table 4b did not contain zero (.095, .346). This indicates that there was a significant difference in the amount of unique variance each variable accounts for in reading achievement. Moreover, in the presence of the other variable, a difference of 16% (.17 - .01 from above) between the amount of unique variance accounted for by teacher and parent reports was found and the 95% confidence interval does not include zero (.062, .254). Thus, once controlling for child report, there was a significant difference between the amount of unique variance accounted for by parent and teacher report.

For the comparison of teacher and child reports, there was a significant difference of 21% (.26 - .05 from above) in the unique contribution of each predictor. When controlling for parent report, the difference (13%) between the amount of unique variance accounted for by parent and teacher report was significant. For the comparison of parent and child reports, there was a difference of 1% in the unique contribution of each predictor and this difference is not significant. Taken together, Table 4 indicates the total dominance of teacher report over parent and child reports in the prediction of FCAT-SSS reading achievement. Overall, the three variables accounted for 58% of the variance in predicting achievement.

Analyses involving the FCAT-NRT. Table 5 provides information in predicting FCAT-NRT reading achievement. In Table 5a and 5b, a similar pattern to Table 4 is observed. The same

three predictor variables explained 62% of the variance in reading achievement and teacher report dominated the other two informants in their predictive utility. Teacher report accounted for 57% of the variance in FCAT-NRT reading achievement, while parent report accounted for 1% of the variance in reading achievement above and beyond the 57% accounted for by teacher report. Child report accounted for 5% additional variance above and beyond the 57% accounted for by teacher report.

Teacher and parent reports jointly accounted for 58% of the variance in FCAT-NRT reading achievement. Additionally, child report accounted for 4% of the variance in reading achievement after controlling for teacher and parent report. For the comparison of teacher and parent reports, there was a significant difference in the unique contribution of each of 30% (.31 - .01). Moreover, once controlling for child report, there was a significant difference of 22% (.29 - .07) between the amount of unique variance accounted for by parent and teacher reports. For the comparison of teacher and child reports, there was a significant difference of 24% in the unique contribution of each predictor. When controlling for parent report, a significant difference (18%) between the amount of unique variance accounted for by teacher and child report was found. Lastly, for the comparison of parent and child reports, the difference in the unique contribution of each predictor of 6% was not significant. Overall, Table 5 indicates that the teacher report dominated the parent and child reports in the prediction of FCAT-NRT scores.

Analyses involving the TRT. Table 6 summarizes results predicting TRT outcomes in reading quantity. In Table 6a and 6b, a different pattern compared to Table 5 is observed. The three predictor variables explained only 7% of the variance in reading quantity and were relatively comparable in their relative contributions to the prediction of TRT scores. Parent report accounted for 7% of the variance in TRT outcomes, while teacher report accounted for 0% of the variance in reading quantity above and beyond the 7% accounted for by parent report. Child report accounted for 1% additional variance above and beyond the 7% accounted for by parent report.

Parent report and teacher report jointly accounted for 7% of the variance in TRT reading quantity. Additionally, child report accounted for 0% of the variance in reading quantity after controlling for parent and teacher reports. For the comparison of teacher and parent reports, the difference in the unique contribution of each of -.03 was not significant. Moreover, once controlling for child report, the difference (2%) between the amount of unique variance accounted for by parent and teacher report was not significant. For the comparison of teacher and child reports, there was no difference (0%) between the unique contribution of each predictor. Lastly, for the comparison of parent and child reports, the difference (3%) between the amount of unique variance accounted for by each predictor was not significant. Altogether, Table 6 indicates that when predicting TRT outcomes, all three variables were comparably predictive, for none of the variables were found to dominate another in their predictive utility.

Analyses involving the PRQ. Table 7 summarizes predictors for Parent Reading Quantity (parent report of minutes per day their child reads for pleasure). The three predictors explained 13% of the variance in PRQ and were comparable in their relative contributions to the prediction of PRQ. Parent report accounted for 12% of the variance in PRQ, while teacher report accounted for 0% of the variance in reading quantity above and beyond the 12% accounted for by parent report. Child report also accounted for 0% additional variance above and beyond the 12% accounted for by parent report.

Parent and teacher report jointly accounted for 12% of the variance in PRQ. Additionally, child report accounted for 1% of the variance in reading quantity after controlling for parent and

teacher reports. For the comparison of teacher and parent report, there was a significant difference in the unique contribution of each predictor of  $-.09$ . Once controlling for child report, there was not a significant difference (7%) between the amount of unique variance accounted for by parent and teacher reports. Thus, only partial dominance was indicated. For the comparison of teacher and child reports, the difference in the unique contribution of each predictor of  $-.02$  was not significant. When controlling for parent report, there was no difference (0%) between the amount of unique variance accounted for by teacher and child report. Lastly, for the comparison of parent and child reports, the difference (7%) between the unique contribution of each predictor was not significant.

#### Subscales of the Reading Motivation Scale for Teachers (RMS-T)

Analyses involving the FCAT-SSS. Teacher report of motivation (RMS-T) was found to fully dominate both parent and teacher report in the prediction of FCAT-SSS scores, and thus, a dominance analysis of the four subscales of the RMS-T in predicting FCAT-SSS scores was conducted. The results are presented in Table 6 and contain the same information as tables with three predictors, with the addition of another predictor in the models. The first table offers the  $(2^4 - 1) = 14$  squared multiple correlations of all the possible models involving the four predictors ( $p = 4$ ). The four predictor variables explained 56% of the variance in reading achievement and the Competence subscale dominated the other three variables in their predictive utility. This subscale accounted for 54% of the variance in FCAT-SSS reading achievement, while the Interest subscale accounted for 1% of the variance in reading achievement above and beyond the 54% accounted for by the Competence subscale. The Perceived Control subscale and the Test Anxiety subscale each accounted for no additional variance above and beyond the 54% accounted for by the Competence subscale.

The Interest and Competence subscales of the RMS-T jointly accounted for 55% of the variance in FCAT-SSS reading achievement. Further, the Perceived Control and Test Anxiety subscales accounted for no additional variance in reading achievement after controlling for the prior two subscales. For the comparison of the Interest and Competence subscales, there was a significant difference in the unique contribution of each predictor of  $-.17$ . Moreover, in the presence of the other two variables, there was a significant difference of 12% between the amount of unique variance accounted for by the Interest and Competence subscales. The Competence subscale again fully dominated the Perceived Control and Test Anxiety subscales, contributing significantly more unique variance to the prediction of reading achievement than either of the two variables. For the comparison of the Competence and Perceived Control subscales, there was a significant difference in the unique contribution of each predictor of 21%. When controlling for the other variables, a significant difference of 13% between the amount of unique variance accounted for by Competence and Interest was found. In addition, when comparing the Competence and Test Anxiety subscales, there was a significant difference in the unique contribution of each predictor of 47%. In the presence of the other variables, a significant difference of 13% between the amount of unique variance accounted for by the Competence and Test Anxiety subscales was found. Taken together, Table 8 indicates the total dominance of the Competence subscales over the other subscales in the prediction of FCAT-SSS reading achievement.

For the comparison of the Interest and Test Anxiety subscales, there was a significant difference in the unique contribution of each of  $.29$ . Moreover, in the presence of the other two variables, there was no difference (0%) between the amount of unique variance accounted for by the Interest and Test Anxiety subscales. Therefore, partial dominance of the Interest subscale

was indicated. When comparing the Perceived Control and Test Anxiety subscales, there was a significant difference in the unique contribution of each predictor of 26%. However, when controlling for the other two variables, there was no difference (0%) between the amount of unique variance accounted for by Perceived Control and Test Anxiety, indicating only partial dominance of the Perceived Control subscale. Overall, these results demonstrated that the Interest subscale partially dominated the Test-Anxiety subscale, and the Perceived Control subscale partially dominated the Test Anxiety subscale.

Analyses involving the FCAT-NRT. The FCAT-NRT results in Table 9 show a similar pattern to FCAT-SSS results. The four predictor variables explained 61% of the variance in reading achievement and the Competence subscale again dominated the other three variables in their predictive utility. This subscale accounted for 58% of the variance in FCAT-SSS reading achievement, while the Interest subscale accounted for 1% of the variance in reading achievement above and beyond the 57% accounted for by the Competence subscale. The Perceived Control subscale accounted for no additional variance and the Test anxiety subscales accounted for only 2% of the additional variance above and beyond the 58% accounted for by the Competence subscale.

The Competence and Test Anxiety subscales of the RMST jointly accounted for 60% of the variance in FCAT-SSS reading achievement. In addition, the Perceived Control subscale accounted for 0% and the Interest subscale for 1% of the variance in reading achievement after controlling for the Competence subscales. For the comparison of the Interest and Competence subscales, there was a significant difference in the unique contribution of each of  $-.18$ . Moreover, in the presence of the other two variables, a significant difference of 12% between the amount of unique variance accounted for by the Interest and Competence subscales was found. Similar patterns were observed for the comparisons between the Competence subscale and the other subscales. Thus, the Competence subscale again fully dominated the Interest, Perceived Control and Test Anxiety subscales, contributing significantly more unique variance to the prediction of reading achievement. Likewise, similar to the FCAT-SSS results, the Interest subscale partially dominated the Test Anxiety subscale, and the Perceived Control subscale partially dominated the Test Anxiety subscale in predictive utility.

Analyses involving the PRQ. Parent report of motivation (RMS-P) was found to partially dominate teacher report (RMS-T) in the prediction of PRQ (parent report of minutes per day their child reads for pleasure). The relative importance of the four subscales of the RMSP in predicting PRQ scores was performed and the results are presented in Table 10. The four predictor variables explained 22% of the variance in reading achievement and the Interest subscale dominated the other three variables in their predictive utility. The Interest subscale accounted for 18% of the variance in PRQ while the Competence and Test Anxiety subscales each accounted for none of the variance in reading achievement above and beyond the 18% accounted for by the Interest subscale. The Perceived Control subscale accounted for 3% of the additional variance above and beyond the 18% accounted for by the Interest subscale.

The Interest and Perceived Control subscales of the RMS-P jointly accounted for 21% of the variance in FCAT-SSS reading achievement. In addition, the Competence and Test Anxiety subscales each accounted for none of the variance in reading achievement after controlling for the Interest and Perceived Control subscales. For the comparison of the Interest and Competence subscales, there was a significant difference in the unique contribution of each of  $-.11$ . Once controlling for the other two variables, there was a significant difference of 13% between the amount of unique variance accounted for by the Interest and Competence subscales. However,

suppression of the variables was likely occurring. Similar patterns were observed for the comparison of the Interest subscale to the other subscales, for the Interest subscale again fully dominated the Perceived Control and Test Anxiety subscales, contributing significantly more unique variance in the prediction of reading achievement. Taken together, Table 10 indicates the total dominance of the Interest subscale over the other RMS-P subscales in the prediction of PRQ.

#### Evaluation of Regression of Child Specific Items of Reading Motivation

Analyses involving the FCAT-SSS. Hierarchical regression analyses were conducted to determine if the child specific items contributed more unique variance in the prediction of reading outcomes beyond that accounted for by the dominant informant in previous analyses. The teacher report of motivation (RMS-T) was the most important predictor in FCAT-SSS reading achievement and thus was used in this regression. The variable that is entered last in the analyses is the variable of interest because one can determine whether or not it contributes unique variance in the prediction of reading outcomes by examining the  $R^2$  change for significance once the other variables are in the equation. Table 11a displays the unique contribution of the child specific items and Table 11b provides the unique contribution of the teacher report of motivation to the prediction of FCAT-SSS reading achievement. Sixty percent of the variance in FCAT-SSS scores was accounted for by the two variables. They each accounted for a significant amount of unique variance in reading achievement; however the magnitude of the unique variance accounted for by the child specific items was small (7%) compared to the variance (27%) accounted for by teacher report. A test of dependent change in  $R^2$  through a  $z$  test was conducted and the teacher report accounted for significantly more unique variance in the prediction of FCAT-SSS than the child specific items ( $2.59, p < .05$ ).

Analyses involving the FCAT-NRT. Since the teacher report of motivation (RMS-T) was found to be the dominant predictor in FCAT-NRT reading achievement, two regression analyses were performed with the variables, RMS-T and the child specific items. Sixty-three percent of the variance in reading achievement was accounted for by the parent report and the child specific items. A significant amount of the unique variance in reading achievement was accounted for by each of the two variables as observed in Tables 12a and 12b. However, the child specific items accounted for a smaller proportion of the unique variance in achievement in comparison to teacher report (6% versus 31%, respectively). The  $z$  test of change in  $R^2$  indicated that the teacher report of motivation again accounted for significantly more unique variance in the prediction of FCAT-NRT than the child specific items ( $3.39, p < .05$ ).

Analyses involving the PRQ. The partial dominance of parent report of motivation (RMS-P) over child and teacher reports in predicting PRQ (minutes per day the child reads for pleasure) was established. Thus, the parent report and the child specific items were analyzed using regression. Results in Tables 13a and 13b indicate that the two variables accounted for 12% of the variance in reading quantity. However, only parent report was found to account for a significant amount of the unique variance in PRQ (10%). Furthermore, the child specific items accounted for zero percent of the unique variance in the PRQ outcome.

#### Evaluation of Friedman's Two-Way Analysis of Variance by Ranks of Children's Reading Preferences

Friedman's Two-Way Analysis of Variance by Ranks was used to determine whether the rank totals (denoted  $R_j$ ) of each child's reading material preferences differed significantly from the values that would be expected by chance. Table 14 demonstrates that books ( $R_j = 206$ ) were ranked by parents as more preferred by their children than comic books ( $R_j = 343.5$ ) and

magazines ( $R_j = 407.5$ ). The statistic  $F_r$  (2303.49) exceeded the critical value of 5.99 at the .05 level of significance indicating that the sums of ranks for the various reading materials differed significantly from each other. The significance of individual pairs of the rank totals was conducted to determine which pairs of reading materials were significantly different from each other. The difference between the rank total of books ( $R_B$ ) and comic books ( $R_C$ ) was 137.5, while the difference between the rank total of books ( $R_B$ ) and magazines ( $R_M$ ) was 201.5. Lastly, the difference between the rank totals of comic books ( $R_C$ ) and magazines ( $R_M$ ) was found to be 64. The critical difference at the .05 significance level was 40.20, and thus all differences between each pair of reading materials were significant. Taken together, books were significantly more preferred than comic books and magazines, while comic books were the least preferred reading material.

#### Public Library Visits

Thirty-six percent of 149 parents reported that their child went to the public library, while 64% percent endorsed that their child did not go to the public library. Eighty-eight parents indicated the number of times per month their child visited the library and the mean number of visits per month was 2.49 ( $SD = 1.46$ ).

Table 3  
*Descriptive Statistics and Intercorrelations for All Observed Variables*

Variable	1	2	3	4	5	6	7
1. RMS-T	—	.601**	.512**	.463**	.920**	.938**	.864**
2. RMS-P	.601**	—	.491**	.382**	.596**	.556**	.466**
3. RMS-C	.512**	.491**	—	.824**	.455**	.485**	.425**
4. RMS-C CS Items	.463**	.382**	.824**	—	.391**	.428**	.362**
5. RMS-T Subscale 1	.920**	.596**	.455**	.391**	—	.756**	.805**
6. RMS-T Subscale 2	.938**	.556**	.485**	.428**	.756**	—	.783**
7. RMS-T Subscale 3	.864**	.466**	.425**	.362**	.805**	.783**	—
8. RMS-T Subscale 4	.361**	.154	.237**	.349**	.188*	.292**	.114
9. RMS-P Subscale 1	.472**	.894**	.441**	.328**	.519**	.407**	.389**
10. RMS-P Subscale 2	.614**	.921**	.489**	.366**	.573**	.600**	.470**
11. RMS-P Subscale 3	.536**	.888**	.411**	.290**	.554**	.489**	.466**
12. RMS-P Subscale 4	.314**	.507**	.183*	.226**	.262**	.292**	.168*
13. FCAT-SSS Reading	.723**	.550**	.561**	.573**	.610**	.738**	.582**
14. FCAT- NRT Reading	.755**	.515**	.573**	.565**	.634**	.761**	.593**
15. TRT	.199*	.259**	.200*	.207*	.194*	.165*	.188*
16. PRQ (pleasure)	.183*	.351**	.229**	.137	.191*	.160	.050
17. PRQ (school)	-.027	.040	-.070	-.065	.000	-.037	-.059
<i>M</i>	138.800	146.373	148.873	118.653	46.560	51.680	17.773
<i>SD</i>	30.985	32.461	27.855	20.551	13.535	14.428	4.131
Reliability	.966	.952	.845	.819	.955	.965	.860
Maximum Possible	210	210	210	162	72	78	24

Table 3-continued

Variable	8	9	10	11	12	13	14
1. RMS-T	.361**	.472**	.614**	.536**	.314**	.723**	.755**
2. RMS-P	.154	.894**	.921**	.888**	.507**	.550**	.515**
3. RMS-C	.237**	.441**	.489**	.411**	.183*	.561**	.573**
4. RMS-C CS Items	.349**	.328**	.366**	.290**	.226**	.573**	.565**
5. RMS-T Subscale 1	.188*	.519**	.573**	.554**	.262**	.610**	.634**
6. RMS-T Subscale 2	.292**	.407**	.600**	.489**	.292**	.738**	.761**
7. RMS-T Subscale 3	.114	.389**	.470**	.466**	.168*	.582**	.593**
8. RMS-T Subscale 4	—	.031	.173*	.031	.321**	.278*	.349**
9. RMS-P Subscale 1	.031	—	.718**	.782**	.254**	.409**	.363**
10. RMS-P Subscale 2	.173*	.718**	—	.811**	.370**	.570**	.549**
11. RMS-P Subscale 3	.031	.782**	.811**	—	.323**	.484**	.423**
12. RMS-P Subscale 4	.321**	.254**	.370**	.323**	—	.327**	.338**
13. FCAT -SSS Reading	.278**	.409**	.570**	.484**	.327**	—	.845**
14. FCAT -NRT Reading	.349**	.363**	.549**	.423**	.338**	.845**	—
15. TRT	.096	.198*	.259**	.184*	.193*	.313**	.292**
16. PRQ (pleasure)	.141	.429**	.280**	.233**	.087	.122	.155
17. PRQ (school)	-.016	.065	.023	-.015	.032	.032	.052
<i>M</i>	22.787	49.727	54.933	17.587	24.100	309.480	629.500
<i>SD</i>	3.967	13.695	13.795	4.956	6.277	53.417	37.806
Reliability	.653	.923	.933	.855	.735	—	—
Maximum Possible	36	72	78	24	36	500	817

Table 3-continued

Variable	15	16	17
1. RMS-T	.199*	.183*	-.027
2. RMS-P	.259**	.351**	.040
3. RMS-C	.200*	.229**	-.070
4. RMS-C CS Items	.207*	.137	-.065
5. RMS-T Subscale 1	.194*	.191*	.000
6. RMS-T Subscale 2	.165*	.160	-.037
7. RMS-T Subscale 3	.188*	.050	-.059
8. RMS-T Subscale 4	.096	.141	-.016
9. RMS-P Subscale 1	.198*	.429**	.065
10. RMS-P Subscale 2	.259**	.280**	.023
11. RMS-P Subscale 3	.184*	.233**	-.015
12. RMS-P Subscale 4	.193*	.087	.032
13. FCAT -SSS Reading	.313**	.122	.032
14. FCAT -NRT Reading	.292**	.155	.052
15. TRT	—	.067	.026
16. PRQ (pleasure)	.067	—	.298**
17. PRQ (school)	.026	.298**	—
<i>M</i>	13.033	3.140	26.050
<i>SD</i>	7.735	1.253	13.263
Reliability	.914	—	—
Maximum Possible	69	5	—

Table 3-continued

*Note.* RMS-T = Reading Motivation Scale for Teachers; RMS-P = Reading Motivation Scale for Parents; RMS-C = Reading Motivation Scale for Children (common items); RMS-C CS = Reading Motivation Scale for Children Child Specific items; Subscale 1 = reading interest; Subscale 2 = competence; Subscale 3 = perceived control; Subscale 4 = test anxiety; TRT= Title Recognition Test; PRQ (pleasure) = Parent Reading Quantity (minutes child read for pleasure in ordinal measurement); PRQ (school) = Parent Reading Quantity (minutes child read for school);  $N = 150$ .

\*\*  $p < .01$  \*  $p < .05$

Table 4  
*Dominance Analysis of the Prediction of FCAT-SSS*

Predictors	$R^2$	Unique Contribution of Predictor to FCAT-SSS ( $N=150$ )		
		T	P	C
T	0.52	--	0.02	0.05
P	0.30	0.24	--	0.11
C	0.31	0.26	0.10	--
T P	0.54	--	--	0.04
T C	0.57	--	0.01	--
P C	0.41	0.17	--	--
T P C	0.58	--	--	--
ALL	0.58	0.19	0.09	0.09

Table 5  
*Asymptotic 95% Confidence Intervals for Pairwise Differences in the Prediction of FCAT-SSS*

Variables Compared	$R^2$ diff	SE	95% CI	
			Lower	Upper
T-P	0.22*	0.064	0.095	0.346
Controlling for C	0.16*	0.049	0.062	0.254
T-C	0.21*	0.070	0.072	0.346
Controlling for P	0.13*	0.054	0.025	0.235
P-C	-0.01	0.072	-0.152	0.129
Controlling for T	-0.03	0.076	-0.177	0.122

*Note.* T = teacher report of motivation; P = parent report of motivation; C = child report of motivation; diff = differences; CI = Confidence Interval; \* significant at  $p < .05$ .

Table 6  
*Dominance Analysis of the Prediction of FCAT-NRT*

Unique Contribution of Predictor to FCAT-NRT (N=150)				
Predictors	$R^2$	T	P	C
T	0.57	--	0.01	0.05
P	0.27	0.31	--	0.14
C	0.33	0.29	0.07	--
T P	0.58	--	--	0.04
T C	0.62	--	0.00	--
P C	0.40	0.22	--	--
T P C	0.62	--	--	--
ALL	0.62	0.21	0.07	0.10

Table 7  
*Asymptotic 95% Confidence Intervals for Pairwise Differences in the Prediction of FCAT-NRT*

Variables Compared	$R^2$ diff	SE	95% CI	
			Lower	Upper
T-P	0.30*	0.062	0.184	0.425
Controlling for C	0.22*	0.048	0.122	0.311
T-C	0.24*	0.069	0.106	0.377
Controlling for P	0.18*	0.058	0.062	0.289
P-C	-0.06	0.071	-0.202	0.076
Controlling for T	-0.04	0.072	-0.182	0.100

*Note.* T = teacher report of motivation; P = parent report of motivation; C = child report of motivation; diff = differences; CI = Confidence Interval; \* significant at  $p < .05$ .

Table 8  
*Dominance Analysis of the Prediction of Title Recognition Test (TRT)*

Predictors	$R^2$	Unique Contribution of Predictor to TRT (N=150)		
		T	P	C
T	0.04	--	0.03	0.01
P	0.07	0.00	--	0.01
C	0.04	0.01	0.03	--
T P	0.07	--	--	0.00
T C	0.05	--	0.02	--
P C	0.07	0.00	--	--
T P C	0.07	--	--	--
ALL	0.7	0.01	0.02	0.01

Table 9  
*Asymptotic 95% Confidence Intervals for Pairwise Differences in the Prediction of TRT*

Variables Compared	$R^2$ diff	SE	95% CI	
			Lower	Upper
T-P	-0.03	0.033	-0.092	0.037
Controlling for C	-0.02	0.033	-0.085	0.042
T-C	0.00	0.031	-0.062	0.061
Controlling for P	0.00	0.014	-0.031	0.023
P-C	0.03	0.037	-0.046	0.100
Controlling for T	0.02	0.054	-0.088	0.122

*Note.* T = teacher report of motivation; P = parent report of motivation; C = child report of motivation; diff = differences; CI = Confidence Interval; \* significant at  $p < .05$ .

Table 10

*Dominance Analysis of the Prediction of Parent Reading Quantity (PRQ)*

Unique Contribution of Predictor to PRQ (N=150)

Predictors	$R^2$	T	P	C
T	0.03	--	0.09	0.02
P	0.12	0.00	--	0.00
C	0.05	0.01	0.08	--
T P	0.12	--	--	0.01
T C	0.06	--	0.07	--
P C	0.13	0.00	--	--
T P C	0.13	--	--	--
ALL	0.13	0.01	0.05	0.02

Table 11

*Asymptotic 95% Confidence Intervals for Pairwise Differences in the Prediction of PRQ*

Variables Compared	$R^2$ diff	SE	95% CI	
			Lower	Upper
T-P	-0.09*	0.041	-0.170	-0.009
Controlling for C	-0.07	0.048	-0.163	0.024
T-C	-0.02	0.033	-0.083	0.045
Controlling for P	0.00	0.017	-0.037	0.031
P-C	0.07	0.046	-0.020	0.162
Controlling for T	0.07	0.063	-0.057	0.189

*Note.* PRQ = parent report of minutes per day child reads for pleasure; T = teacher report of motivation; P = parent report of motivation; C = child report of motivation; diff = differences; CI = Confidence Interval; \* significant at  $p < .05$ .

Table 12

*Dominance Analysis of the Prediction of FCAT-SSS Using RMS-T subscales*

Predictors	Unique Contribution of Predictor to FCAT-SSS (N = 150)				
	$R^2$	T1	T2	T3	T4
T1	.37	--	.18	.02	.03
T2	.54	.01	--	.00	.00
T3	.34	.06	.21	--	.05
T4	.08	.32	.47	.31	--
T1 T2	.55	--	--	.00	.00
T1 T3	.40	--	.16	--	.03
T1 T4	.40	--	.16	.03	--
T2 T3	.54	.01	--	--	.00
T2 T4	.55	.01	--	.00	--
T3 T4	.38	.04	.17	--	--
T1 T2 T3	.55	--	--	--	.00
T1 T2 T4	.56	--	--	.00	--
T1 T3 T4	.43	--	.13	--	--
T2 T3 T4	.55	.01	--	--	--
ALL	.56	.13	.28	.12	.03

Table 13

*Asymptotic 95% Confidence Intervals for Pairwise Differences in the Prediction of FCAT-SSS*

Variables Compared	$R^2$ diff	SE	95% CI	
			Lower	Upper
T1-T2	-.17*	.053	-.276	-.069
ALL	-.12*	.043	-.207	-.038
T1-T3	.03	.047	-.060	.126
ALL	.01	.012	-.018	.031
T1-T4	.29*	.073	.152	.437
ALL	.00	.050	-.095	.101
T2-T3	.21*	.049	.109	.302
ALL	.13*	.038	.055	.203
T2-T4	.47*	.062	.345	.590
ALL	.13*	.042	.044	.208
T3-T4	.26*	.074	.116	.407
ALL	.00	.008	-.019	.013

*Note.* T1 = teacher motivation subscale 1 (interest); T2 = teacher motivation subscale 2 (competence); T3 = teacher motivation subscale 3 (perceived control); T4 = teacher motivation subscale 4 (test anxiety); diff = differences; CI = Confidence Interval; \* significant at  $p < .05$ .

Table 14

*Dominance Analysis of the Prediction of FCAT-NRT Using RMS-T subscales*

Predictors	Unique Contribution of Predictor to FCAT-NRT ( $N = 150$ )				
	$R^2$	T1	T2	T3	T4
T1	.40	--	.19	.02	.06
T2	.58	.01	--	.00	.02
T3	.35	.07	.23	--	.08
T4	.12	.33	.47	.31	--
T1 T2	.58	--	--	.00	.02
T1 T3	.42	--	.17	--	.06
T1 T4	.45	--	.15	.02	--
T2 T3	.58	.01	--	--	.02
T2 T4	.60	.01	--	.00	--
T3 T4	.43	.05	.17	--	--
T1 T2 T3	.59	--	--	--	.02
T1 T2 T4	.60	--	--	.00	--
T1 T3 T4	.48	--	.13	--	--
T2 T3 T4	.60	.01	--	--	--
ALL	.61	.14	.29	.12	.06

Table 15

*Asymptotic 95% Confidence Intervals for Pairwise Differences in the Prediction of FCAT-NRT*

Variables Compared	$R^2$ diff	SE	95% CI	
			Lower	Upper
T1-T2	-.18*	.052	-.283	-.078
ALL	-.12*	.041	-.200	-.038
T1-T3	.05	.048	-.045	.142
ALL	.01	.019	-.030	.045
T1-T4	.27*	.078	.122	.427
ALL	-.01	.049	-.105	.087
T2-T3	.23*	.049	.133	.326
ALL	.13*	.036	.057	.197
T2-T4	.46*	.067	.324	.586
ALL	.11*	.044	.025	.196
T3-T4	.23*	.080	.068	.383
ALL	-.02	.015	-.045	.012

*Note.* T1 = teacher motivation subscale 1 (interest); T2 = teacher motivation subscale 2 (competence); T3 = teacher motivation subscale 3 (perceived control); T4 = teacher motivation subscale 4 (test anxiety); diff = differences; CI = Confidence Interval; \* significant at  $p < .05$ .

Table 16

*Dominance Analysis of the Prediction of PRQ Using RMS-P subscales*

Predictors	Unique Contribution of Predictor to PRQ ( $N = 150$ )				
	$R^2$	P1	P2	P3	P4
P1	.18	--	.00	.03	.00
P2	.08	.11	--	.00	.00
P3	.05	.16	.02	--	.00
P4	.01	.18	.07	.05	--
P1 P2	.19	--	--	.03	.00
P1 P3	.21	--	.00	--	.00
P1 P4	.18	--	.00	.03	--
P2 P3	.08	.14	--	--	.00
P2 P4	.08	.11	--	.00	--
P3 P4	.05	.16	.02	--	--
P1 P2 P3	.22	--	--	--	.00
P1 P2 P4	.19	--	--	.03	--
P1 P3 P4	.21	--	.00	--	--
P2 P3 P4	.08	.14	--	--	--
ALL	.22	.15	.03	.03	.00

Table 17

*Asymptotic 95% Confidence Intervals for Pairwise Differences in the Prediction of PRQ*

Variables Compared	$R^2$ diff	SE	95% CI	
			Lower	Upper
P1-P2	.11*	.042	.024	.187
ALL	.13*	.054	.027	.237
P1-P3	.13*	.038	.056	.204
ALL	.11*	.045	.018	.195
P1-P4	.18*	.055	.068	.284
ALL	.14*	.054	.031	.242
P2-P3	.02	.025	-.026	.074
ALL	-.03	.021	-.067	.016
P2-P4	.07	.039	-.006	.148
ALL	.00	.009	-.014	.023
P3-P4	.05	.034	-.020	.114
ALL	.03	.025	-.019	.078

*Note.* PRQ = parent report of minutes per day child reads for pleasure; P1 = parent motivation subscale 1 (interest); P2 = parent motivation subscale 2 (competence); P3 = parent motivation subscale 3 (perceived control); P4 = parent motivation subscale 4 (test anxiety); diff = differences; CI = Confidence Interval; \* significant at  $p < .05$ .

Table 18

*Unique Variances Accounted for by RMS-C Child Specific Items in the Prediction of FCAT-SSS*

Variable	Total $R^2$	$R^2$ Change	Beta	$F$ Change
1. T	.52	.52	.58	162.2***
2. Child Specific Items	.60	.07	.30	26.23***

Table 19

*Unique Variances Accounted for by Teacher Report of Motivation in the Prediction of FCAT-SSS*

Variable	Total $R^2$	$R^2$ Change	Beta	$F$ Change
1. Child Specific Items	.33	.33	.30	72.42***
2. T	.60	.27	.58	96.80***

*Note.* T = teacher report of motivation;  $N = 150$ ; \*\*\*  $p < .001$ .

Table 20

*Unique Variances Accounted for by RMS-C Child Specific Items in the Prediction of FCAT-NRT*

Variable	Total $R^2$	$R^2$ Change	Beta	$F$ Change
1. T	.57	.57	.63	196.15***
2. Child Specific Items	.63	.06	.27	23.44***

Table 21

*Unique Variances Accounted for by Teacher Report of Motivation in the Prediction of FCAT-NRT*

Variable	Total $R^2$	$R^2$ Change	Beta	$F$ Change
1. Child Specific Items	.32	.32	.27	69.50***
2. T	.63	.31	.63	122.69***

*Note.* T = teacher report of motivation;  $N = 150$ ; \*\*\*  $p < .001$ .

Table 22

*Unique Variances Accounted for by RMS-C Child Specific Items in the Prediction of PRQ*

Variable	Total $R^2$	$R^2$ Change	Beta	$F$ Change
1. P	.12	.12	.35	20.78***
2. Child Specific Items	.12	.00	.00	.00

Table 23

*Unique Variances Accounted for by Parent Report of Motivation in the Prediction of PRQ*

Variable	Total $R^2$	$R^2$ Change	Beta	$F$ Change
1. Child Specific Items	.02	.02	.00	2.81
2. P	.12	.10	.35	17.52***

Note. P = parent report of motivation;  $N = 150$ ; \*\*\*  $p < .001$

Table 24

*Friedman Two-Way Analysis of Variance by Ranks of Children's Preferences for Reading Materials*

Reading Material	1 Most Preferred	1.5	2 Preferred	2.5	3 Least Preferred	Sums of Ranks
Books	93	5	21	5	17	206*
Comic Books	16	3	24	38	60	343.5*
Magazines	24	4	51	37	25	407.5*

Note.  $n = 141$ ; \*  $p < .05$ ;  $F_r = 5.99$ .

## DISCUSSION

In this study, three questions were addressed regarding the utility of information about reading motivation provided by three informants in predicting reading achievement and reading quantity in a third-grade sample. The first question asked which informant (child, teacher or parent) answering a set of common items relating to reading motivation is the most important predictor of reading outcomes. The second question assessed the relative importance of the subscales of the dominant predictor for each reading outcome. Lastly, the third question asked if the most important informant of the common items demonstrated more predictive validity than the child specific items. Each question will be addressed in order, followed by the implications and limitations of this study, and future directions for research.

The present study provides evidence that different informants of reading motivation appear to have varying predictive power for reading outcomes. Specifically, the teacher report of reading motivation (RMS-T) consistently accounted for more of the unique variance in both measures of reading achievement (FCAT-SSS and FCAT-NRT). Reports from children and parents were less predictive than the teacher report. Thus, teachers appear to outperform children and their parents in their capacity to report the specific behaviors of reading interest, competence, perceived control, and test anxiety in relation to achievement. Moreover, the high correlations found between the teacher report of motivation and the reading achievement measures in this study ( $r = .72$ ,  $r = .76$ ) are within the range of correlations previous research has reported ( $r = .45 - .88$ ) (Guthrie et al., 2004; Sweet et al., 1998). Teachers likely are more knowledgeable about students' reading motivation and performance at school and thus, it would make sense that the teacher report of reading motivation would be highly predictive of students' reading achievement. Teachers may also provide a more realistic report of reading motivation, for the mean score on the RMS-T was lower than the mean scores for the RMS-P and RMS-C. Likewise, research has demonstrated that parents tend to overestimate the abilities of elementary school-aged children (Miller, 1988) and are more positive than teachers' evaluations (Galper, Wigfield, & Seefeldt, 1999).

In contrast to the predictive relations between the motivation measures and reading achievement, relationships among different informants of reading motivation and reading quantity were quite different. Dominance analyses indicated partial dominance for parent report with respect to one reading quantity outcome (PRQ), and the three informants were equally predictive of the other reading quantity measure (TRT). In fact, overall, teacher, parent and child reports of motivation were roughly comparable in their predictive utility, and no informant fully dominated another in the prediction of reading quantity. In addition, the range of correlations between reading motivation and reading quantity in this study ( $r = .18 - .35$ ) are generally consistent with the range of correlations previous studies have reported ( $r = .01 - .51$ ), which chiefly utilized child informant for both reading motivation and reading quantity (see Table 2).

Ratings of motivation from the three informants explained substantially less variance in reading quantity than in reading achievement. However, Greany and Hegarty (1987) argued that leisure reading tends to be unpredictable and sporadic, due to a variety of variables unrelated to both reading ability and motivation, such as the availability of reading material or even idiosyncratic interest. In comparison to more stable variables, such as achievement, the

arguments presented by Greany and Hegarty suggest that correlations between reading attitude and leisure reading are likely to be much weaker. The possibility that the lower correlations between motivation and reading quantity resulted from unreliability of the TRT is not supported by the relatively high alpha ( $\alpha = .91$ ) for the measure. One plausible explanation is that the achievement tests may actually be a more precise measure of reading involvement and amount of reading, in contrast to the TRT. Another suggestion might be that since the FCAT tests involve reading long passages and answering relatively difficult questions, they are sensitive to individual differences in persistence or motivation for success. For example, each child spent two hours taking the FCAT-SSS and one hour completing the FCAT-NRT Reading sections, which both involved endurance to read lengthy passages.

The current study also examined the relative importance of the subscales of the dominant informant for each reading outcome. Results of the dominance analysis examining the predictive relations of the teacher report subscales in reading achievement (FCAT-SSS and FCAT-NRT) revealed that the unique variance across the outcomes was consistently accounted for largely by the reading Competence subscale. Examples of items on the Competence subscale included asking teachers to assess whether the student finds it easy or hard to understand stories, and if it is easy or difficult for the student to figure out new words. In comparison to the Competence subscale, the remaining subscales of Interest, Perceived Control, and Test Anxiety in reading were far less predictive of reading achievement. This is a commonsense relationship, inasmuch as student confidence in reading ability is directly predictive of reading achievement. With respect to previous findings, the correlations between the Competence subscale and the two reading achievement tests ( $r = .74$ ,  $r = .76$ ) in this study are consistent with those found by Guthrie et al. (2004) (utilizing teacher informant), and relatively higher, as expected, than those reported by Chapman and Tunmer (1995) and Henk and Melnick (1992), which utilized child informants. In addition to previous research demonstrating a positive relationship between competence or self-efficacy and reading achievement, relationships have been shown between self-efficacy and achievement in other subject areas, such as writing (i.e., Multon, Brown, & Lent, 1991; Shell, Colvin, & Bruning, 1995; Schunk, 1984).

Results regarding the relative importance of the four subscales of the parent motivation report in the prediction of reading quantity (PRQ) demonstrated that the reading Interest subscale dominated the other subscales. More specifically, the subscales relating to Competence, Perceived Control and Test Anxiety did not appear to account for a significant proportion of the variance in reading quantity, above and beyond the Interest subscale. Moreover, parents' perception of their children's reading interest is likely a significant predictor of their children's reading quantity, given their knowledge of their children's reading activity at home, in contrast to teachers, for example. In addition, the correlation between the parent reported Interest subscale and the PRQ ( $r = .43$ ) falls within the upper range of correlations ( $r = .11 - .53$ ) obtained between similar reading interest scales (utilizing child informant) and reading quantity measures (utilizing child or parent informant) in slightly older children (Allen et al., 1992; Baker & Wigfield, 1999; Greaney & Hegarty, 1987; Wigfield & Guthrie, 1997).

This study also evaluated whether the most important informant of the common items, teacher report, demonstrated more predictive validity than the child specific items in the prediction of achievement (FCAT-SSS and FCAT-NRT). In both achievement outcomes, the teacher report, which assessed observable reading behaviors, consistently accounted for significantly more unique variance than the child specific items, which assessed unobservable constructs, such as the children's thoughts and feelings regarding reading. The children were in

the third-grade, and although research has demonstrated that they are adequate informants of motivation-related constructs in reading (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Wigfield, Eccles, Yoon, Harold, et al., 1997), teachers may be more accurate informants of the children's reading motivation in relation to achievement. This finding is also consistent with results from Wigfield and Harold's study (1992) indicating that the relations between teacher report of children's reading ability, effort, and quality, and children's own report, increase across grade level, suggesting that children's perceptions become more consistent with teachers' perceptions by the fourth-grade. Likewise, children's perceptions of their own competence are changing throughout elementary school and their judgments regarding ability may not be a stable trait (Stipek & McIver, 1989).

The results regarding whether parent report, which partially dominated the other informants of the common items, accounted for significantly more unique variance than the child specific items in the prediction of reading quantity (PRQ) was also examined. Parent report was found to account for a significant amount of the unique variance in PRQ, while the child specific items accounted for none of the unique variance. Further, the comparison of parent and child reports of reading motivation in this age group has been lacking in the literature. One possible explanation regarding the predictive validity of parent report over child report is that children of this age may not have stable perceptions of their reading motivation. For instance, Wigfield et al. (1997) found that older children's subjective task values of different activities were more stable than younger children's task values. Thus, parents may be better informants of children's reading motivation in relation to reading quantity. However, parents completed both the PRQ and RMS-P, and this may have contributed to the relationship between the two measures.

This is the first study to systematically examine the predictive relations of child, teacher, and parent reports of children's reading motivation to reading outcomes within the same investigation. Although children are the most commonly utilized informants about motivation, results of this study suggest that child report (of both observable and unobservable motivation items) did not appear to explain a significant proportion of the variance in reading outcomes above teacher and parent reports. In contrast, the teacher report, and more specifically, the Competence subscale, appears to be the most important predictor of reading achievement. Thus, teachers may be more adept at appraising motivation in relation to reading achievement. In contrast, findings from this study indicate that overall, teacher, parent, and child reports of motivation were roughly equivalent in their predictive utility of reading quantity. Nevertheless, the Interest subscale of the parent report of motivation consistently accounted for more of the unique variance in reading quantity over other aspects of parent-reported motivation. Thus, results from this study may lead to a more accurate understanding of students' reading motivation and improved motivation instruments, which appears necessary for advancement in the field of reading motivation.

Despite the significant findings of this study, several limitations are important to acknowledge. First, it was argued earlier that the teacher report of reading motivation (RMS-T) was the most important predictor of reading achievement. One plausible explanation for the results obtained in this study is that, rather than assessing motivation and interest in reading, the teacher report of motivation may have been indexing teacher judgments about reading competence or achievement. This interpretation is plausible, because the scale within the RMS-T that was most strongly related to reading achievement was the reading competence scale, which required the teacher to make judgments about the students' reading ability. If this interpretation is correct, then the RMS-T is useful in predicting reading achievement primarily because it

assesses the correlation between teacher judgments of reading competence and actual reading achievement, rather than the relations between motivation for reading and reading achievement. Similarly, teachers have been shown to be reasonably accurate in judging their students' academic achievement (Demaray & Elliott, 1998; Gresham & Elliott, 1990; Hecht & Greenfield, 2002). Thus, the RMS-T may have been indexing competence or motivation. One method for disentangling the two constructs would be a longitudinal study that assessed early competence and later motivation, or vice versa. Data collected in a longitudinal manner would allow for the examination of growth in motivation and competence, and would better separate the influences of motivation and competence. Future research should focus on longitudinal data collection so that causal statements regarding reading motivation are more appropriate.

Another possible explanation as to why the teacher report of motivation may have been measuring competence or achievement is due to the potential for a halo effect. Teachers' perceptions of their students' competence and reading ability may have influenced their ratings on the other subscales. However, on the teacher reports in the current study, it is less likely that the first subscale, Interest, was affected by the ratings on the second subscale, Competence. Moreover, the correlations between this first subscale (Interest) and achievement were still relatively strong ( $r = .61$  and  $.63$ ). Nevertheless, there exists a good possibility that the correlations between the Interest subscale and reading achievement are actually a better representation of the strength of relationship between motivation and achievement than those between the Competence subscale and achievement.

Another way to assess this limitation of the RMS-T is to compare the teacher ratings to the parent and child ratings on the Competence subscale. In this study, the parent and child responses on the Competence subscale were also found to correlate strongly with the achievement tests ( $r = .45 - .57$ ). Furthermore, the strong relationship observed between competence and reading achievement is consistent with previous research (Chapman & Tunmer, 1995; Guthrie et al., 2004). Additionally, children's perceptions of their own reading ability have been shown to develop early on and be mutually influenced by achievement (Chapman & Tunmer, 1997; Helmke & van Aken, 1995; Kurtz-Costes & Schnieder, 1994; Skaalvik & Hagtvet, 1990). Similarly, with increasing age, children discern between liking to read and feeling competent in reading (Chapman & Tunmer, 1995; Eccles, Wigfield, Harold, Blumenfeld, 1993). As perceptions of efficacy decrease, motivation also drops, a relation that is more evident in less able readers. In other words, the competence differences between high and low ability readers may influence whether or not a child is likely to enjoy or pursue reading. Thus, further research is clearly needed to examine the directions of influence among reading competence, motivation and achievement throughout elementary school.

Another limitation to this study is the limited variability demonstrated on the TRT measure, which may have affected the size of correlations between the TRT and other variables. Since the length of the current TRT was double the length of TRT measures used in previous studies, and if this TRT is assumed to be equivalent to previous measures, the mean and standard deviations of the different versions can be compared. When the mean and standard deviation of the current TRT ( $M = 13$ ,  $SD = 7$ ) is divided in half ( $M = 6.5$ ,  $SD = 3.5$ ), it would fall within the lower end of the mean TRT scores from previous studies ( $M = 5 - 20$ ) (Barker, Torgesen, & Wagner, 1992; Braten, Andreassen, & Aolaussen, 1999; McBride-Chang & Chang, 1996). Thus, some restriction of range was evident on the TRT in the current study. As a result, the relationships among the motivation measures, reading outcomes and the TRT in the full range of reading quantity may not have been tested adequately.

Similarly, McBride-Chang, Manis, Seidenberg, Custodio, & Doi (1993) cautioned that factors, such as cultural norms and knowledge of vocabulary, may affect TRT scores. Given the large percentage of African-American participants and the low socioeconomic status of the sample in the current study, another possibility is that the TRT scores were influenced by these factors. Another study with comparable percentages of ethnic and low socioeconomic status participants also found decreased correlations between the TRT and reading outcomes, such as comprehension and decoding (McDowell, Schumm, & Vaughn, 1993). Furthermore, correlations in this study between TRT scores and children's reading achievement ( $r = .31$ ,  $r = .29$ ) were slightly lower compared to previous studies with generally older, Caucasian participants ( $r = .37$  to  $.66$ ) (Allen et al., 1992; Cipielewski & Stanovich, 1992; Echols et al., 1996; McBride-Chang et al., 1996).

An additional limitation to this study is the restricted range shown on the Parent Reading Quantity measure (PRQ), as lower levels of this variable were overrepresented. Specifically, children's mean minutes per day of reading as reported by their parent ( $M = 3.1$  minutes) was lower than those reported in previous studies, which utilized a book-reading diary method ( $M = 10.1 - 21.3$  minutes) (Allen et al., 1992; Anderson et al., 1988; Shapiro & Whitney, 1997; Taylor et al., 1990). As a result, the construct of reading quantity may not have been indexed adequately and convergent validity, demonstrated by correlations between the PRQ and achievement, was decreased. For example, the correlations between the PRQ and children's reading achievement were generally weaker ( $r = .16$ ,  $r = .12$ ) than in prior studies, which also used a book-reading diary method ( $r = .16 - .46$ ) (Allen et al., 1992; Anderson, Wilson, & Fielding, 1988; Greaney & Hegarty, 1987; Taylor et al., 1990). A factor contributing to this decreased relationship could be a parental bias in the reporting of their children's reading quantity. Senechal, LeFevre, Thomas, & Daley (1998) argued that parents may provide unreliable reading quantity estimates due to problems in interpreting the items, difficulties in estimating reading quantity, and social desirability tendencies (Senechal, LeFevre, Hudson, & Lawson, 1996). Taken together, assessing the construct of reading quantity has proved to be difficult and each method of measuring reading quantity appears to have its own advantages and disadvantages. Thus, findings from this study emphasize the importance of including multiple indicators of a construct, particularly with regard to reading quantity. Future research should continue examining the factors relating to the different methods of assessing reading quantity.

Overall, relatively few studies have focused on the mutual, developmental influences among different dimensions of children's reading motivation, such as competence, and reading quantity and achievement over time. Future research should focus on examining these variables in longitudinal studies utilizing structural equation modeling in order to form causal statements. More specifically, although this study and others have shown that reading motivation is an important part of achievement, elucidation regarding why or how reading motivation explains variance in achievement has not been addressed.

Although the motivation measures in the current study demonstrated adequate reliability and validity, the factor structures of the measures could not be assessed due to limited sample size. Replication of this study with a larger sample would enable the use of exploratory and confirmatory analysis, resulting in a clearer understanding of the underlying dimensions of reading motivation. Another suggestion for future research is to investigate whether the manipulation of reading motivation has an impact on the motivation scales used in the current study.

APPENDIX A  
TITLE RECOGNITION TEST

Directions: Below you will see a list of book titles. Some of the titles are the names of actual books and some are not. You are to read the names and put a check mark next to the names of those that you know are books. Do not guess, but only check those that you know are actual books. Remember, some of the titles are not those of actual books, so guessing can be identified.

Actual Book Titles

The Doorbell Rang	Dog Heaven
Dinosaurs Before Dark	A Wrinkle in Time
The Gardener	Captain Underpants and the Attack of the Talking Toilets
The Absolutely Essential Eloise	How the Leopard Got His Spots
Ben and Me	The Legend of Luke
Little House in the Big Woods	Amelia Bedelia
The Story of Ferdinand	Georgie
Kit's Wilderness	And If the Moon Could Talk
Emeline and the Circus	Oh, the Places You'll Go
Fantastic Mr. Fox	Stories that Julian Tells
Jamie O'Rourke and the Pooka	Sailor Moon Supers
The Reluctant Dragon	The Bad Case of Stripes
Come On, Rain!	Dogzilla
Henry Hikes to Fitchburg	The Fall of Freddy the Leaf
Cricket in Times Square	Hannah and the Whistling Teakettle
Knight at Dawn	The Lion, the Witch and the Wardrobe
The Polar Express	Chester's Way
Ramona the Pest	The Crippled Lamb
The Horse and His Boy	I Like You
Buttons	Ira Sleeps Over
Where the Sidewalks Ends	Lord of the Rings
Busted!	Frog and Toad Are Friends
Black Beauty	The Velveteen Rabbit
Flat Stanley	Freckle Juice
The Gargoyle on the Roof	Eloise in Moscow
Beetle Boy	The Giving Tree
My Father's Dragon	Harry Potter and the Chamber of Secrets
The Circle of Days	Miss Nelson is Missing
The Case of the Disappearing Princess	Bedtime for Frances
Deep in the Jungle	Nate the Great
Auntie Claus	Holes
Franklin Goes to School	Marcia and the Bad Hair Day
The Dance	The Granddad Tree

Horace and Morris but Mostly Dolores  
The Upside Down Day

Franklin in the Dark

Foil Book Titles

The Monster In My Backyard  
The Last Bus Stop  
How I Survived the 2<sup>nd</sup> grade  
Like Likes Like  
Tye Mary and the Magic Brush  
It May Happen  
Another August  
Mystery in My Class  
Two Tickets To Yesterday  
The People-Eating Couch  
October Nights  
Genius Soup  
Dracula's Dentist  
Meet the Creeps  
Binky's Revenge  
The Very Lucky Penny  
Yaks and Quacks  
Don't Laugh, Joe!  
Airplane to Mars  
Mischievous Mouse  
Mr. Bumby's Haunted House  
Escape From the Dollhouse  
The Talking Pumpkin  
One Mother, Two Dads  
Aliens Ate My Math Book  
Winter Winds  
Trolls, Scales and Magic Beans  
Flying Zebras  
The Frog Who Couldn't Croak  
Black and White and Red All Over  
Danny's Favorite Day

APPENDIX B  
PARENT READING QUANTITY MEASURE (PRQ)

PRQ Pleasure

How many minutes a day, on average, does your child spend reading for pleasure (reading that is not part of a school assignment)? \_\_\_\_\_

PRQ School

How many minutes a day, on average, does your child spend reading books assigned by school?  
\_\_\_\_\_

Please note: this is not the same as time spent doing homework. What we want to know is how many minutes a day your child spends reading as part of homework assignments.

Public Library Visits

Does your child go to the public library?

No \_\_\_\_\_ Yes \_\_\_\_\_

If so, how many times per month does your child visit the library? \_\_\_\_\_

Children's Reading Preferences

If your child reads for pleasure at home, please rate (from 1 to 3), with 1 being most preferred, which kind of materials he or she likes to read best?

\_\_\_\_\_ books  
\_\_\_\_\_ comic books  
\_\_\_\_\_ magazines

APPENDIX C  
READING MOTIVATION SCALE FOR CHILDREN (RMS-C)

Sample question:

Some kids like comic books

BUT

Other kids don't like comic books

Common Items

Interest subscale

1. Some kids like reading stories with few words in them

BUT

Other kids like reading stories with lots of words in them

2. Some kids enjoy reading

BUT

Other kids don't enjoy reading

3. Some kids like reading easier stories so that they don't make many mistakes

BUT

Other kids like reading harder stories even though they might make mistakes

4. Some kids like to read in class

BUT

Other kids do not like to read in class

5. Some kids like reading stories that are easy so they will read them well

BUT

Other kids like reading stories that hard even though they might not read them well

6. Some kids don't read outside of school that much

BUT

Other kids read outside of school a lot

7. Some kids look forward to reading

BUT

Other kids don't look forward to reading

8. Some kids like reading hard stories to learn something

BUT

Other kids like reading hard stories to show people that they are smart

9. Some kids don't like to read at home

BUT

Other kids like to read at home

10. Some kids don't care if they learn how to read well

BUT

Other kids think it is important to learn how to read well

11. Some kids like to spend free time reading

BUT

Other kids would prefer not to spend free time reading

12. Some kids like hard books because they are a challenge

BUT

Other kids like easy books that they are sure that they can read

Competence subscale

- |  |     |  |
|--|-----|--|
| 13. Some kids find it hard to understand stories that they have to read                        | BUT | Other kids find it easy to understand stories they have to read                          |
| 14. Some kids find homework in reading easy  | BUT | Other kids find homework in reading hard   |
| 15. Some kids usually cannot come up with an answer when asked a question about what they read | BUT | Other kids usually can come up with an answer when asked a question about what they read |
| 16. Some kids are good at remembering words  | BUT | Other kids find it hard to remember words  |
| 17. Some kids find it hard to read new words   | BUT | Other kids find it easy to read new words  |
| 18. Some kids find it easy to read to the class  | BUT | Other kids find it hard to read to the class   |
| 19. Some kids have trouble correcting mistakes in reading                                      | BUT | Other kids are good at correcting mistakes in reading                                    |
| 20. Some kids learn things slowly in reading   | BUT | Other kids learn things quickly in reading   |
| 21. Some kids need extra help in reading   | BUT | Other kids do not need extra help in reading   |
| 22. Some kids make few mistakes in reading   | BUT | Other kids make a lot of mistakes in reading   |
| 23. Some kids usually can figure out a hard word by themselves                                 | BUT | Other kids usually can't figure out a hard word by themselves                            |
| 24. Some kids find it hard to figure out sounds in a word                                      | BUT | Other kids find it easy to figure out sounds in a word                                   |
| 25. Some kids feel the books they read in class are hard                                       | BUT | Other kids feel the books they read in class are easy                                    |

Perceived Control subscale

- |  |     |   |
|--|-----|---|
| 26. Some kids give up when they have to read a difficult story | BUT | Other kids keep trying when they have to read a difficult story |
| 27. Some kids think that they can get                          | BUT | Other kids think that no matter how                             |

better and better at reading if they try hard they try, they won't get better at reading

28. Some kids think they can't read a hard story, no matter what BUT Other kids think that they can read a hard story if they decide to

29. Some kids have a hard time paying attention when they are reading BUT Other kids can pay attention when they are reading

#### Test Anxiety subscale

30. Some kids studied for the FCAT at home BUT Other kids did not study for the FCAT at home

31. Some kids were nervous the morning before taking the FCAT BUT Other kids were not nervous the morning before taking the FCAT

32. Some kids did not worry before they took the FCAT BUT Other kids worried before they took the FCAT

33. Some kids think they did well on the FCAT BUT Other kids think they did poorly on the FCAT

34. Some kids worry more about the FCAT BUT Other kids worry less about the FCAT

35. Some kids didn't think about how they did after they took the FCAT BUT Other kids worried a lot about how they did after they took the FCAT

#### Child Specific Items

36. Some kids like reading to themselves BUT Other kids do not like reading to themselves

37. Some kids think reading is boring BUT Other kids think reading is interesting

38. Some kids read books when they are interested in the subject BUT Other kids don't read books even when they are interested in the subject

39. Some kids think they know a lot about how to read compared to the rest of their class BUT Other kids think they know a little about how to read compared to the rest of their class

40. Some kids think that in reading, they are in the top half of their class BUT Other kids think that in reading, they are in the lower half of their class

41. Some kids feel that they can read as well as their classmates BUT Other kids feel that they can't read as well as their classmates

42. Some kids feel that they will be very good readers	BUT	Other kids think that they won't be very good readers
43. Some kids think they read a story well because they used a good strategy	BUT	Other kids think they read a story well because they were lucky that time
44. Some kids think they read a story badly because they were unlucky	BUT	Other kids think they read a story badly because they didn't use a good strategy
45. Some kids think they read a story badly because they didn't use a good strategy	BUT	Other kids think they read a story badly because they are stupid
46. Some kids think they can't do well in reading, even if they want to	BUT	Other kids think they can do well in reading, if they decide to
47. Some kids think they read a story badly because they are stupid	BUT	Other kids think they read a story badly because they didn't try hard
48. Some kids think they read a story well because they tried hard	BUT	Other kids think they read a story well because they are smart
49. Some kids think they read a story badly because they didn't try hard	BUT	Other kids think they read a story badly because they were unlucky
50. Some kids don't know what it takes for them to do well in reading	BUT	Other kids think that if they try hard, they will do well in reading
51. Some kids think they read a story well because they are smart	BUT	Other kids think they read a story well because they used a good strategy
52. Some kids think they read a story well because they tried hard	BUT	Other kids think they read the story well because they were lucky that time
53. Some kids thought about how poorly they were doing while they took the FCAT	BUT	Other kids didn't think about how they were doing while they took the FCAT
43. Some kids felt nervous when the teacher handed out the FCAT	BUT	Other kids felt relaxed and comfortable when the teacher handed out the FCAT
44. Some kids didn't think about failing the FCAT while they were taking it	BUT	Other kids worried if they would fail the FCAT while they were taking it
45. Some kids didn't think about how hard the FCAT was while they were taking it	BUT	Other kids thought about how hard the FCAT was while they were taking it
46. Some kids felt nervous while taking the	BUT	Other kids did not feel very nervous while

FCAT

taking the FCAT

47. Some kids didn't think about if they would be the last one to finish while taking the FCAT

BUT

Other kids worried that they would be the last one to finish while taking the FCAT

48. Some kids felt that it was hard to figure out the answers while taking the FCAT

BUT

Other kids felt that it was easy to figure out the answers while taking the FCAT

49. Some kids didn't think they needed to study more while taking the FCAT

BUT

Other kids thought they should have studied more while taking the FCAT

50. Some kids worried that a lot of their answers were wrong while taking the FCAT

BUT

Other kids didn't think about their answers while taking the FCAT

51. Some kids thought about what would happen if they failed while taking the FCAT

BUT

Other kids didn't think about what would happen after the test while taking the FCAT



11. Your student likes to spend free time reading	OR	Your student would prefer not to spend free time reading
12. Your student likes hard books because they are a challenge	OR	Your student likes easy books that he or she is sure that he or she can read
<u>Competence subscale</u>		
13. Your student finds it hard to understand stories that he or she has to read	OR	Your student finds it easy to understand the stories he or she has to read
14. Your student finds homework in reading easy	OR	Your student finds homework in reading hard
15. Your student usually cannot come up with an answer when asked a question about what he or she read	OR	Your student usually can come up with an answer when asked a question about what he or she read
16. Your student is good at remembering words	OR	Your student finds it hard to remember words
17. Your student finds it hard to read new words	OR	Your student finds it easy to read new words
18. Your student finds it easy to read to the class	OR	Your student finds it hard to read to the class
19. Your student has trouble correcting mistakes in reading	OR	Your student is good at correcting mistakes in reading
20. Your student learns things slowly in reading	OR	Your student learns things quickly in reading
21. Your student needs extra help in reading	OR	Your student does not need extra help in reading
22. Your student makes few mistakes in reading	OR	Your student makes a lot of mistakes in reading
23. Your student usually can figure out a hard word by himself or herself	OR	Your student usually can't figure out a hard word by himself or herself
24. Your student finds it hard to figure out sounds in a word	OR	Your student finds it easy to figure out sounds in a word
25. Your student feels the books he or she reads in class are hard	OR	Your student feels the books he or she reads in class are easy

Perceived Control subscale

- |  |    |  |
|--|----|--|
| 26. Your student gives up when he or she has to read a difficult story                         | OR | Your student keeps trying when he or she has to read a difficult story                             |
| 27. Your student thinks that he or she can get better and better at reading if he or she tries | OR | Your student thinks that no matter how hard he or she tries, he or she won't get better at reading |
| 28. Your student thinks the he or she can't read a hard story, no matter what                  | OR | Your student thinks that he or she can read a hard story if he or she decides to                   |
| 29. Your student has a hard time paying attention when he or she is reading                    | OR | Your student can pay attention when he or she is reading   |

Test Anxiety subscale

- |   |    |  |
|---|----|--|
| 30. Your student studied for the FCAT at home                                       | OR | Your student did not study for the FCAT at home                                  |
| 31. Your student was nervous the morning before taking the FCAT                     | OR | Your student was not nervous the morning before taking the FCAT                  |
| 32. Your student did not worry before he or she took the FCAT                       | OR | Your student worried before he or she took the FCAT                              |
| 33. Your student thinks he or she did well on the FCAT                              | OR | Your student thinks he or she did poorly on the FCAT                             |
| 34. Your student worries more about the FCAT  | OR | Your student worries less about the FCAT   |
| 35. Your student didn't think about how he or she did after he or she took the FCAT | OR | Your student worried a lot about how he or she did after he or she took the FCAT |



10. Your child doesn't care if he or she learns how to read well	OR	Your child thinks it is important to learn how to read well
11. Your child likes to spend free time reading	OR	Your child would prefer not to spend free time reading
12. Your child likes hard books because they are a challenge	OR	Your child likes easy books that he or she is sure that he or she can read
<u>Competence subscale</u>		
13. Your child finds it hard to understand stories that he or she has to read	OR	Your child finds it easy to understand stories he or she has to read
14. Your child finds homework in reading hard	OR	Your child finds homework in reading easy
15. Your child usually cannot come up with an answer when asked a question about what he or she read	OR	Your child usually can come up with an answer when asked a question about what he or she read
16. Your child is good at remembering words	OR	Your child finds it hard to remember words
17. Your child finds it hard to read new words	OR	Your child finds it easy to read new words
18. Your child finds it easy to read to the class	OR	Your child finds it hard to read to the class
19. Your child has trouble correcting mistakes in reading	OR	Your child is good at correcting mistakes in reading
20. Your child learns things slowly in reading	OR	Your child learns things quickly in reading
21. Your child needs extra help in reading	OR	Your child does not need extra help in reading
22. Your child makes few mistakes in reading	OR	Your child makes a lot of mistakes in reading
23. Your child usually can figure out a hard word by himself or herself	OR	Your child usually can't figure out a hard word by himself or herself
24. Your child finds it hard to figure out	OR	Your child finds it easy to figure out

sounds in a word

sounds in a word

25. Your child feels the books he or she reads in class are hard OR Your child feels the books he or she reads in class are easy

Perceived Control subscale

26. Your child gives up when he or she has to read a difficult story OR Your child keeps trying when he or she has to read a difficult story

27. Your child thinks that he or she can get better and better at reading if he or she tries OR Your child thinks that no matter how hard he or she tries, he or she won't get better at reading

28. Your child thinks the he or she can't read a hard story, no matter what OR Your child thinks that he or she can read a hard story if he or she decides to

29. Your child has a hard time paying attention when he or she is reading OR Your child can pay attention when he or she is reading

Test Anxiety subscale

30. Your child studied for the FCAT at home OR Your child did not study for the FCAT at home

31. Your child was nervous the morning before taking the FCAT OR Your child was not nervous the morning before taking the FCAT

32. Your child did not worry before he or she took the FCAT OR Your child worried before he or she took the FCAT

33. Your child thinks he or she did well on the FCAT OR Your child thinks he or she did poorly on the FCAT

34. Your child worries more about the FCAT OR Your child worries less about the FCAT

35. Your child didn't think about how he or she did after he or she took the FCAT OR Your child worried a lot about how he or she did after he or she took the FCAT

APPENDIX F  
BIBLIOGRAPHY FOR READING MOTIVATION SCALES

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APPENDIX G  
INSTRUCTIONS FOR THE READING MOTIVATION SCALE FOR CHILDREN

Examiner says: “I am going to ask some questions about reading and you. This is not a test and there are no right or wrong answers, but it is important that you are truthful. First, I am going to explain how these questions work, so let’s do a practice question together. I’ll read it aloud to you.”

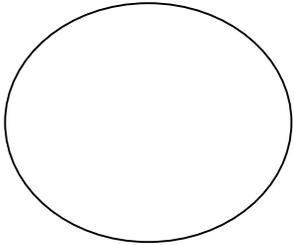
Examiner reads practice question: “Some kids like comic books but other kids don’t like comic books. This question talks about two different kinds of kids, and we want to know which kinds of kids are more like you. First decide which kinds of kids are more like you. Are you more like the kids who like comic books, or are you more like the kids who don’t like comic books?” (Examiner goes to that side of the question. (If the child is confused, repeat sample question).

“Here’s your answer sheet.” While pointing to the respective circle on the child’s response sheet, say ‘sort of true,’ ‘mostly true,’ and ‘really true.’ “You said that you are more like kids who like comic books (repeat which side they choose). The second thing I want you to think about, now that you have decided which kinds of kids you are more like, is whether that is sort of true, mostly true, or really true for you. I want you to point to which circle best describes how true it is for you.” (The examiner marks only one of the six boxes—both sides are not checked).

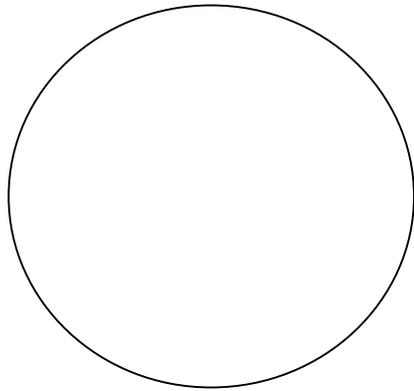
“That question was for practice. Do you understand? Now, we have some more sentences that I’m going to read out loud to you. For each question, pick the one that you are more like and that goes with what is true for you. Then point to the circle. These questions are about reading and you. When answering these questions, please think about all the reading you do at home and at school. You might not understand some questions or some words in the questions. That’s OK. If you don’t understand something, just stop me, and I will repeat the question.”

For the statements following the practice question, after stating both sides of the item, ask the child, “Which kinds of kids are you more like?” Then say (and point to each respective circle until the child understands to point to the circle on his or her own), “So, is that sort of true, mostly true, or really true for you?” After the child understands to point to the circle on his or her own, say, “So, how true is that for you?” after you state both sides of the item.

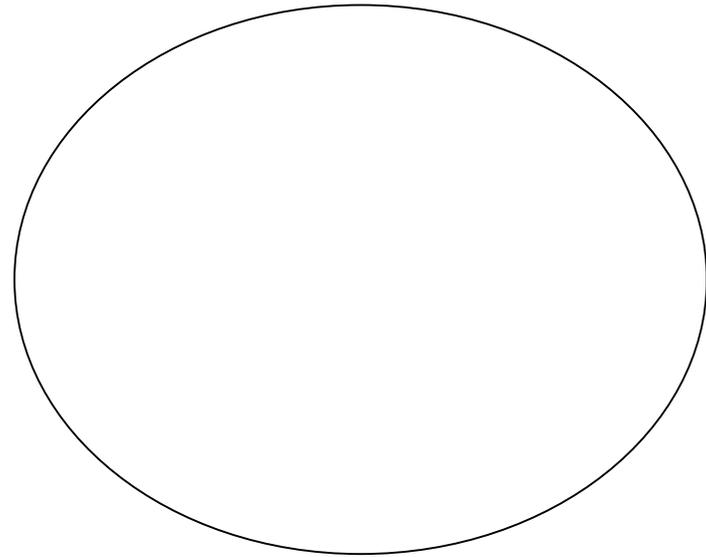
APPENDIX H  
READING MOTIVATION SCALE FOR CHILDREN RESPONSE SHEET



Sort of True for me



Mostly True for Me



Really True for Me

APPENDIX I  
FSU HUMAN SUBJECTS COMMITTEE APPROVAL LETTER



Office of the Vice President For Research  
Human Subjects Committee  
Tallahassee, Florida 32306-2763  
(850) 644-8633 · FAX (850) 644-4392

**APPROVAL MEMORANDUM**

Date: 3/11/2004

To:  
Lara Jakobsons  
FCRR 227 N. Bronough  
Suite 7250  
Tallahassee FL 32301

Dept.: **PSYCHOLOGY DEPARTMENT**

From: **John Tomkowiak, Chair**

A handwritten signature in black ink, appearing to read "John Tomkowiak".

Re: **Use of Human Subjects in Research  
Child, Teacher, and Parent Reports of Motivation and their Predictive Relations to  
Reading Achievement and Reading Quantity**

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Human Subjects Committee at its meeting on **3/10/2004**. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by **3/9/2005** you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

cc: Joseph Torgesen  
HSC No. 2004.148

APPENDIX J  
SAMPLE PARENT INFORMED CONSENT



---

227 N. Bronough Street, Suite 7250 • Tallahassee, Florida 32301 • 850.644.9352

\_\_\_\_\_, 2004

Dear Parent,

We are sending this letter to you because we would like your permission to include you and your child in a study we are conducting at your elementary school. We are interested in learning about how children feel about reading and how you as a parent think your child behaves in reading situations. This information will help provide knowledge on how teachers can interact most effectively with children while they are learning to read. We are asking **all** children in your child's classroom to participate.

Your child's participation will involve completing two individually administered measures. These measures will be given to **all** children in your child's classroom whose parents or guardians consent. The administrator is a highly trained student at FSU. The administration should require one 30-minute session with your child, and upon completion of the session, your child will be given the option of a small prize (pencil) or a coupon for free French fries at McDonald's. The two measures assess your child's familiarity with different books and how your child feels about reading. We will schedule the sessions at a time that is least disruptive to ongoing classroom work. In addition, we will need information about your child's reading achievement via your child's scores on the FCAT-SSS and FCAT-NRT (grade 3), routine tests given by your child's school, which will also require us to access the identification numbers associated with those tests. Lastly, we will need to obtain your child's birthdate and ethnicity from your school.

Your participation will involve returning the enclosed brief survey on how you think your child behaves in reading situations. It will take you about 5 minutes to fill out the survey. Returning a completed survey and permission form with your signature in the enclosed envelope will be considered you and your child's consent to participate.

Your participation, as well as that of your child, in this study is voluntary. If you or your child chooses not to participate or to withdraw from the study at any time, there will be no penalty and it will not affect your child's grade. We will provide money for school supplies in your child's classroom to the teacher for every parent that returns a completed survey and signed permission form from your child's class. The results of the research study may be published, but you and your child's name will never be used in any reports. We will only report group data. Information obtained during the study will remain confidential, to the extent allowed by law.

The project has the approval of the Leon County Research Advisory Board as well as that of your school principal. If you have any questions concerning this study or your child's participation, please feel free to call Lara Jakobsons (645-1189) or email

jakobsons@psy.fsu.edu. If you have any questions regarding you or your child's rights as research participants, please contact FSU's Internal Review Board (644-8836). **Please return the completed and signed permission form in the enclosed envelope by \_\_\_\_\_, 2004.**

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PERMISSION FORM

I GIVE consent for my child (print child's name here) \_\_\_\_\_  
to participate in the above study.

\_\_\_\_\_  
Signature of child's parent or  
guardian

My child is in & can be given surveys during after-school program \_\_\_\_ or is not in  
program. \_\_\_\_\_.

APPENDIX K  
SAMPLE TEACHER INFORMED CONSENT



---

227 N. Bronough Street, Suite 7250 • Tallahassee, Florida 32301 • 850.644.9352

\_\_\_\_\_, 2004

Dear Teacher,

We are sending this letter to you because we would like permission to include your classroom in a study we are conducting in 3<sup>rd</sup> grade classrooms at your elementary school. We are interested in learning about how children feel about reading and how you think each child behaves in reading situations. This information will help provide knowledge on how educators can interact most effectively with children while they are learning to read. We are asking **all** children in your classroom and at your elementary school to participate.

Your participation will involve filling out a brief survey on each child whose parent consents to participate. This survey is about how you think the child behaves in reading situations. It will take you about 5 minutes to fill out each survey. We will provide \$3 per child (for example, \$3/child for 20 classroom children is \$60) for every survey you fill out on a child in which the child's parent has returned a survey and permission form from your class. This money would go toward school supplies or activities in your classroom.

The child's participation will involve completing two individually administered measures. These measures will be given to **all** children in your classroom whose parents or guardians consent. The administration should require one 30-minute session with each child. The two measures assess the child's familiarity with different books and how the child feels about reading. We will schedule the sessions at a time that is least disruptive to ongoing classroom work in your classroom.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there is no penalty. The results of the research study may be published but your name will never be used in any reports of the study. We will only report group data. Information obtained during the study will remain confidential, to the extent allowed by law.

The project has the approval of the Leon County Research Advisory Board as well as that of your school principal. If you have any questions concerning this study or your participation, please feel free to call Lara Jakobsons (645-1189) or email [jakobsons@psy.fsu.edu](mailto:jakobsons@psy.fsu.edu). If you have any questions regarding your rights as a research participant, please contact FSU's Internal Review Board (644-8836). **Please return the permission form by \_\_\_\_\_, 2004.**

---

PERMISSION FORM

I consent (print your name here) \_\_\_\_\_ to participate in the above study.

Best times to reach you at school:

\_\_\_\_\_

\_\_\_\_\_  
Signature of teacher

APPENDIX L  
SAMPLE CHILD ASSENT FORM

Child Assent

Hello, \_\_\_\_\_, my name is \_\_\_\_\_. How are you today? I would like your help in a study I am doing. I am going to ask you to play some games and answer some questions. I am going to be asking some of the other boys and girls in your class to play the same questions too. Now some of the questions are for older kids and you may not know the answer, but that's okay. You just try your best and if you don't want to continue you let me know and we can stop at any time. So will you help me by playing my games and answering some questions?

If yes – Great. Let's get started.

If no –If the response is still no, the child will be excused from the study and escorted back to class.

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