

A Review of Reading Motivation Scales

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Abstract

Reading motivation is a critical contributor to reading achievement and has the potential to influence its development. Educators, researchers, and evaluators need to select the best reading motivation scales for their research and classroom. The goals of this review were to identify a set of reading motivation student self-report scales used in research, examine the development and psychometric properties of each reading motivation scale, and compare scales on availability, reliability, age range, and motivation constructs measured. This article summarizes 16 current reading motivation scales. Findings suggest the need for more research regarding the multidimensionality of reading motivation and measures that could span early childhood to adolescence.

A Review of Reading Motivation Scales

While proficiency in reading is critical to understanding core class texts, researchers also believe that reading skills and strategies do not fully account for the variability in students' engagement in reading. In fact, students engage or disengage in reading for a variety of reasons. For example, they may enjoy the process of reading or believe that reading is a valuable way to learn information. Students who disengage from reading, however, may not lack the ability to read but resist reading due to a lack of motivation. This disengagement will eventually have detrimental effects on their reading ability (Baker, Afflerbach, & Reinking, 1996; Guthrie & Wigfield, 1999; Guthrie, McGough, Bennett, & Rice, 1996; Paris & Oka, 1986). In addition, reading motivation continually surfaces as a critical contributor to reading achievement (Biancarosa & Snow, 2004; Curtis, 2002). Reading motivation is highly related to reading comprehension and achievement (Anmarkrud & Braten, 2009; Cartwright, Marshall, & Wray, 2016; Law, 2009; Mucherah & Yoder, 2008; Park, 2011; Retelsdorf, Koller, & Möller, 2011; Wang & Guthrie, 2004) and has also been shown to predict later reading achievement (Becker, McElvany, & Kortenbruck, 2010; Schaffner, Philipp, & Schiefele, 2016; Taboada, Tonks, Wigfield, & Guthrie, 2009). Thus, reading skills and reading motivation seem inextricably linked (e.g., Adelman & Taylor, 2000; Ellis et al., 1997; Zins et al., 2004). Studies of this relationship may be key to improving reading achievement, particularly for students who struggle with reading proficiency. Fundamental to these studies is the ability to develop and identify valid and reliable scales of reading motivation. The overarching purpose of this article is to describe and review current reading motivation measures.

While there are multiple definitions of reading motivation, Guthrie and Wigfield's (2000) definition of reading motivation as an "individual's personal goals, values, and beliefs with

regard to the topics, processes, and outcomes of reading” (p. 405) seems to best personalize reading motivation. According to this definition, reading motivation differs at an individual level. An individual’s reading motivation may also differ depending on context, such as school and home (De Naeghel et al., 2012; McKenna & Kear, 1990) and by the way the text is presented, such as print or digital (McKenna et al., 2012). Most will also agree that reading motivation is multifaceted and complex and may include sub-constructs such as intrinsic reading motivation, extrinsic reading motivation, social reasons for reading, and value of reading (Wigfield & Guthrie, 1997).

A recent review written by leading researchers in reading motivation detailed how constructs of reading motivation have been defined, clarified the dimensionality of the constructs, and reviewed research on the relationships among motivation constructs and other reading variables such as reading behavior and competence (Schiefele, Schaffner, Möller, & Wigfield, 2012). It is the author’s belief that two separate groups of reading motivation constructs exist. The first group, relating to intrinsic and extrinsic reasons for reading, includes reading attitude, intrinsic value, and reading value. Therefore, a reader who is intrinsically motivated to read may read out of enjoyment of reading, the value of reading, or a positive attitude towards reading. A reader who is extrinsically motivated to read may be motivated by external sources such as grades or recognition. The second group of reading motivation constructs includes self-concept of reading ability and reading self-efficacy. These constructs are actually antecedents of reading motivation since they describe the “expectancy of successful reading” (Schiefele et al., 2012, p. 431).

Because reading motivation is a critical contributor to reading achievement and has the potential to influence its development, researchers have developed multiple scales to measure

reading motivation. Although there are various forms of reading motivation scales, such as parent beliefs about their children's reading motivation (Wigfield & Guthrie, 1997) and teacher reports (Wigfield et al., 2008), the most commonly used assessment of reading motivation is student self-report. Unlike other forms of measurement, self-reports are fairly easy and quick to assess in a classroom and rely less on adult time, but they are not without their difficulties and biases (Brenner & DeLamater, 2016). Because of their prevalence, it is important to document what self-report scales are available for measuring reading motivation as well as the reliability and validity of these scales.

Goals of Current Review

Reading motivation scales vary as to the reading constructs they measure and the appropriateness of the measure for different aged readers. However, the last review of reading scales related to affective responses to reading was by Summers (1977). Summers stated that “cognitive characteristics may determine the limits to a student's development but affective characteristics will influence whether or not the attempt is made to reach those limits” (Summers, 1973, p.2). In his review, Summers summarized the item development, response set contamination, and the statistical procedures including reliability and information on factor analyses of scales measuring affective responses to reading, reading attitude scales, published mostly in the late 1960s. At that time, only a few standardized tools existed for measuring affective states related to reading such as reading attitude. Summers noted after reviewing these scales that most had problems including restricted sampling, response set bias, item analysis, and information about reliability and validity.

In the 1970s, educators, researchers, and evaluators expressed a need to have appropriate reading motivation measures for their goals. However, although the reviews of reading

motivation measures discussed the theoretical constructs of reading motivation (Schiefele et al., 2012) and terminology (Conradi, Jang, & McKenna, 2014), there has not been a systematic review of reading motivation measures since 1977. The goal of the current review was to identify and systematically evaluate common and recently developed reading motivation scales. It was our belief that an up-to-date review of reading motivation scales would not only help individuals select appropriate measures but would also highlight appropriate next steps for reading motivation scale development.

Method

Literature Search and Review Criteria

The objective of the search for reading motivation scales was to identify as many self-report reading motivation scales found in the literature for all age levels. The databases search included PsychInfo, Psych Articles, and Eric using keywords related to reading motivation and measurement (i.e., reading, motivation, comprehension, self-efficacy, self-concept, attitude, value, confidence, measurement, and scale). In addition to online searches, the team examined reference sections of chapters in books on the topic of reading motivation and other identified studies as well as conference proceedings of the American Educational Research Association. Further, the team completed an additional search using the name of each scale as a keyword in order to examine the extent to which each measure was used in past research.

Reading motivation scales had to meet several requirements to be included in this review. First, the motivation scales were limited to scales after and including the year 1990. Second, we limited scales to those that included some aspect of a self-report Likert-type scale. The scales were not limited by respondent age and included a review of scales appropriate for respondents in first grade to adult. Over 200 papers including a reading motivation assessment were

identified, however only a total of 120 articles were identified that included the use of a self-report reading motivation measures with a Likert-type scale developed on or after 1990. By organizing the 120 papers into stacks of those using the same scale or adaption of the same scale, a total of 16 student self-report scales of reading motivation and self-efficacy were found. A few popular scales, or adaptations of these popular scales, were used in a majority of the papers. The list of sixteen scales included: *The Children's motivations for Reading Scale*, *Young Reader Motivation Questionnaire*, *Young Children's Academic Intrinsic Motivation Inventory*, *The Children's Academic Intrinsic Motivation Inventory*, *Elementary Reading Attitude Survey*, *Motivation to Read Profile*, *Motivation for Reading Questionnaire*, *Reader Self-Perception Scale*, *Reading Self-Concept Scale*, *the SRQ-Reading Motivation Questionnaire*, *The Adaptive Reading Motivation Measure*, *Adolescent Motivation to Read Profile*, *Adult Motivation for Reading Scale*, *Motivations for Reading Information Books*, *Reader Self-Perception Scale 2*, and *The Survey of Adolescent Reading Attitudes*.

Each scale was reviewed separately on the following criteria as outlined in Tables 1-3: accessibility of the full scale, the age range of the developmental sample, languages available, number and label of constructs measured, reliability of full scale and subscales, size of developmental sample, and information on construct validity. These particular characteristics were reviewed and included in the three tables since they provide the information needed in order for an individual to determine scale appropriateness. Reliability was assessed using magnitudes recommended by Sattler (2006) where coefficients above .80 are considered reliable, .70-.79 relatively reliable, .60-.69 marginally reliable, and below .59 unreliable. When the data were available, race, gender, and grade differences on the measures were included in the individual descriptions in order to indicate that the scale was measuring reading motivation in a

similar way for different groups, which is a type of construct validity. Two researchers and a research assistant read each development paper and wrote descriptions and critiques of each scale. This information is summarized in Tables 1, 2, and 3. Inter-rater reliability was not needed since the information was pulled directly from the development papers.

For each early childhood, elementary, and adolescents/adults scale, the current review presents an overview, the constructs measured with reliability information when available, the development and validation of the scale, and a critique of the scale. A discussion following the individual descriptions describes general findings across all sixteen scales.

<Table 1 about here>

<Table 2 about here>

<Table 3 about here>

Results

Reading Motivation Scales: Early Childhood

Three of the reading motivation scales fell into an early childhood category. These include the Children's motivations for Reading Scale (CMRS), Young Reader Motivation Questionnaire (YRMQ), and Young Children's Academic Intrinsic Motivation Inventory (Y-CAIMI). A fourth measure that could be used for early childhood, Elementary Reading Attitude Survey (ERAS), is described in the elementary section since it can be used with students from first to sixth grades. In this section, a short description and review of the three early childhood reading motivation scales is included.

Children's Motivations for Reading Scale. CMRS (Baker & Scher, 2002) was written to assess the multidimensionality of reading for beginning readers. The developers wanted to go beyond other scales that focused primarily on enjoyment of reading to tap into motivational

constructs of enjoyment, value, and perceived competence that had been found in research. The items were selected from other reading motivation scales such as the Heathington Primary Scale (Alexander & Filler, 1976), the Survey of Reading Attitudes (Alexander & Engin, 1986), the Estes Attitude Scale (Estes, 1971), and a series of inventories developed by Gambrell et al. (1996) (Baker & Scher, 2002, p. 246). According to Baker and Scher (2002) the scale was written in order to measure motivation for reading in beginning readers. The scale was developed using responses from first grade students, and therefore, would be appropriate to use in a first-grade classroom. The full scale and a description of its development can be found in Baker and Scher (2002). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 16 item CMRS ($\alpha = .86$) includes 7 items measuring enjoyment in reading (*I like to read*, $\alpha = .67$), 4 items measuring value of reading (*I think people can learn new things from books*, $\alpha = .78$), 3 items measuring perceived competence in reading (*I think I will be a good reader*, $\alpha = .67$), and 2 items measuring and library-related topics (*I like to go to the school library*, $\alpha = .57$). Students respond on a 4-point scale. To administer the survey, an adult shows the student two stuffed animals: One animal agrees and one does not agree with a statement such as “Regal thinks books are good places to find answers to questions but Cha Cha doesn’t think books are good places to find answers to questions. Who are you more like?” (p. 246). Next, the student is asked if they are “a lot” or “just a little” like the stuffed animal.

Development and Validation. Baker and Scher administered the survey to 65 first grade students from six school in Baltimore. A principal components analysis with Varimax rotation was conducted on the original twenty items which indicated five factors, although only three factors were interpretable (value, enjoyment, and perceived competence). They caution

interpretation of these findings based on limited power due to a small sample size. They also found in the analyses that children rated the enjoyment scale significantly lower than the value or perceived competence scales.

In addition to children taking CMRS, parents were asked about their children's experiences with reading at home and about their own beliefs about the importance of reading. When examining correlations among the parent ratings and student scores, they found positive and statistically significant correlations between the parental reports of students' interest in learning to read and parental view that reading is a course of pleasure with the total student reported motivation as well as with the subscales of enjoyment, value, and perceived competence.

Critique. Overall, CMRS is a somewhat reliable and valid measure of reading motivation for first grade students. Strengths of CMRS include that it has developmentally appropriate questions and that has been shown to relate well to other reading motivation behaviors such as interest in reading. In addition, with only 16 items it should not take long to administer to an individual child. Despite these strengths there are several weaknesses of CMRS. The scale is individually administered, and therefore, takes considerable time to administer to a whole class. CMRS was only validated with a very small sample of first grade students and has not been used in other published papers; therefore, it is difficult to determine how well the scale would perform with students in other grades or demographics. Finally, some constructs are composed of only two to three items, which may not capture all aspects of the constructs and a few constructs reliabilities were lower than .70.

Young Children's Academic Intrinsic Motivation Inventory. To study the academic intrinsic motivation of younger students, Gottfried (1990) introduced Y-CAIMI. Gottfried

believed that it was important to study motivation in younger elementary school students since, at the time, there was little to know information on young children's academic intrinsic motivation. Second, Gottfried believed that motivation in early elementary years could have lasting implications for future success in school. To develop Y-CAIMI, Gottfried modified CAIMI (discussed below) developed for older elementary school students by reducing the number of items and writing a simpler response format. The scale was validated for use with students between seven and nine years of age. Sample items and a description of its development can be found in Gottfried (1990). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 39 item Y-CAIMI ($\alpha = .91$) includes 12 items measuring intrinsic motivation for reading (*I like learning new things in reading*, $\alpha = .82$), 12 items measuring intrinsic motivation for math (*I like learning new things in math*, $\alpha = .84$), 12 items measuring intrinsic motivation for general learning (*I like learning new work in school*, $\alpha = .82$), and 3 items measuring preference for difficult work (*I like to do easy work*, $\alpha = .87$). Students respond on a three-point Likert scale including responses of Very True, A Little True, and Not True. Y-CAIMI is individually administered. An adult reads all items and response choices aloud and the student points to an index card with his or her response choice. Administration of Y-CAIMI takes 20-30 minutes.

Development and Validation. Gottfried administered Y-CAIMI to 107 children over a course of three years, covering the time span of when the children were 7 to the time they were 8 (roughly grades 1-2 to grade 2-3). At age 9 they were administered CAIMI. Confirmatory factor analysis was used to examine the factor structure, indicating that the best fit was a four-factor model (reading, math, general motivation, and enjoyment of difficult schoolwork). In addition to

Y-CAIMI, students were administered assessments of IQ and achievement. In relation to the subscale, intrinsic motivation for reading, there were no significant differences among grades or gender. Y-CAIMI reading scores at age 8; however, correlated positively and significantly to CAIMI reading scores at age 9. At age 7 there was a significant and positive relationship between both IQ and reading achievement with Y-CAIMI reading score.

Critique. Overall, Y-CAIMI is a reliable and valid scale of intrinsic reading motivation for first, second, and third grade students. Strengths of Y-CAIMI include having been adapted from an earlier established measure for older students, confirmatory factor analysis showing a stable factor structure, reliability alpha scores greater than .80 for all subscales, Y-CAIMI has been translated into Spanish (Touren, Reparaz, & Peralta, 1999), and the reading Y-CAIMI score has been found to correlate with IQ and reading achievement. In addition, authors of Y-CAIMI were able to measure children over a course of three years to examine the predictability of Y-CAIMI and its relationship to CAIMI. Weaknesses of Y-CAIMI include a small validation sample of only 107 children, the full scale is not easy to access, few other research studies have used this measure, it does not measure other aspects of reading motivation beyond a general intrinsic motivation to reading, and administration is individual; therefore, it will take time to administer Y-CAIMI to an entire class.

Young Reader Motivation Questionnaire. Coddington and Guthrie (2009) developed a scale of reading motivation for early elementary school students named YRMQ in order to examine motivation of emergent readers and the role gender may play in reading motivation. The scale was developed using responses from first grade students. The full scale is available in Coddington and Guthrie (2009). A description of its development can be found in Coddington and Guthrie (2009). The information in the following two sections was obtained from this

development paper.

Constructs Measured. The 12 item YRMQ ($\alpha = .70$) includes four items measuring self-efficacy for reading (*Are you good at remembering words?*, $\alpha = .64$), three items measuring reading orientation (*Is it fun for you to read books?*, $\alpha = .60$), and five items measuring perceptions of difficulty in reading (*Do you make lots of mistakes in reading?*, $\alpha = .67$). The authors used a question format instead of a declarative format since they believed it would be less confusing for younger children. The response to each item is on a 4-point scale (1 = No, Never; 2 = No, Not Usually; 3 = Yes, Usually; 4 = Yes, Always). For example, if a student was asked, “*Can you work out hard words by yourself when you read?*” the student would be prompted to reply with a yes or no. If the student answered yes, he or she would be asked, “*Can you work out hard words by yourself always or usually?*” If the student answered no, he or she would be asked, “*Can you not usually work out hard words by yourself or never?*” These items were given individually and orally to each student.

Development and Validation. The measure was field-tested with 84 first grade students from two mid-Atlantic elementary schools. To measure construct validity the research team compared YMRQ scores to measures of reading achievement (Woodcock-Johnson Letter-Word Identification subtest) and measures of reading motivation with a teacher form, T-YMRQ, which asked similar questions to those included on YMRQ. Self-efficacy correlated significantly and positively to word identification and perceptions of difficulty correlated significantly and negatively to word identification. The student responses for all three sub-scores correlated significantly with the matching teachers sub scores on T-YMRQ. Students’ perceptions of difficulty were significantly related to both students’ self-efficacy ($-.50$) and reading orientation ($-.36$). Orientation however was not significantly correlated with self-efficacy. When examining

these relationships within gender, difficulty was still significantly related to self-efficacy (-.68) and orientation (-.54). However, none of the constructs were correlated when examining scores from girls. In general, girls were statistically more motivated than boys. When statistically controlling for the other motivation constructs, both efficacy and difficulty in reading statistically predicted word-identification scores in multiple regressions. When these analyses were run separately for each gender, only efficacy predicted word-identification with boys.

Critique. Overall, YMRQ is a fairly reliable, valid scale of motivation of emergent readers. Strengths of YMRQ include that it has been translated to Chinese (Wang & Coddington, 2014), its developmentally appropriate format, it is easy to access, and findings indicating its relationship to word-identification scores and teacher ratings of similar constructs. Despite these strengths there are several weaknesses of YMRQ. First, despite being a measure of reading motivation, most of the subcontracts seem to be similar to items found on scales of reading efficacy and self-concept (Tunmer & Chapman, 1991). In addition, reliability scores of the subscales were all below .70, the validation sample was only a small sample of first grade children which might not be generalizable, no exploratory or confirmatory factor analyses were conducted, and the scale is individually administered which may take a while if a teacher wanted to measure his or her whole class of students.

Reading Motivation Scales: Elementary

Seven reading motivation scales fell best into an elementary category. These are CAIMI, ERAS, Motivation to Read Profile (MRP), Motivation for Reading Questionnaire (MRQ), Reader Self-Perception Scale (RSPS), Reading Self-Concept Scale (RSCS), and SRQ-Reading Motivation (SRQ-RM) Questionnaire. A short review of each scale is included.

Children's Academic Intrinsic Motivation Inventory. CAIMI (Gottfried, 1985) was

developed to measure intrinsic motivation for reading, math, social studies, and science.

According to Gottfried (1985) “Intrinsic motivation concerns the performance of activities for their own sake in which pleasure is inherent in the activity itself” (p. 631). CAIMI measures aspects of intrinsic motivation such as “enjoyment of learning, an orientation toward mastery, curiosity, persistence, task endogeny, and learning of challenging, difficult, and novel tasks” (p. 633). CAIMI has been assessed with students in grades four through eight. Sample items and a description of its development are available in Gottfried (1985). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 122 item CAIMI ($\alpha = .71-.92$) includes 26 items measuring intrinsic motivation for reading ($\alpha = .71$), 26 items measuring intrinsic motivation for math (*sample*, $\alpha = .71$), 26 items measuring intrinsic motivation for social studies ($\alpha = .73$), 26 items measuring intrinsic motivation for science ($\alpha = .69$), and 18 items measuring intrinsic motivation for general school learning ($\alpha = .67$). Of the 112 items, the authors wrote 28 items specifically for reading, including items measuring high motivation (*I enjoy learning new things in reading.*), low motivation (*New ideas are not interesting to me in reading.*), and items requiring forced choice (*Is it more important to you to do a school assignment to learn more or get a good grade in reading?*) (Gottfried, 1985, p. 634). Students respond on a “5-point Likert scale ranging from strongly agree (1) to strongly disagree (5)” for the high and low motivation items (p. 633). A scale administer reads the instructions and items on the scale aloud to the child. This scale is has been both individually and group administered.

Development and Validation. Gottfried (1985) presented three separate studies exploring the development of this scale. Study 1 included 141 fourth and seventh grade suburban school children. Study 2 included 260 children in grades 4-7 in a middle class neighborhood. Study 3

included 166 middle class students in grades 5-8. In Studies 1 and 3, CAIMI reading motivation correlated significantly with reading and language achievement tests. In Study 3, CAIMI reading motivation was correlated significantly with grades in reading, social studies, and science. In Studies 1 and 2, CAIMI reading motivation decreased as student age increased and reading motivation correlated positively to perceptions of competence. In Study 3, CAIMI reading motivation was correlated significantly with the three scales from Harter's (1981) Scale of Intrinsic versus Extrinsic Orientation in the Classroom. In all three studies, CAIMI reading motivation correlated negatively and significantly with reading anxiety.

Critique. Overall, CAIMI is a reliable, valid scale of intrinsic motivation for upper elementary and middle school students in the content areas of reading, math, social studies, and science. Strengths of CAIMI include having a significant relationship to reading and language achievement, grades in reading, reading anxiety, and scales from Harter's (1981) Scale of Intrinsic versus Extrinsic Orientation in the Classroom. The reading subscale of CAIMI was above .70, can be individually or group administered, and has been used in research on topics such as gifted students' motivation (Gottfried & Gottfried, 1996; Gottfried, Gottfried, Cook, & Morris, 2005), relations of reading motivation to achievement, IQ, and perceptions of competence (Gottfried, 1990), learning disabilities (Wilson & David, 1994), relations of motivation to anxiety (Gottfried, 1982), student-centered environments (Mathews, 1991), and remediation of at-risk boys (Rawson, 1992).

Despite these strengths there are several weaknesses of CAIMI including that it only measures intrinsic motivation to read and does not measure other constructs of reading motivation, it was validated with a small sample of middle class students and may not generalize to students from other schools and backgrounds, no exploratory or confirmatory factor analyses

were conducted, and the full scale is not easily accessible.

Elementary Reading Attitude Survey. ERAS was developed to fill a need for a public domain quantitative group survey with desirable psychometric attributes (McKenna & Kear, 1990). The authors also wanted a survey that teachers could use to estimate attitudes about reading efficiently and reliability. The survey was written based on the historical research on attitude and achievement. Items were developed to tap children's attitudes towards recreational and academic reading. ERAS has been validated with responses from students in first through sixth grades. The full ERAS and a description of its development can be found in McKenna and Kear (1990). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 20 item ERAS ($\alpha = .87-.89$) includes 10 items measuring attitudes towards recreational reading (*How do you feel about reading for fun at home?*, $\alpha = .74-.87$) and 10 items measuring attitudes towards academic reading (*sample*, $\alpha = .81-83$). Each item stem started with the words, "*How do you feel.*" To appeal to young children, the response categories included pictures of a well-known cartoon cat, *Garfield*. The authors also selected four categories to make it easier for younger children. The four categories aligned with a picture of the cat *Garfield* in four poses that could be described as angry, disinterested, happy, and overjoyed. Teachers are instructed to read each item aloud to the class. The survey can be administered in around 10 minutes. The entire survey, administration instructions, and ideas for how teachers can use the survey to monitor class motivation can be found in McKenna and Kear (1990).

Development and Validation. A national sample of over 18,000 students, from first to sixth grades and from 95 school districts in 38 U.S. states, were administered the instrument to

produce a large-scale normative frame of reference (McKenna & Kear, 1990; McKenna, Kear, & Ellsworth, 1995). Validity for the subscales was established numerous ways. First, students with a library card responded with significantly higher recreational scores than those without a library card. Second, students with books checked out from their school library had significantly higher recreational scores than students without books checked out from their school library. To test the validity of the academic subscale scores were compared to reading ability scores. High ability readers, as rated by their teachers, scored higher on ERAS than low ability readers.

The authors examined the independence of the subscales two ways. First, they looked at the correlation between the subscales, which was .64 showing that although they are highly related, there is still some individual variance measured by each subscale. Next, the authors completed a factor analysis with varimax rotation. When the analysis was constrained to two factors, all items loaded cleanly onto their factor with the exception of one item.

Critique. Overall, ERAS is a very reliable, valid scale of elementary children's attitudes towards recreational and academic reading. Strengths of the measure include a large validation sample of 18,000 students, its relatable response categories using Garfield the cat, its reliability alphas all above .70, its ability to be group administered, its accessibility, and the factor stability indicated through factor analysis. In addition, this scale has been used to study gender and grade differences in motivation (Diamond & Onwuegbuzie 2001; Kush & Watkins, 1996; Worrell, Roth, Gabelko, & Roeper, 2007), race differences (Kazelskis, Thames, & Reeves, 2004), instructional effects on motivation (Bottomley, Truscott, Marinak, Henk, & Melnick, 1999; McKenna, Stratton, Grindler, & Jenkins, 1995; Scheriff, 2013), relations with reading achievement (Martinez, Aricak, & Jewell, 2008), and learning disabilities (Lazarus & Callahan, 2000). The ERAS has been used in other countries such as Canada (Kirby et al., 2001) and South

Africa (Overett & Donald, 1998). Despite these strengths the ERAS only measures attitudes towards reading and does not measure other aspects of reading motivation.

Motivation to Read Profile. MRP was created by Gambrell, Palmer, Codling, and Mazzoni (1996) to help teachers assess the reading motivation of their students. MRP combines quantitative and qualitative approaches for assessing reading motivation. In order to write MRP, the team reviewed research on motivation and “expectancy-value” theory as well as examined existing scales of motivation and attitudes towards reading. MRP combines quantitative (self-report measure) and qualitative (conversational interview) approaches for assessing reading motivation. MRP was developed for students in grades 2-6. The full original MRP and a description of its development can be found in Gambrell, et al. (1996).

Mallory, Marinak, Gambrell, and Mazzoni (2013) present a revised version of MRP, *Motivation to Read Profile–Revised (MRP-R)*. They explain the need for this revision as such: “As the original MRP was developed in 1996, a revision that would reflect the cultural and linguistic changes that occurred in the ensuing decade was needed. For example, digital reading sources were not considered in the original version but now are explored in the revised conversational interview” (p. 274). Thirteen of the original 20 items were either revised or replaced. The revised MRP had a full-scale reliability of .87 and subscale reliabilities of .81 for self-concept and .85 for value (Malloy et al., 2013). The full revised MRP and a description of its development can be found in Malloy et al. (2013).

Constructs Measured. The 20 item MRP includes 10 items measuring self-concept as a reader, asking students to reflect on “self-perceived competence in reading and self-perceived performance relative to peers” (*My friends think I am: a very good reader, a good reader, an OK reader, or a poor reader*, $\alpha = .75$) and 10 items measuring value of reading, asking students to

reflect on “value students place on reading tasks and activities, particularly in terms of frequency of engagement and reading-related activities” (*Knowing how to read is: not very important, sort of important, important, or very important*, $\alpha = .82$). Students respond on a four-point Likert scale with different responses for each item. MRP-R is also 20 items ($\alpha = .87$) measuring value for reading ($\alpha = .85$) and self-concept for reading ($\alpha = .81$). It takes around 15-20 minutes to group administer MRP and 20-25 minutes to administer MRP-R, which should be read aloud to students. The authors suggest administering only 10 items at a time for younger students. Directions for administering, scoring, and interpreting the scores from the MRP can be found in Gambrell et al. (1996) and MRP-R in Malloy et al. (2013).

Development and Validation. Gambrell et al. (1996) field tested the original MRP items in the fall and spring with 330 3rd and 5th grade students from 27 classrooms and 4 schools to examine validity and reliability of the instrument. Factor analysis with varimax rotation was used to examine the factor loading of the items onto the two constructs. Only items that cleanly loaded onto their specific trait were kept. The qualitative section of MRP, a conversational interview, was also examined for relationships to the self-report section of MRP. The conversational interview section of the MRP is made up of three sections examining interest in narrative texts, informational text, and general reading. Raters were asked to examine the responses of students. The findings indicated that around 70% of the information in the interview section of MRP could be explained by their answers on the self-report measure. The students responded similar on both sections. In addition, they found that there were significant differences among high, middle and low reading ability students on the self-concept scale, showing a positive relation between achievement and self-concept. The third-grade students were also significantly higher on the measure of value than the fifth-grade students. MRP-R was administered to another 281 third to

fifth grade students to calculate reliability and validity. Root mean square error of approximation was calculated with a parametric analysis and indicated a good fit for the two constructs.

Critique. Overall, MRP is a reliable, valid scale of reading self-concept and value for students in grades two through six. Strengths of MRP include subscales with reliability alphas greater than .74, a strong factor structure indicated through factor analysis, a qualitative section that can be used in addition to the self-report measure, a relationship between both the qualitative and quantitative section, it is easy to access, and it can be group administered. Other researchers have used MRP to study the relationships between reading self-concept with reading goals and fluency (Quirk, Schwanenflugel, & Webb, 2009; Schwanenflugel et al., 2009), gender differences in reading motivation (Marinak & Gambrell, 2010), motivation changes as related to reading tutoring or instruction (Culmo, 2009; Marinak & Gambrell, 2010; Pecjak & Kosir, 2008; Putman, 2005), incentives for reading (Edmunds & Tancock, 2003; Marinak & Gambrell, 2008), and relationship of motivation to student goals (Quirk & Schwanenflugel, 2009). MRP has been used in many research projects with subjects from second grade (Quirk, Schwanenflugel, & Webb, 2009), third grade (Marinak & Gambrell, 2008, 2010), fifth grade (Shaaban, 2006), and students up to eighth grade (Pecjak & Kosir, 2008; Putman & Walker, 2010). In addition to the United States, MRP has been used in studies in Slovenia (Pecjak & Kosir) and Lebanon (Shaaban, 2006). One drawback to MRP is its small validation study of two groups of only 330 and 281 students, which may not be generalizable to other populations. In addition, MRP only measures self-concept and value of reading and misses other aspects of reading motivation.

Motivation for Reading Questionnaire. Wigfield and Guthrie developed MRQ for elementary school students during the second year of the reading project of the National Reading Research Center (Wigfield & Guthrie, 1995; 1997). They set out to identify multiple dimensions

of motivation for reading as well as to examine grade, gender, and time of measurement differences. To create items, they pulled from research in general motivation and literacy motivation, including research examining ability and efficacy beliefs, subjective task values, achievement goals, intrinsic motivation, and attitudes about reading and motivation for reading. They also interviewed children about their reading to gain further insight into dimensions of reading motivation. According to the authors, the scale is appropriate for students in third, fourth, and fifth grades. The full scale and a description of its development is available in Wigfield & Guthrie (1995, 1997). The information in the following two sections was obtained from this development paper.

Constructs Measured. The original MRQ scale was 82 items long. Based on item-total correlations, factor analysis, and skewness items were dropped and the improved MRQ has 53 items (Wigfield & Guthrie, 1997). The 53 item MRQ includes 3 items measuring reading self-efficacy (*I know I will do well in reading next year*, $\alpha = .63/.68$ -Fall/Spring), 5 items measuring reading challenge (*I like hard, challenging books*, $\alpha = .68/.80$), 6 items measuring reading curiosity (*I have favorite subjects that I like to read about*, $\alpha = .70/.76$), 6 items measuring reading involvement (*I enjoy a long, involved story or fiction book*, $\alpha = .72/.76$), 2 items measuring importance of reading (*It is very important to me to be a good reader*, $\alpha = .59/.52$), 5 items measuring recognition for reading (*I like having the teacher say I read well*, $\alpha = .69/.69$), 4 items measuring reading for grades (*I read to improve my grades*, $\alpha = .59/.43$), 7 items measuring social reasons for reading (*I talk with my friends about what I am reading*, $\alpha = .78/.72$), 6 items measuring competition in reading (*I like being the best at reading*, $\alpha = .75/.81$), 5 items measuring compliance (*I like being the best at reading*, $\alpha = .62/.55$), and 4 items measuring reading work avoidance (*Complicated stories are no fun to read*, $\alpha = .44/.60$).

Students respond on a four-point Likert scale with 1 (very different from me), 2 (a little different from me), 3 (a little like me), and 4 (a lot like me). MRQ is group administered with the administrator reading each item to the group of students.

The Perceptions of Reading Motivations Questionnaire (PRMQ) is an abbreviated version of the MRQ. This 20-item questionnaire is “divided into scales representing the constructs of perceived autonomy (a new construct, measured with four items, e.g., “*It’s important to me to choose what I read*”), self-efficacy (two items from MRQ and two new items, e.g., “*I am not a good reader*”), challenge (one item from MRQ and two new items, e.g., “*I enjoy the challenge of reading a hard book*”), and knowledge goals (one item from MRQ curiosity scale and eight new items, e.g., “*I read to learn new things*”) (Klauda, 2008, p. 305; Klauda & Wigfield, 2007). The full PRMQ scale is available in Klauda (2008).

Development and Validation. Wigfield and Guthrie (1997) measured 105 fourth and fifth grade students in Southern Maryland in the fall and spring with the original 82 MRQ item assessment. An exploratory factor analysis was completed on each individual dimension and constrained so that only one factor would be pulled in each analysis. Factor loadings were examined to determine which items to remove. Additional factor analysis examining two dimensions were also completed. Based on these analyses and additional analysis examining skewness, 27 items were removed. Correlations among the scales indicated that some scales that did not correlate well such as competition and social (.06, -.01) and others that correlated very highly such as aesthetic enjoyment and curiosity (.52, .62). Findings from these analyses resulted in the removal of 27 items from the scale. The new scales, with the items deleted, were more reliable than the original sets.

Differences between grades (fourth and fifth grade students), gender, and time of

assessment (fall and spring) were also examined. In the fall fourth grade students scored higher on reading efficacy, recognition, and social scales compared to the fifth-grade students; although there were no significant differences in the spring. In the fall, girl's scores were higher than boys for efficacy, importance, and social motivation. Boys were higher on competition. In the spring the social and competition differences were still significant. There were no significant differences between scores on the scales from fall to spring administration showing that responses didn't change over time. Finally, the number of hours read and reports of frequency of reading books were examined. Fall frequency correlated with social, efficacy, compliance, recognition, challenge, importance, and aesthetic enjoyment and negatively with avoidance. In the spring frequency correlated positively with social, compliance, efficacy, aesthetic enjoyment, curiosity, recognition, grades, challenge, and reading importance and negatively with avoidance. Number of hours read correlated significantly with many of the constructs in both the fall and spring except the constructs of challenge and competition.

Critique. Overall, MRQ is a reliable, valid scale of reading motivation for third, fourth, and fifth grade students. Strengths of MRQ include indications that it correlates to reading behaviors such as number of hours read and frequency of reading, it is easy to access, it measures the many aspects of reading motivation including numerous measures of intrinsic and extrinsic motivations as well as self-efficacy, social, and reading avoidance, and that it can be group administered. MRQ has been translated and used in numerous countries around the world including Belgium (De Naeghel et al., 2012), Greece (Sideridis, Mouzaki, Simos, & Protopapas, 2006), Norway (Anmarkrud & Braten, 2009), Australia (Schutte & Malouff, 2007), the United Kingdom (Logan & Medford, 2011; Medford & McGeown, 2012), Korea (Kim, 2011), and China (Huang, 2007; Lau, 2009; Lin, Wong, & McBride-Chang, 2012; Wang & Guthrie, 2004).

Research conducted using MRQ has examined the relationships between motivation and other variables such as reading skill, comprehension, and self-concept (Medford & McGeown, 2012), self-regulation (De Naeghel et al., 2012), amount of reading (Guthrie, Wigfield, Metsala, & Cox, 1999; Wang & Guthrie, 2004) situated interest in informational books (Guthrie et al., 2005) and parental involvement (Loera et al., 2011). Studies using MRQ have examined motivational differences among grades (Lau, 2009), gender (Logan & Medford, 2011; McGeown, Goodwin, Henderson, & Wright, 2012), ethnicities (Unrau & Schlackman, 2006), reading skill (McGeown, Norgate, & Warhurst, 2012), and students with and without comprehension difficulties (Sideridis, Mouzaki, Simos, & Protopapas, 2006). MRQ has also been used to measure effects of instruction on motivation (Guthrie et al., 2004; Wigfield et al., 2008).

Despite these strengths there are several weaknesses of MRQ, including a small sample size for validation which might not generalize, reliabilities for subscales with alphas lower than .70, and recent research indicating a different factor structure (Watkins & Coffey, 2004). In addition, although the original MRQ had 54 items sorted into 11 dimensions (Wigfield & Guthrie, 1995), most replication studies have used an abbreviated version of the original MRQ.

Reader Self-Perception Scale. RSPS was developed as a measure of reader self-efficacy. The authors of the scale wrote a pool of items to reflect Bandura's four dimensions of self-efficacy (Bandura, 1977), "Performance, Observational Comparison, Social Feedback, and Physiological States" (Henk & Melnick, 1995, p. 482; Melnick & Henk, 1997). According to the authors, this scale can be administered to groups of students for the purposes of instruction, assessment, and research, and it provides data on affect that make individual reading evaluations more complete" (Henk & Melnick, 1995, p. 471). According to the authors, RSPS is appropriate intermediate-level readers in grades four, five, and six. A full copy of the scale along with

directions for administration, scoring, and uses and the development description can be found in Henk and Melnick (1995). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 33 item RSPS includes 9 items measuring Self-efficacy: Progress (*I read faster than I could before*, $\alpha = .84$), 6 items measuring Self-efficacy: Observational comparison (*I read better than other kids in my class*, $\alpha = .82$), 9 items measuring Self-efficacy: Social feedback (*My teacher thinks I am a good reader* $\alpha = .81$), 8 items measuring Self-efficacy: Physiological states (*I feel good inside when I read*, $\alpha = .84$), and one general item (*I think I am a good reader*). Students were asked to decide how strongly they agreed with each statement (5 = strongly agree to 1 = strongly disagree). In the original exploratory factor analysis, using items from the original four dimensions of self-efficacy (Performance, Observational Comparison, Social Feedback, and Physiological States), most of the dimensions were strong, whereas the performance scale did not form a clean factor. The performance factor was renamed “progress” and the items kept in the dimension were those indicating only personal progress. A reliability for the full scale was not given. The scale takes approximately 15 to 20 minutes and can be group administered. Specific administration and scoring directions are found in an appendix in Henk and Melnick (1995).

Development and Validation. The pool of 33 items was administered to a set of 1,479 students in fourth, fifth, and sixth grades. Factor analysis indicated fairly clean dimensions. Validity evidence including significant correlations with the ERAS (McKenna & Kear, 1990) and standardized reading achievement measures. As indicated by the authors, “Children reported the highest relative reader self-perceptions on the Progress scale followed by Physiological States, Social feedback, and Observational comparisons. Overall, these scores indicate that

children trended to think of themselves as capable readers” (Henk & Melnick, 1995, p. 482).

Critique. Overall, RSPS is a reliable, valid scale of self-efficacy for reading of students in grades four, five, and six. Strengths of RSPS include a measurement of four different types of self-efficacy for reading, factor analysis indicating clean dimensions, strong reliabilities for subscales with alphas above .80, it can be group administered, it takes 20 minutes or less to administer, is easy to access, was validated with a fairly large sample, and has been shown to correlate to ERAS. According to Henk, Marinak, and Melnick (2012), the scale has been translated into at least seven other languages. Motivational research using the RSPS has examined motivational increases with paired reading (Nes Ferrara, 2005), the relation of motivation to word recognition and comprehension (Howe, Thames, & Kazelskis, 1997), teachers’ use of mastery orientation goals (Waleff, 2010), instructional effects (Clark & Regent, 2013), and animal-assisted literacy (Treat, 2014). A disadvantage of using RSPS is that it does not measure other aspects of reading motivation beyond reading self-efficacy.

Reading Self-Concept Scale. RSCS was developed for a larger investigation of beginning reading achievement (Tunmer & Chapman, 1991). The authors wanted to measure the multidimensional nature of self-concept including three subcomponents of “perceptions of competence in reading, perceptions of difficulty with reading, and attitudes towards reading” (Chapman & Tunmer, 1992, p. 154). The authors especially wanted to make a distinction between perceptions of competence, referring to “beliefs regarding ability and proficiency in reading tasks” and perceptions of difficulty, referring to “beliefs that reading activities are hard” (Chapman & Tunmer, 1992, p. 154). According to Chapman and Tunmer (1995) “the items selection was made in consultation with reading specialists and teachers of young primary school children and following extensive piloting with small samples of children. A major criterion for

inclusion of an item in RSCS was that the reading-related activity referred to was relevant for beginning readers as well as for children with three to four years of reading experience” (p. 156). Sample items, 5 per subscale, are available in Chapman and Tunmer (1995). The authors cite the development of the scale from a research proposal submitted to the Ministry of Education in New Zealand (Tunmer & Chapman, 1991). The information in the following two sections was obtained from both Tunmer and Chapman (1991), and Chapman and Tunmer (1995).

Constructs Measured. The 50-item version of RSCS ($\alpha = .86$) includes 26 items written in a positive tone (*I am a good reader*, $\alpha = .85$) and 24 items written in a negative tone (*I make lots of mistakes in reading*, $\alpha = .88$). These items were to “assess a range of reading-related self-perceptions” (p. 156). Students respond on a five-point Likert scale with (1) no, never, (2) no, not usually, (3) undecided or unsure, (4) yes, usually, and (5) yes, always. The scale is individually administered. The administrator reads the question and ask for a yes or no response. If yes, the student was then asked if it was “Yes – usually or Yes always?” If no, the student was then asked if it was “No, never or no, not usually?” The administration of RSCS takes around 25 minutes.

The authors presented a second version of RSCS in which all of the items replaced *I* with *You*. For example, “I am a good reader” was rewritten as “Are you a good reader?” This new form was called RSCS-Q. The reliabilities for the total scale (.89), positive scale (.86), and negative scale (.83) were calculated.

In addition, the authors presented a 30-item version, the RSCS-30. This shorter version ($\alpha = .85$) includes 10 items measuring competence in reading (*Do you think you read well?*, $\alpha = .72$), 10 items measuring difficulty in reading (*Do you make lots of mistakes in reading?*, $\alpha = .75$), and 10 items measuring reading attitude (*Do you like reading to yourself?*, $\alpha = .77$). This shorter version as well is administered in the same way as the 50-item version.

Development and Validation. The authors examined the 50-item survey on a group of 520 primary school students in New Zealand. In ANOVA analyses they found a significant effect for year with younger students having greater means on the positive items and lower means on the negative comments. On another set of 267 primary students from the same schools, the authors tested RSCS-Q. They did not find a significant effect for age for RSCS-Q. According to the authors, “the positive scores were lower and the negative scores were higher than in experiment 1” (p. 158). Finally, the authors tested the shorter 30-item version on a group of 444 primary students and another 771 students from the same schools as the other two studies. For the responses from the first group of students the authors completed confirmatory factor analysis which indicated that there were three well-defined factors. Therefore, young children could differentiate among the subcomponents of reading self-concept. For the responses from the second group of students the authors examined correlations of RSCS-30 with reading achievement. Results of these analyses indicated that RSCS-30 subscale “difficulty” correlated with letter identification, word identification, pseudo word naming, spelling and comprehension for younger students. All three subscales of RSCS-30 correlated with comprehension for older students.

Critique. Overall, RSCS is a reliable, valid scale of reading self-concept for both beginning readers and those with 3-4 years of experience. Strengths of RSCS include strong reliabilities over .70 for all subscales, three different versions, easily accessible, and results indicating that it relates to other reading skills such as letter/word identification, pseudo word naming, spelling and comprehension. Other motivational research has used RSCS to examine relationships of reading self-concept and reading ability (Morgan, Fuchs, Compton, Cordray, & Fuchs, 2008), reading self-concept as it relates to general academic self-concept for early

learners (Chapman, Tunmer, & Prochnow, 2000), effects of an early reading intervention for self-efficacy (Nolan, 2013), and reading motivation of learning disabled students (Crossen, 2001). RSCS has been translated into Arabic (Alkhateeb & Abushihab, 2008).

Despite these strengths there are several weaknesses of RSCS. These include that it is individually administered which may take time to complete an entire classroom of students, RSCS does not measure aspects of reading motivation other than self-concept, and a validation sample of students from New Zealand which may not be generalizable to students in the United States, and therefore less useful to U.S. teachers.

SRQ-Reading Motivation Questionnaire. The development of SRQ-RM is detailed in De Naeghel et al. (2012). SRQ-RM items were written in order to measure reading motivation as it aligns to the types of motivation along the self-determination theory continuum (Deci & Ryan, 2000). On one end of the continuum is *intrinsic motivation*, which is characterized by students who are fully autonomous and engage in reading for their own enjoyment. As one moves further from intrinsic motivation, behavior is less autonomous. These points on the continuum include *identified reading* (students see the value of reading), *introjected regulation* (students feel guilt or shame for not reading), and *external regulation* (students read to get an award or avoid a punishment; De Naeghel et al., 2012). The authors of SRQ-RM tested the scale using responses from 5th grade students in Belgium. According to De Naeghel et al. (2012) the scale is appropriate for students in grade 5. The full scale and a description of its development can be found in De Naeghel et al. (2012). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 34 item SRQ-RM includes 8 items measuring autonomous recreational reading (*I read in my free time because it's fun to read*, $\rho = .93$), 8 items measuring

autonomous academic reading (*I read for school because it's fun to read*, $\rho = .94$), 9 items measuring controlled recreational reading (*I read in my free time because others think that I have to*, $\rho = .81$), and 9 items measuring controlled academic reading (*I read for school because others think that I have to*, $\rho = .82$). Students respond on a five-point Likert scale ranging from agree a lot (5) to disagree a lot (1). Internal consistency was calculated with Bentler's rho, which is comparable to alpha (Bentler, 2009). According to De Naeghel et al. (2012) the internal consistency for these four constructs were high. The original items written for SRQ-RM were written to tap all four points on the self-determination continuum; however, exploratory factor analysis revealed a two factor rather than four factor model for both sets of items, recreational and academic reading. An English version of each item can be found on both the academic context items (school or homework) and recreational reading items. The only difference to the item was the addition of words at the start of the item. Both sets of items were administered independently and the items on each set were randomly presented. The development article did not indicate how the scale was to be administered nor did it present reliability for the whole scale.

Development and Validation. The authors administered SRQ-RM to 1,260 fifth-grade students from an elementary school in Belgium (average 10.46 years old) in order to examine gender differences and construct validity. A confirmatory factor analysis was conducted on half of the dataset (613 students) to examine the two factor model (autonomous and controlled reading) on the recreational items and the academic items separately. The two factor model had a modest fit for both sets of items. Items were removed from both sets of items to create an acceptable fit for both sets.

In additional analysis, De Naeghel et al. (2012) found that girls scored significantly

higher on the autonomous items for both types of reading. However, no significant differences existed between genders on the control items. The authors also examined how well the items correlated with eight of the 11 subscales from the MRQ (involvement, challenge, curiosity, importance, self-efficacy, recognition, competition, grades). Both subscales from the two forms (academic and recreational) of SRQ-RM correlated significantly with most of the eight administered MRQ subscales with only a few exceptions. All four subscales also correlated significantly (positivity with autonomous motivation and negatively with controlled motivation) with measures of reading engagement, comprehension, and self-concept with the one exception of no significant correlation between controlled academic reading motivation and engagement. A measure of reading frequency correlated significantly and positively to all four subscales.

Critique. Overall, SRQ-RM is a reliable, valid scale of academic and recreational reading of students in grade five. Strengths of SRQ-RM include strong reliabilities of the subscales above .80, findings suggesting relationship to scores from the MRQ as well as measures of engagement, comprehension, and self-concept. SRQ-RM also measures both in school and out of school reading, is easily accessible, and is strongly aligned to a theory of reading motivation. Despite these strengths, there are several weaknesses of SRQ-RM including that it was validated only with fifth grade students in Belgium, and presumably administered in Dutch, which may not generalize to other grades nor to English speaking students. Finally, the authors did not provide information on administration of the scale.

Reading Motivation Scales: Secondary and Adult

Six reading motivation scales fell best into a secondary/adult category: Adaptive Reading Motivation Measure (ARMM), Adolescent Motivation to Read Profile (AMRP), Adult Motivation for Reading Scale (AMRS), Motivations for Reading Information Books (MRIB),

Reader Self-Perception Scale 2 (RSPS2), and Survey of Adolescent Reading Attitudes (SARA). In this section a short description and review of these six reading motivation scales is included.

Adaptive Reading Motivation Measure. ARMM is an online computer adaptive measure of reading motivation that simultaneously increases reliability, while reducing the amount of time needed to take the assessment. ARMM was built from an established theoretical framework of reading motivation and guidance from an author of MRQ. ARMM has been validated using a sample of fifth through twelfth-grade students. The development and sample items of ARMM can be found in the development paper written by Kingston et al. (2017).

Constructs Measured. Each student who is administered ARMM receives 45 items ($\alpha = .93$) (three items per 15 constructs) pulled from a much larger pool of items. Of the 45 items, students receive six items that measure two aspects of self-efficacy for reading, including three items measuring positive self-efficacy for reading (*I am one of the best readers in my class*) and three items measuring perceived difficulty in reading (*The books that teachers assign are often hard for me to read.*). Students receive 15 items measuring intrinsic motivation, including three items measuring challenge for reading (*I enjoy reading difficult material*), three items measuring curiosity for reading (*I get excited when reading about new things*), three items measuring involvement in reading (*I get so involved in my reading that I often lose track of time*), three items measuring value for reading (*It's very important to read a lot.*), and three items measuring interest in reading (*I have favorite topics I like to read about.*). Students receive three items measuring preference for autonomy for reading (*Choosing what I want to read is important to me*). Students receive three items measuring extrinsic motivation including three items measuring grades for reading (*Getting good grades in reading is important to me*), three items measuring recognition for reading (*I feel proud when I am recognized as a good reader*), and

three items measuring competition for reading (*It's important to me that I read better than my classmates*). Students receive nine items measuring social motivation for reading items included three items measuring general social motivation for reading (*I like to talk with my friends about what we read in class.*), three items measuring pro-social goals for reading (*I like to help my classmates understand what they've read*), and three items measuring antisocial goals for reading (*My friends and I laugh at classmates who don't read well*). Finally, students receive three items measuring Reading avoidance (*I find ways to avoid reading in class*).

Students respond on a computer screen to each item on a 6 Likert scale, not like me at all, not much like me, somewhat not like me, somewhat like me, mostly like me, and exactly like me. Students are shown one set of 15 items that have been selected to measure average reading motivation. After responses are calculated, students are shown a new set of 15 items based on their responses from the first set of items. So, if in the first set the students indicate that they are very motivated, students would get a new set of items that differentiate student on the upper end of the reading motivation continuum. After completing a second set, students receive a third set of 15 items that have been selected based on their scores from the first two sets. After all sets have been administered, seven scores are produced: (1) general reading motivation ($\alpha = .94$), (2) intrinsic reading motivation ($\alpha = .62$), (3) extrinsic reading motivation ($\alpha = .84$), (4) autonomy reading motivation ($\alpha = .70$), (5) self-efficacy reading motivation ($\alpha = .80$), (6) reading avoidance reading motivation ($\alpha = .72$), and (7) social motivation reading motivation ($\alpha = .83$).

Development and Validation. The authors developed ARMM with two studies. In study 1 the developers tested a set of 300 items with 7,457 public school students from grades 5-12. Each student was administered 60 of the 300 items, four items per 15 constructs. The items overlapped across test forms in order to calibrate the items on a common item response theory

metric. The developers used the Akaike information criterion (AIC) and the Bayesian information criterion (BIC) to test the fit of several models. Based on this data, it was determined that the bi-factor model with one first level general construct and six second level constructs fit the best. The final ARMM measure, the computer adaptive version, was administered to a sample of 1,937 fifth through twelfth grade students in addition to reading engagement and a reading behavior measures. They found inter-correlations between the general factor and all six sub scores were low, ranging from .03 to .30) as well as inter-correlations among the sub scores (ranging from .03 to .41). They state that this is not surprising since the IRT model used extracted all common variance into a general factor. The general reading motivation score related to reading behavior and engagement highly (.61 and .84), whereas the sub scores did not relate as highly. ARMM scores also were examined in relation to two achievement scores, the Measures of academic Progress (MAP) for reading and for math for grades five to eight. Results indicated fairly high correlation between general reading and MAP scores (.39 - .56 for reading and .20 to .50 for math). There were also significant relationships between MAP scores and self-efficacy. The other sub scores did not relate as highly to the MAP scores. Again, the lack of relationships may be due to the extracted general factor.

Critique. Overall, ARMM is a reliable, valid scale of reading motivation of students in the fifth through twelfth grades. Strengths of ARMM include a large validation sample, the first use of computer adaptive assessment for reading motivation, its measurement of a large number of reading motivation constructs and findings that indicate it relates to reading engagement, behavior, and achievement. Despite these strengths there are several weaknesses of ARMM. Unlike other measures, this assessment cannot be easily used by a teacher or researcher without requesting rights to the ARMM assessment through the developers. In addition, some of the

reliabilities of the subscales were less than .70, the measure is aligned to academic reading motivation only, the measure does not include motivation for digital print, and because of its recent development, it has not been used in other research yet. Due to the nature of the Item Response Theory model, a general reading motivation factor was extracted from all other constructs, making the other constructs less correlated to engagement, behavior, achievement, and to each other. Only the general reading motivation was consistently correlated to reading engagement, behavior, and achievement. Further research will need to be conducted to determine if a general reading motivation factor might be found in other measures as well if the same model is used to obtain scores.

Adolescent Motivation to Read Profile. AMRP was adapted from the Motivation to Read Profile (Gambrell et al., 1996) for adolescent readers by Pitcher et al. (2007) using information from adolescent research and the author's background working with teenagers. As the authors note, "using adolescent research as our guide, we included more questions on the AMRP about using electronic resources [...], schoolwork and projects that students enjoyed [...], and what students choose to read and write on their own [...]" (p. 380). Like MRP, AMRP measures self-concept for reading and value for reading with both a 20-item self-report measure and a conversational interview. AMRP has been used to measure reading motivation for students in grades 6-12. The full scale and a description of its development can be found in Pitcher et al. (2007). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 20 item self-report measure section of AMRP includes 10 items measuring self-concept for reading (*Reading is: very easy for me, kind of easy for me, kinds of hard for me, very hard for me*) and 10 items measuring value for reading (*Knowing how*

to read well is – not very important, sort of important, important, very important). Students respond on a four-point Likert scale with different responses for each item. The scale administrator should read each item to the class. It takes approximately 10 minutes to administer the scale. Full directions for administering the scale can be found in Pitcher et al. (2007).

Development and Validation. The team field-tested the new 20 items with 384 teens (grades 6-12) from the West, Southwest, Northeast, Mid-Atlantic, and Southeast United States as well as the Caribbean. One hundred of the students also were administered the conversational interview. Reliability and correlations with any other measures were not noted. However, they did share findings on gender and ethnical differences. Females scored significantly higher on the overall test and the value sub-test than males. Although value of reading increased with age for females, it dropped for males. Ethnic differences based on the responses of the 348 teens who completed the survey across the United States and Caribbean indicated that “African American (n=84) and Afro/Indo-Trini (n = 115) adolescents valued reading significantly ($p = .000$) more than Caucasians (n = 39) or students from other ethnicities (n = 39)” (p. 391). The team further shared findings from the conversational interviews which are detailed in Pitcher, et al. (2007).

Critique. Overall, it is difficult to determine if the AMRP is a reliable, valid scale of reading motivation for adolescents. Strengths of the AMRP include being based on MRP which is a valid and reliable measure of elementary school reading motivation, having complementary qualitative and quantitative sections, having easily accessible items and directions for administration, and being relatively quick to administer, at least for the self-report section. Despite these strengths there are several weaknesses of the AMRP including a lack of psychometric properties such as reliabilities, no indication of factor structure, and that it only measures two aspects of reading motivation.

Adult Motivation for Reading Scale. Schutte and Malouff (2007) developed AMRS. The authors, with feedback from the authors of the MRQ, created a pool of items based on both reading engagement theory concerning intrinsic and extrinsic motivation to read and self-determination theory by Ryan and Deci (2000). In addition to developing an adult measure of reading motivation, the authors wanted to “examine whether reading motivation in adults can be assessed as an overall motivational construct as well as a multi-dimensional phenomenon” and they wanted to “explore the nature of possible reading motivation dimensions” (p. 471). Schutte and Malouff (2007) used the scale to measure motivation of individuals ages 18-77. The full scale and a description of its development can be found in Schutte and Malouff (2007). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 21 item AMRS ($\alpha = .85$) includes 6 items measuring Reading avoidance/self-efficacy (*I like hard, challenging books or articles*, $\alpha = .72$), 3 items measuring Reading for recognition (*I like others to question me on what I read so that I can show my knowledge*), $\alpha = .83$), 8 items measuring Reading as a characteristic of self (*It is very important to me to spend time reading*, $\alpha = .87$), and 4 items measuring Reading to perform other tasks (*I do all the expected reading for work or university courses*, $\alpha = .70$). Students respond on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

Validity. The authors administered AMRS to 220 individuals, ranging in age from 18 to 77. A principal components analysis with oblique rotation was performed on the original set of items and after consulting a scree plot, decided to keep four components reading as part of self, reading avoidance versus reading efficacy, reading for recognition, and reading to do well in other realms. Older participants were higher than younger participants on total reading motivation, reading as part of self, and reading to do well in other realms. University students

were higher than community members on total reading motivation, reading efficacy, and reading for recognition. Four other scales measuring enjoyment of reading, frequency of reading, hours of recreational reading, and hours of required reading all correlated significantly to total reading motivation. In addition, enjoyment and frequency of reading correlated to reading as part of self, reading efficacy, and reading to do well in other realms. Hours of recreational reading correlated to reading as part of self and efficacy. Hours of required reading correlated to reading to do well in other realms.

Critique. Overall, AMRS is a reliable, valid scale of adult reading motivation. Strengths of AMRS include strong reliabilities of subscales at or above .70, a subscale for four aspects of reading motivation, the only scale that is aligned to older individuals, easily accessible items, and indication of a strong factor structure. Disadvantages of AMRS include a small validation sample which may not generalize to other adults.

Motivations for Reading Information Books. Guthrie, Cambria, and Wigfield (2011) developed two related scales for adolescent readers, the Motivation for Reading Information Books School Questionnaire (MRIB-S) and the Motivation for Reading Information Books Non-school Questionnaire (MRIB-N). As the name implies, both surveys address students' attitudes concerning information books only, indicating the authors' current thinking that motivations differ depending on the type of text. The scale was developed to study motivation of middle school students. The full scale is available in Guthrie et al. (2011). The development of this scale is described in Klauda and Guthrie (2015). The information in the following two sections was obtained from these papers.

Constructs Measured. MRIB-S and MRIB-N are identical except that MRIB-S items ask about reading "for school" and MRIB-N items ask about reading "outside of school." On both

MRIB-S and MRIB-N are 56 items, measuring four “affirming motivation constructs” including 7 intrinsic motivation for reading (*I enjoy reading information books for school/outside of school*, $\alpha = .83/.89$), 7 items measuring valuing of reading (*I usually learn something from an information books for school/outside of school*, $\alpha = .83/.85$), 7 items measuring reading self-efficacy (*I can find the main idea of a section in an information book for school/ outside of school*, $\alpha = .82/.85$), and 7 items measuring peer acceptance of reading (*My classmates want me to do well in reading information books for school/My peers listen to my point of view about information books that I read out of school*, $\alpha = .81/.77$). The scales also measure three “undermining motivation” constructs including 7 items measuring devaluing of reading (*Reading information books for school/ outside of school takes too much time*, $\alpha = .81/.83$), 7 items measuring perceived difficulty in reading (*The information books I read for school are way too hard/Information books are too hard to read in my spare time*, $.85/.85$), and 7 items measuring peer rejection of reading (*My classmates do not care whether I do well in reading information books for school/My peers do not care about my opinion of the information books I read out of school*, $\alpha = .74/.70$). Finally, the scale included a measure of negative behavioral engagement, reading avoidance (*I read information books for school/ outside of school as little as possible*), $\alpha = .79/.77$). Students respond on a four-point Likert scale with responses including 1) Not at all true of me, 2) Not very true of me, 3) Somewhat true of me, and 4) Very true of me. It takes 18-25 minutes to administer the survey. Teachers were instructed to read the sample questions, but to let students finish the rest of the survey on their own.

Development and Validation. The authors examined the responses of 1,205 seventh grade students either struggling with reading or advanced in reading as determined by scores on the Gates-MacGinitie (Klauda & Guthrie, 2015). They conducted six factor analyses on the data

from the pre and post assessment and including only two constructs per analysis “self-efficacy/difficulty, value/devalue, peer value/peer devalue” (p. 247). The findings suggested that the constructs were independent. Additional findings of the article indicated that there was a stronger prediction of achievement by motivation for advanced readers compared to struggling readers; however, motivation did not predict growth in achievement for either group of students. However, they found that the relationship between motivation and engagement (avoidance) was similar among advanced and struggling readers. In addition, there were significant and positive correlations between fluency with intrinsic motivation, efficacy, peer value and significant negative correlations with difficulty, peer value, and avoidance for advanced readers in the spring, but not the fall. Information text comprehension was positively correlated with efficacy and negatively correlated with difficulty in the spring for advanced readers. Finally, general comprehension was negatively correlated to peer value in the spring and devalue in the fall for struggling readers.

Critique. Overall, MRIB-S and MRIB-N are reliable, valid scales of reading motivation in school and out of school for middle school students. Strengths of MRIB-S and MRIB-N include fairly high reliabilities for all sub scales with alphas meeting or exceeding .70, a full measure easily accessible, both are group administered, development included a fairly large validation sample, and both scales measure many aspects of reading motivation including information about both in school and out of school reading. Disadvantages of MRIB-S and MRIB-N include that the scales do not have items related to digital reading and that both scales are fairly new, therefore, have not been used in many research studies.

Reader Self-Perception Scale 2. Henk et al. (2012) present RSPS2, which is an adaptation of the RSPS, for adolescent readers. Like RSPS, RSPS2 is based on Bandura’s theory

of self-efficacy. The items were written to match the four basic factors of students' self-appraisals of reading ability based on this theory: Performance, Observational Comparison, Social Feedback, and Physiological States. According to Henk et al. (2012) RSPS2 is appropriate for students in grades 7-10. The full scale and a description of its development can be found in Henk et al. (2012). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 47 item RSPS2 includes 16 items measuring self-efficacy: progress (*Reading is a pleasant activity for me*, $\alpha = .95$), 9 items measuring self-efficacy: observational comparison (*I need less help than other students when I read*, $\alpha = .92$), 9 items measuring self-efficacy: social feedback (*Other students think I am a good reader*, $\alpha = .87$), 12 items measuring self-efficacy: physiological states (*I feel comfortable when I read*, $\alpha = .94$), and one general item (*I think that I'm a good reader*). Students respond on a five-point Likert scale, 1) strongly disagree, 2) disagree, 3) undecided, 4) agree, and 5) strongly agree. The administrator reads off practice items; however, the students go through RSPS2 silently. The scale takes approximately 15-20 minutes to complete.

Development and Validation. After the initial development, 61 remaining items were pilot tested with 488 seventh and eighth grade students. Factor analysis indicated 5 factors, instead of four, with social feedback items splitting into feedback from different people (parents and classmates). Finally, a group of 2,542 grade 7-10 students from rural, urban, and suburban school districts were assessed on the new measure and reliabilities were calculated. Further factor analysis with this sample indicated the expected categories.

Critique. Overall, RSPS2 is a reliable, valid scale of self-efficacy for reading for adolescent readers. Strengths of RSPS2 include it has high reliabilities for the subscales with

alphas meeting or exceeding .87, it was based off of a reliable elementary school scale, it is easily accessible, it can be group administered, it was validated with a large sample of students, and it measures four different aspects of reading self-efficacy. Also, like the original RSPS, RSPS2 has been translated into a least seven different languages (Henk et al., 2012). However, note that RSPS2 is focused solely on self-efficacy for reading and does not measure other aspects of reading motivation. In addition, construct validity was not established with other measures of reading behavior or achievement. Also, since it is so new, we were unable to find other published studies that used RSPS2.

Survey of Adolescent Reading Attitudes. SARA was written to examine the reading attitudes of adolescents. The authors believe that SARA may be used by teachers as an assessment of their adolescent students' attitudes and motivation for reading. SARA was based on attitude theory and the authors define reading attitudes as "acquired predispositions to respond in a consistently favorable or unfavorable manner with respect to aspects of reading" (McKenna et al., 2012, p. 285). SARA items were written to align to both print and digital environments in both recreational and academic purposes. SARA was validated for use with middle school students. The full scale and a description of its development can be found in McKenna et al. (2012). The information in the following two sections was obtained from this development paper.

Constructs Measured. The 18 item SARA ($\alpha = .96$) includes 5 items measuring Academic digital (*How do you feel about reading news online for class?*, $\alpha = .82$), 5 items measuring Academic print (*How do you feel about reading a textbook?*, $\alpha = .78$), 3 items measuring Recreational digital (*How do you feel about texting friends in your free time?*, $\alpha = .80$), and 5 items measuring Recreational print (*How do you feel about reading a book for fun on*

a rainy Saturday?, $\alpha = .86$). Students respond to each item on a six-point Likert-type scale ranging from 1, “very bad,” to 6, “very good.” Students are to respond to the survey independently.

Development and Validation. After the initial development of the item, involving student interviews and a pilot test of the items with 913 middle and high school students, a large-scale validation was conducted with a representative sample of 5,080 middle school students from 23 U.S. states and DC. A confirmatory factor analysis indicated that a four-factor model, aligning with the four constructs, proved to be the best fit. McKenna et al. (2012) further examined the differences in responses by gender and grade. Female students scored higher than males on both types of academic reading as well as recreational reading with print. Males scored higher than females only on digital reading for recreation. The researchers noted that “attitudes tended to be more negative in successive grades” (p. 298).

Critique. Overall, SARA is a reliable, valid scale of reading attitudes of adolescents. Strengths of SARA include a large and representative validation sample, confirmatory factor analysis indicating stable factors, strong reliability with alphas reaching or exceeding .80, items that measure both in school and out of school reading, items that measure both print and digital reading, it can be group administered, and the items are fully accessible. However, SARA was not correlated to other measures of reading behavior or engagement. Due to it being a new measure, few have used SARA in other published research.

Discussion

The goal of the current paper was to identify and systematically evaluate common reading motivation scales. A formal review of this kind has not been completed on reading motivation since the review of reading attitudes by Summers in 1977. This current review

responds to a need expressed by researchers, educators, and evaluators who are seeking valid and reliable reading motivation measures. This review systematically analyzed sixteen different reading motivation scales in order to assist in selection of measures. Tables 1-3 should help individuals locate scales that best meet their needs, match the age range of their students and have adequate psychometric properties.

However, in reviewing all sixteen motivation scales, issues regarding reading motivation scale development have emerged. In this discussion, we will highlight the strengths and weaknesses of the set as a whole regarding reliability and validity, the theories driving the development of the scales and how theory has driven the types of motivation constructs measured on the scales, and the number and appropriateness of scales for certain age spans.

Common Themes

Reliability and Validity. In this review, we examined the reliability and validity information for the 16 scales. All but one measure provided reliability scores (Cronbach's alpha or Bentler's rho) for either the whole scale or individual constructs with nine of the fifteen scales also reporting full-scale reliabilities. This is an improvement compared to the findings by Summers (1977) who indicated that most developers at that time tended to report split-half reliabilities. Further, our findings show that full-scale reliabilities (alpha or rho), for eight of the nine scales with full-scale reliabilities, were over .80, which is considered reliable (Sattler, 2006). When examining full scale and individual constructs reliabilities, only two of the 15 scales reported individual reading construct reliabilities less than .60 and four reported reading construct reliabilities lower than .70. Construct measures with reliabilities lower than .70 generally included only 2-4 items. Developers of scales with constructs that are measured by four or fewer items may want to revisit these scales to determine if these constructs should be

removed or rewritten to include more items.

Information on validity was also examined in order to determine ways future scale developers could improve. For many of the scales, information on construct validity included some type of examination into the dimensionality of the scale. Of the sixteen scales, twelve provided results from an exploratory factor analysis. However, factor analysis can be imprecise. A number of studies have shown inconsistent results as to the number of factors that comprise popular reading motivation scales, calling into question the validity of these scales. For example, Watkins and Coffey (2004) examined the structure of MRQ using two samples of elementary school students, grades 3-5. In the first sample, they believed five and six factors would need to be extracted; however, in the second sample, they determined eight factors would need to be extracted. Watkins and Coffey (2004) stated that, “we generated evidence for a multidimensional model of reading motivation. In contrast, the 11-factor structure of MRQ posited by Wigfield and Guthrie (1995) was not supported” (p. 116). Therefore, exploratory factor analysis could be considered an inconsistent measure of dimensionality.

Four of the sixteen reading motivation scale developers included findings from confirmatory factor analysis, which may prove to be more consistent. In confirmatory factor analysis, developers already have hypotheses regarding the number of factors measured by their scale. The fit of each model, determined by the hypothesized number of factors, is assessed with fit indices and compared across models. For example, authors of the SARA (McKenna et al., 2012) hypothesized that their 21-item scale was influenced by either two or four underlying factors. Based on fit indices, they determined the four-factor structure was the better fit. In addition, the authors used multi-group CFA to determine fit across genders and grades.

Although developers of scales have used CFA to determine the structure of items, the

authors of ARMM (Kingston et al., 2017) were the only ones to examine fit beyond a two-level structure. ARMM developers assessed the items in hierarchical structures with items belonging to both a general reading motivation construct and unique individual constructs (Kingston et al., 2017). Through examining item-fit indices of four different models, they determined the presence of a general reading motivation factor not found in previous research. This method allowed them to extract the variance accounted for by the general reading motivation factor from the six constructs on the second level. Using only simple forms of rotation, such as Varimax rotation, in exploratory or confirmatory factor analyses, past developers were unable to examine this three-level structure. Future developers of reading motivation scales may want to go beyond simple exploratory and confirmatory factor analysis to determine fit of models that have structures with more than two levels. Also, using these new methods, future research on traditional measures of reading motivation could examine the presence of a general reading motivation factor, which may explain the confusion around numbers of constructs in reading motivation as well as the strong correlations among reading motivation constructs.

In addition to exploring the factor structure of items, many reading motivation scale developers correlated their scales to other reading variables such as reading engagement, reading achievement, enjoyment in reading, reading frequency, word identification, and letter identification, in order to establish construct validity. Information regarding the relationships between the scales and other reading variables was provided for 13 of the 16 scales, while the other three scales did not provide such information. Of these 13, only five reported at least one correlation with a construct or total score above .50. A meta-analysis would be useful to examine the individual relationships between reading motivation constructs and these other reading variables.

One problem in establishing the generalizability of these scales may be the size and representativeness of the samples used to establish reliability and validity. Five of the 16 scales had development samples of 200 or fewer students. Eight of the 16 scales were developed with samples of more than 1,000 students and only four used samples of over 2,000 students. The scale with the largest sample size was ERAS with 18,000 students. Only two of the studies, for SARA (McKenna et al., 2012) and ERAS (McKenna et al., 1995), went into great detail regarding the representativeness of their samples. For example, students used in the development of ERAS were pulled from every state across America. According to McKenna et al. (1995) “An effort was also made to ensure that the sample was distributed according to population patterns among states and regions” (p. 943). McKenna et al. (2012) compared their sample to U.S. national statistics to gauge representation. Because only two studies included such detail, it is difficult to determine the generalizability of the other 14 scales. Future scale developers should include more information regarding the representativeness of their samples.

Theory and Constructs. Findings of this review indicate that the number of constructs per scale varied. For example, some scales like CAIMI only measure intrinsic motivation, and other scales like MRQ measure 11 separate constructs. Most scales included two to four constructs. The specific constructs also varied. For example, some scales measure motivation for specific types of reading such as recreational or academic reading (McKenna et al., 2012; McKenna & Kear, 1990), while others focus on just self-concept and value (Gambrell et al., 1996; Pitcher et al., 2007). There seems to be little consensus on the number of constructs that define reading motivation. This lack of agreement on the constructs of reading motivation may be driven by a lack of theory guiding the development of many scales. In trying to access the underlying motivation theories, we realized quite a few scales were informed by numerous

theories and others by no theory at all. One scale that pulls directly from only one theory is SRQ-RM (De Naeghel et al., 2012), in which every item on the survey represents an aspect of Self-Determination Theory. MRQ (Wigfield & Guthrie, 1995), one of the most widely used measures of reading motivation, pulls from numerous theories on general motivation as well research specifically on literacy motivation. Wigfield and Guthrie (1995) stated measures of reading motivation that fixate on only a few motivational constructs are limited. They argued that by writing items to fit multiple constructs researchers can measure the multidimensionality of reading motivation. Most scales of reading motivation also include items that relate to reading self-concept or reading self-efficacy. Although most seem to consider these to be reading motivation constructs, Schiefele et al. (2012) believe that these items measure something qualitatively different. They argue that self-efficacy and self-concept are antecedent to reading motivation since they “refer to the expectancy of successful reading and to the value of reading” (p. 431). Conradi et al. (2014) determined in their review that 22% of articles describing reading motivation studies are atheoretical. It raises the question of how these different “constructs” relate. Is curiosity about reading a type of intrinsic reading motivation as Wigfield and Guthrie (1997) suggest? Are reading attitudes and intrinsic motivation the same or is one a sub-set of the other? Also, could it be that there is one “general reading motivation” construct that drives the rest of the constructs?

Schiefele et al. (2012) make the argument that these constructs may be hierarchically related, with Intrinsic and Extrinsic motivation the higher order categories and other constructs such as curiosity and competition the lower order categories. In order to determine a final set of lower order categories Schiefele et al. (2012) examined both qualitative (e.g., Nolen, 2007) and quantitative (e.g., Wigfield & Guthrie, 1997; Watkins & Coffey, 2004) research to determine

common themes around reading motivation constructs as well as studies that combined both qualitative and quantitative (Greaney & Neuman, 1990; Guthrie, Van Meter, McCann, & Wigfield, 1996; Möller & Bonerad, 2007). In their review, they showed that seven constructs found in major quantitative studies, “genuine dimensions of reading Motivation: curiosity, involvement, competition, recognition, grades, compliance, and work avoidance” (p. 437), overlap largely with constructs researched in qualitative studies of reading motivation. Findings from ARMM scale (Kingston et al., 2017), however, call into question the problem with shared variance among dimensions of reading motivation, and the authors posit that a general reading motivation factor can explain much of the shared variance among dimensions.

Sometimes including a variety of constructs in reading motivation scales could be beneficial. For example, Guthrie, McRae, and Klauda (2007) report on a reading motivation intervention called Concept-Oriented Reading Instruction (CORI), which incorporates five motivational supports (e.g., support for intrinsic motivation to read and reading self-efficacy) with explicit reading strategy instruction. In measuring the effectiveness of the intervention on reading motivation, a scale measuring general reading motivation would be useful to know how much students’ motivation to read increased. Likewise, it would be valuable to teachers and researchers alike to know whether the specific constructs of intrinsic motivation to read and self-efficacy for reading increased because those constructs were explicitly supported by teachers in the intervention. Similarly, if the sole goal of another intervention were to provide students with autonomy support for reading, thus targeting only one specific construct, then a scale of autonomous reading motivation (i.e., De Naeghel et al., 2012) would be appropriate.

In addition to lack of theory, findings from the review suggest an inconsistent use of motivation terminology. The developers of these sixteen reading motivation scales used many

labels to describe sub-constructs of reading motivation, such as enjoyment of reading, orientation toward mastery, curiosity, autonomous reading, reading attitudes, value of reading, and intrinsic motivation. However, an examination at the individual item level reveals similarities of the various constructs. For example, the item “It is important to me to read” from the autonomous reading motivation scale in SRQ-RM (De Naeghel et al., 2012) is similar to the item “It is very important to me to be a good reader” from the importance scale on MRQ (Wigfield & Guthrie, 1997). Are these items really measuring importance or are they measuring autonomous reading motivation or both? Conradi et al. (2014) indicate that few reading motivation studies presented in reading journals (17%) offer explicit definitions of constructs.

Age Span. In our review, we set out to locate self-report reading motivation measures spanning all ages of students. We identified more scales of elementary school reading motivation than scales written for early childhood or adolescent students. Strengths of the elementary scales are that, except for one, they are all group administered, most of the scales have alpha reliabilities reaching .70, three of the scales have been developed with validation samples greater than 1,000 students, most have been used in other research, and the full scales for the most part are easily accessible. One weakness of these scales is many of them only measure a few constructs of reading motivation identified in the research and two only measure reading self-efficacy or self-concept.

In all we found only three scales that measured reading motivation in early childhood readers exclusively, and with such young participants, all three measures must be individually administered. While this is the most developmentally appropriate method of assessment with this age group, it may make measuring reading motivation of an entire classroom of students difficult or impossible. Future scale developers might consider making surveys electronic so that the

computer can present and read items to the children. Also, these three measures were validated with small groups of students, possibly due to the individual administration. Therefore, one should be cautious when trying to generalize the reliability and validity findings to students from other schools and other grades. Finally, the scales measured only one to four different constructs, which is limited given the many aspects of reading motivation identified in older students. Given all of these constraints on the early childhood reading motivation scales, it may be very difficult to find a motivation scale for early childhood for every research or classroom need. More early childhood scales with good psychometric properties and validated on a large sample that measures more than one construct and appropriate for more than one grade level will need to be developed. The one scale that fits this description the best, ERAS, was developed over 25 years ago.

We reviewed six adolescent and adult reading motivation scales. Compared to the elementary scales, many of these scales are relatively new, in part because they are adaptations of elementary scales; therefore, most have not been used in other published research. The strengths of the adolescent and adult scales are that half have been validated with large samples over 1,000 students, all but one scale is easily accessible, all can be group administered, and most scales and subscales proved to have strong internal consistency.

One positive direction for adolescent scales is the addition of digital reading motivation, such as SARA (McKenna et al., 2012). As students enter later elementary and middle school, they are required to read more information online and on digital devices in classrooms (Clark, 2011; McGeown et al., 2016). It may be the case that digital reading motivation is qualitatively different and needs to be measured differently. Future research could examine how to specifically measure reading motivation for digital texts and future developers could create

scales that exclusively measure this type of reading.

Further, as students enter later elementary and middle school classrooms, they are directed to more non-fiction texts. Scales such as MRIB-S and MRIB-N (Guthrie et al., 2011) that include items about non-fiction texts is a needed addition (Guthrie et al., 2011). It may be that students are more motivated or perhaps motivated in a different way when reading fiction versus non-fiction texts. Having more challenging non-fiction texts in the classroom may be part of the reason why there is a noted decrease in reading motivation in the upper grades versus in elementary school (Guthrie & Davis, 2003). However, both MRIB-S and MRIB-N were only developed for middle school students. Future developers could adapt these scales for high school students.

One need for reading motivation scales would be a complimentary set of early childhood, elementary, and middle school scales that measure the same constructs, such as those listed by Schiefele et al. (2012), including curiosity, involvement, competition, recognition, grades, compliance, and work avoidance. With all three scales developed using the same terminology and scale design, these could be used to examine reading motivation growth over the span of many years. Only ARMM (Kingston et al., 2017), that covers grade five through twelve, was developed to span more than six years.

Summary

Through our examination of these 16 reading motivation scales, we found many strengths such as extensive information regarding reliability and validity, large sample sizes for the development of many scales, and new motivation measures for either very young children and adolescents. However, there is still room for improvement. Although there are many scales available for late elementary school students, attempting to locate an early childhood or

adolescent survey for a particular research study or classroom need may be difficult. Due to generalizability issues, a variety of constructs measured by each scale, and occasional lack in psychometric properties, researchers may still need to adapt elementary school scales to fit the needs of their older or younger students. In the current review we suggested the development of a set of reading motivation measures for children from early childhood to adolescence that include the reading motivation constructs put forth by Schiefele et al. (2012) in order to measure the change of reading motivation over many years. These complementary motivation measures should examine motivation to read both print and online text. In addition to this need, we suggested more work on examining the multidimensionality of reading motivation. Models that are more sophisticated should be examined, specifically ones that examine the possibility of hierarchical structures of reading motivation as posited by Schiefele et al. (2012). Except for ARMM (Kingston et al., 2017), researchers have examined only the number of independent but related constructs, and not the possibility of a hierarchical structure subsuming these related constructs.

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Table 1
Access, Age Range, and Languages Available in Each Scale

Measure (in order as presented in review)	Access to Scale	Age Range	Languages Available
Children's Motivations for Reading Scale (CMRS)	Full scale available in Baker & Scher (2002)	Grade 1	English
Young Children's Academic Intrinsic Motivation Inventory (Y-CAIMI)	Sample items available in Gottfried (1990)	Grades 1-3	English and Spanish
Young Reader Motivation Questionnaire (YMRQ)	Full Scale available in Coddington & Guthrie (2009) and http://www.cori.umd.edu/measures/YRMQ.pdf	Grade 1	English
Children's Academic Intrinsic Motivation Inventory (CAIMI)	Sample items available in Gottfried (1985)	Grades 4-9	English, Spanish, Japanese, Chinese, and Slovene
Elementary Reading Attitude Survey (ERAS)	Full scale available in McKenna & Kear (1990)	Grades 1-6	English
Motivation to Read Profile (MRP)	Full scale available in Gambrell et al. (1996) Revised version available in Malloy, Marinak, Gambrell, & Mazzoni (2013)	Grades 2-6	English, Slovene
Motivation for Reading Questionnaire (MRQ)	Full scale available in Wigfield & Guthrie (1997) and http://www.cori.umd.edu/measures/MRQ.pdf	Grades 3-5	English, Greek, Norwegian, Chinese

Table 1 (continued)

Measure (in order as presented in review)	Access to Scale	Age Range	Languages Available
Reader Self-Perception Scale (RSPS)	Full Scale available in Henk & Melnick (1995)	Grades 4-6	English
Reading Self-Concept Scale (RSCS)	Sample items available in Chapman & Tunmer (1995)	Ages 5-10	English
SRQ-Reading Motivation Questionnaire (SRQ-RM)	Full Scale available in De Naeghel et al. (2012)	Grade 5	English
Adaptive Reading Motivation Measure (ARMM)	Kingston et al. (2017)	Grades 5-12	English
Adolescent Motivation to Read Profile (AMRP)	Available in Pitcher et al. (2007)	Grades 6-12	English
Adult Motivation for Reading Scale	Full Scale available in Schutte & Malouff (2007)	Ages 18-77	English
Motivations for Reading Information Books School (MRIB-S) and non-school (MRIB-N) questionnaires	Full Scale available in Guthrie, Cambria, & Wigfield (2011)	Grades 6-8	English
Reader Self-Perception Scale 2 (RSPS2)	Full Scale available in Henk et al. (2012)	Grades 7-10	English
Survey of Adolescent Reading Attitudes (SARA)	Full Scale available in McKenna et al. (2012)	Grades 6-8	English

Table 2
Reliabilities of Scales and Subscales

Scale (in order as presented in review)	Reliabilities
Children's Motivations for Reading Scale (CMRS)	<p>Baker & Scher (2002) Full scale $\alpha = .86$ (16 items) Perceived value of reading $\alpha = .78$ (4 items) Enjoyment of reading $\alpha = .67$ (7 items) Perceived competence in reading $\alpha = .67$ (3 items) Interest in library-related situations $\alpha = .57$ (2 items)</p>
Young Children's Academic Intrinsic Motivation Inventory (Y-CAIMI)	<p>Gottfried (1990) Full Scale $\alpha = .91$ (39 items) Intrinsic motivation for reading $\alpha = .82$ (12 items) Intrinsic motivation for math $\alpha = .84$ (12 items) Intrinsic motivation for learning $\alpha = .82$ (12 items) Preference for difficulty work = $.87$ (3 items)</p>
Young Reader Motivation Questionnaire (YMRQ)	<p>Coddington & Guthrie (2009) Full Scale $\alpha = .70$ (12 items) Self-efficacy for reading $\alpha = .64$ (4 items) Reading orientation $\alpha = .60$ (3 items) Perceptions of difficulty $\alpha = .67$ (5 items)</p>
Children's Academic Intrinsic Motivation Inventory (CAIMI)	<p>Gottfried (1985) Full Scale $\alpha = .71-.92$ (122 items) Intrinsic motivation for reading $\alpha = .71$ (26 items) Intrinsic motivation for math $\alpha = .71$ (26 items) Intrinsic motivation for social studies $\alpha = .73$ (26 items) Intrinsic motivation for science $\alpha = .69$ (26 items) Intrinsic motivation for school learning $\alpha = .67$ (18 items)</p>

Table 2 (continued)

Scale (in order as presented in review)	Reliabilities
Elementary Reading Attitude Survey (ERAS)	<p>McKenna & Kear (1990) Full scale $\alpha = .87-.89$ (20 items) Recreational reading $\alpha = .74-.87$ (10 items) Academic reading $\alpha = .81-.83$ (10 items)</p>
Motivation to Read Profile (MRP)	<p>Original: Gambrell et al. (1996) Self-concept $\alpha = .75$ (10 items) Value $\alpha = .82$ (10 items)</p> <p>Revised: Malloy et al. (2013) Full scale $\alpha = .87$ (20 items) Self-concept $\alpha = .81$ (10 items) Value $\alpha = .85$ (10 items)</p>
Motivation for Reading Questionnaire (MRQ)	<p>Wigfield and Guthrie (1997) Reading self-efficacy $\alpha = .63-.68$ (3 items) Reading challenge $\alpha = .68-.80$ (5 items) Reading curiosity $\alpha = .70-.76$ (6 items) Reading involvement $\alpha = .72-.76$ (6 items) Importance of reading $\alpha = .59-.52$ (2 items) Recognition for reading $\alpha = .69$ (5 items) Compliance $\alpha = .62-.55$ (5 items) Social reasons $\alpha = .78-.72$ (7 items) Competition $\alpha = .75-.81$ (6 items) Reading work avoidance $\alpha = .44-.60$ (4 items) Grades $\alpha = .59-.43$ (4 items)</p>

Table 2 (continued)

Scale (in order as presented in review)	Reliabilities
Reader Self-Perception Scale (RSPS)	<p>Henk & Melnick (1995) Self-efficacy: Progress $\alpha = .84$ (9 items) Self-efficacy: Observational comparison $\alpha = .82$ (6 items) Self-efficacy: Social feedback $\alpha = .81$ (9 items) Self-efficacy: Physiological states $\alpha = .84$ (8 items)</p>
Reader Self-Concept Scale (RSCS)	<p>Chapman and Tunmer (1995), experiment 3 Full scale $\alpha = .86/.89$ (50 item version) Positive Tone $\alpha = .85/.86$ (26 items) Negative Tone $\alpha = .88/.83$ (24 items) Full scale $\alpha = .85$ (30 item version) Competence in reading $\alpha = .72$ (10 items) Difficulty in reading $\alpha = .75$ (10 items) Reading attitude $\alpha = .77$ (10 items)</p>
SRQ-Reading Motivation Questionnaire	<p>De Naeghel et al. (2012) - Internal Consistency using Bentler's ρ Autonomous reading (Recreational) $\rho = .93$ (8 items) Autonomous reading (Academic) $\rho = .94$ (8 items) Controlled reading (Recreational) $\rho = .81$ (9 items) Controlled reading (Academic) $\rho = .82$ (9 items)</p>
Adaptive Reading Motivation Measure (ARMM)	<p>Kingston et al. (2017) - Marginal reliabilities from IRT reported General Reading Motivation = .94 (computer adaptive) Intrinsic reading motivation = .62 (computer adaptive) Extrinsic reading motivation = .84 (computer adaptive) Autonomy = .70 (computer adaptive) Perceived difficulty = .80 (computer adaptive) Reading avoidance = .72 (computer adaptive) Social motivation = .83 (computer adaptive)</p>

Table 2 (continued)

Scale (in order as presented in review)	Reliabilities
Adolescent Motivation to Read Profile (AMRP)	Pitcher et al. (2007) Self-concept (reliability information not available) (10 items) Value (reliability information not available) (10 items)
Adult Motivation for Reading Scale	Schutte & Malouff (2007) Full scale $\alpha = .85$ (21 items) Reading self-efficacy $\alpha = .72$ (6 items) Reading for recognition $\alpha = .83$ (3 items) Reading as a characteristic of self $\alpha = .87$ (8 items) Reading to perform other tasks $\alpha = .70$ (4 items)
Motivations for Reading Information Books School (MRIB-S) and non-school (MRIB-N) questionnaires	Guthrie, Cambria, & Wigfield (2011) <u>MRIB-S/MRIB-N</u> Intrinsic motivation for reading $\alpha = .83/.89$ (7 items) Valuing of reading $\alpha = .83/.85$ (7 items) Reading Efficacy $\alpha = .82/.85$ (7 items) Peer acceptance of reading $\alpha = .81/.77$ (7 items) Reading avoidance $\alpha = .79/.77$ (7 items) Devaluing of reading $\alpha = .81/.83$ (7 items) Perceived difficulty in reading $\alpha = .85/.85$ (7 items) Peer rejection of reading $\alpha = .74/.70$ (7 items)
Reader Self-Perception Scale 2 (RSPS2)	Henk et al. (2012) Self-efficacy: Progress $\alpha = .95$ (16 items) Self-efficacy: Observational comparison $\alpha = .92$ (9 items) Self-efficacy: Social feedback $\alpha = .87$ (9 items) Self-efficacy: Physiological states $\alpha = .94$ (12 items)

Table 2 (continued)

Scale (in order as presented in review)	Reliabilities
Survey of Adolescent Reading Attitudes (SARA)	McKenna et al. (2012) Full scale $\alpha = .96$ (18 items) Academic digital $\alpha = .82$ (5 items) Academic print $\alpha = .78$ (5 items) Recreational digital $\alpha = .80$ (3 items) Recreational print $\alpha = .86$ (5 items)

Note. Reliability information was pulled from development papers

Table 3. *Validation Sample Sizes, Analysis of Dimensionality, and Validation with Other Measures for Each Scale*

	Scale (in order as presented in review)	Sample Sizes	Examination of Dimensionality	Validation with Other Measures Related to Reading
1	Children's Motivations for Reading Scale (CMRS)	65	Exploratory Factor Analysis	Parents stating reading is important as a source of pleasure ($r = .22$ to $.40^{**}$) Parents perceptions of children's interest in learning to read ($r = .09$ to $.41^{**}$)
2	Young Children's Academic Intrinsic Motivation Inventory (Y-CAIMI)	107	Exploratory Factor Analysis, Confirmatory Factor Analysis	Reading Achievement ($r = .31^{**}$) IQ ($r = .32^{**}$) Teacher Rating of Achievement ($r = .45^{**}$)
3	Young Reader Motivation Questionnaire (YMRQ)	84	None	Teacher ratings of motivation ($r = .26^*$ to $.36^{**}$) Word-identification ($r = .05$ to $.41^*$)
4	Children's Academic Intrinsic Motivation Inventory (CAIMI)	567	None	Confidence ($r = .49^{**}$ and $.57^{**}$) Reading Achievement ($r = .02$ to $.33^{**}$) Language Achievement ($r = .07$ to $.30^{**}$) Reading grades ($r = .08$ to $.20^{**}$) Harter's Scale of Intrinsic Versus Extrinsic Orientation in the Classroom ($r = .18^*$ to $.32^{**}$)
5	Elementary Reading Attitude Survey (ERAS)	18,185	Exploratory Factor Analysis	Library card holders higher than non-library card holders (**) Students who check-out books from school library higher than students who do not (**) High ability readers higher than low-ability readers (**)
6	Motivation to Read Profile (MRP)	611	Exploratory Factor Analysis	Information from interviews on reading motivation tapped 70% of the information from the survey. Significant differences among low, average, and high reading achievement.

Table 3 (continued)

	Scale (in order as presented in review)	Sample Sizes	Examination of Dimensionality	Validation with Other Measures Related to Reading
7	Motivation for Reading Questionnaire (MRQ)	105	Exploratory Factor Analysis	Frequency of reading ($r = .01-.42^{**}$) Number of hours reading ($r = .01-.37^{**}$)
8	Reader Self-Perception Scale (RSPS)	2,104	Exploratory Factor Analysis	Moderate and significant relationship with the Elementary Reading Attitude Survey Moderate and significant relationship with Reading Achievement
9	Reading Self-Concept Scale (RSCS)	2,446	Confirmatory Factor Analysis	Letter Identification ($r = .05$ to $.22^{**}$) Word Identification ($r = .08$ to $.26^{**}$) Pseudo-word Naming ($r = .12$ to $.23^{**}$) Spelling ($r = .01$ to $.28^{**}$) Comprehension ($r = .17$ to $.65^{**}$)
10	SRQ-Reading Motivation Questionnaire (SRQ-RM)	1,260	Exploratory Factor Analysis, Confirmatory Factor Analysis	MRQ Scales ($r = .02$ to $.62^{**}$) Reading Achievement ($.11^{**}$ to $.32^{**}$) Reading frequency ($r = .13^{**}$ to $.60^{**}$) Reading Engagement ($r = .06$ to $.23^{**}$) Reading Self-Concept ($r = .13^{**}$ to $.37^{**}$)
11	Adaptive Reading Motivation Measure (ARMM)	9,394	Fit indices for hierarchical models	Reading Behavior ($r = .01$ to $.61^{**}$) Reading Engagement ($r = .01$ to $.84^{**}$) Reading Achievement ($r = .01$ to $.58^{**}$)
12	Adolescent Motivation to Read Profile (AMRP)	384	None	None
13	Adult Motivation for Reading Scale	220	Exploratory Factor Analysis	Enjoyment of Reading ($r = .06$ to $.74^{**}$) Frequency of Reading ($r = .04$ to $.68^{**}$) Hours Recreational Reading ($r = .06$ to $.38^{**}$) Hours Required Reading ($r = .02$ to $.26^{**}$)
14	Motivations for Reading Information Books School (MRIB-S) and non-school (MRIB-N) questionnaires	1,205	Exploratory Factor Analysis	Reading Fluency ($r = .00$ to $.26^{**}$) Reading Comprehension ($r = .01$ to $.17^{*}$) Information Text Comp. ($r = .01$ to $.21^{**}$)

Table 3 (continued)

	Scale (in order as presented in review)	Sample Sizes	Examination of Dimensionality	Validation with Other Measures Related to Reading
15	Reader Self-Perception Scale 2 (RSPS2)	3,030	Exploratory Factor Analysis	None
16	Survey of Adolescent Reading Attitudes (SARA)	5,993	Confirmatory Factor Analysis	None

Note. All information for table was pulled from the scale development papers, the level of detail provided in the table relates to the amount of detail given in the development papers, total sample sizes in the table may be the sum of up to four different samples used in the development of a scale, correlations are reported in absolute magnitudes, * = $p < .05$, and ** = $p < .01$, a range is provided when multiple samples were used or multiple constructs examined.