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Effects of Reading Disability in Adolescents on Self-Concept and Future Expectations

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EFFECTS OF READING DISABILITY IN ADOLESCENTS ON SELF-CONCEPT AND FUTURE EXPECTATIONS

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ABSTRACT

This study investigated whether reading problems affect adolescents' self-concept and examined adolescent opinions regarding the consequences of reading ability. Three groups of adolescents participated: 68 special education students (SE), 41 regular education poor readers (REP), and 164 regular education students (RE). Two surveys were administered to the participants, the Multidimensional Self Concept Scale (MSCS) and the Meyer Reading Opinion Survey (MROS), along with standardized measures of reading ability and intelligence.

Results indicated that on the MSCS, RE students had significantly higher academic self-concept than REP and SE students; differences were not noted between the latter two groups. RE students also demonstrated significantly higher family and total self-concepts than SE students. On the MROS, significant group differences in opinions were noted on several constructs: the importance that reading plays in achieving success in life, the concept that poor reading skills result in negative consequences, student ratings of their reading skills, and whether students had negative reactions to school related to reading difficulties. The last two constructs, rating of reading and reactions to school, accounted for the greatest amount of variance between the three groups, with the SE students judging their reading skills to be the weakest and indicating some occurrences of difficult school-based experiences pertaining to reading. Results from MANCOVAs showed that IQ was not a predictor of the scores of the dependent measures from either survey. Correlations of the constructs on the two surveys resulted in moderate correlations between academic self-concept on the MSCS and opinion of

reading ability on the MROS (r=.40, p<.001) and between academic self-concept and the reaction to school (r=-.37, p<.001). Other significant correlations occurred, but accounted for less variance.

The results support previous findings (e.g., Harter, 1990) that negative effects of reading difficulties for self-concept largely occur in academic domains, although there were indications in the present study of consequences in other areas of self-concept as well. Further, though the two groups with reading difficulties were not matched in reading level or IQ, the results of the surveys suggest more extensive problems in self-concept and in school experiences for the Special Education students.

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INTRODUCTION

Statement of the problem

The incidence of reading problems for older students continues to be significant across the United States (Kirsch, Jungeblut, Jenkins, & Kilstad, 1993; National Institute for Literacy, 1998; Stein, 1997), regardless of socio-demographic background. Despite the fact that the predicament of illiteracy has been recognized for nearly a quarter of a century, reading difficulties persist widely in numerous domains and populations. Grave statistics exist concerning the reading abilities (or lack thereof) of this country's children, adolescents, and adults. For example, according to the National Assessment of Educational Progress (NAEP, 1999), approximately 38 percent of the nation's fourth graders demonstrated literacy skills at or below a basic level of literacy. Illiteracy rates for the adolescent population (not including those who have dropped out of school) are just as striking, hovering around the 25 percent mark (NAEP, 1999). Stedman and Kaestle (1987) reported similar results for adults, stating that about twenty percent of American adults had not acquired sufficient literacy skills required to negotiate printed material with which they were confronted at work, during leisure time, and in everyday living experiences. Additionally, there is often an apparent promotion of students with reading problems in primary grades and failure to effectively treat these reading difficulties later. Such students then graduate from high school without having acquired one of the most basic, fundamental skills necessary to survive in today's world (Brown, Prisuta, Jacobs, & Campbell, 1996; Kozol, 1991).

The result of advancing children through school without their acquiring adequate reading skills are adolescents and adults who cannot read; individuals who are at a great disadvantage in high school and when they try to continue with higher education after high school. As would be expected, the inability to read results in other consequences as well. Specifically, the association between learning disabilities, including reading disabilities, and consequences related to economic success and employment has long been of interest. The National Institute for Literacy (1998) reported that social problems associated with poverty are linked with low literacy skills in the United States. Likewise, the adult literacy survey by this organization documented low reading abilities for millions of adults, and found literacy levels linked both to employment and economic status (Barton & Jenkins, 1995; Knell, 1996-1997; National Institute for Literacy, 1998). The tremendous increase in technological positions, alongside a distinct decrease in unskilled and manual labor opportunities (Fowler & Scarborough, 1993), exacerbates the problem and this trend is only expected to continue (Brown et al., 1996). The literature also documents that reading problems might contribute to participation in illegal activities. Several sources have reported a significantly higher rate of illiteracy among inmates when compared to the general population (see Crawford, 1996; also, McGee, 1996). These reading problems and their consequences are not just limited to disadvantaged adolescents and adults, rather, they even occur for those reading-disabled individuals with standard educational opportunities (Blachman, 1996; Fowler & Scarborough, 1993).

Finally, it is also believed that those students experiencing reading difficulties often may encounter specific social/emotional ramifications. There has long been concern for young children of the effect of reading failure on a child's self-concept and self-esteem. Studies with elementary-aged individuals point to lower self-esteem levels and self-concepts in children experiencing reading problems, and that when provided with reading instruction resulting in increased reading abilities, self-esteem and self-concept improved (Buck, Warr-Leeper, & Evans, 1988; Revicki, 1981; Thomson & Hartley, 1980). Surprisingly, there is a distinct paucity of research on the self-concept and self-esteem for older poor readers. These students not only have experienced years of academic difficulties, but no doubt are now aware, at least in part, of the limits placed on future career goals by lack of reading proficiency.

In light of the previous information, it becomes apparent that an empirically valid study needs to be conducted regarding how problems in reading make adolescent poor readers feel about themselves and their lives, and the extent to which they understand later correlates and ramifications of illiteracy. Though research documents the apparent negative effects of illiteracy, the literature appears to lack studies that look at adolescents' opinions of illiteracy and its consequences. Therefore, the goal of the proposed study is to examine self-concepts of adolescent poor readers and their peers reading at or above their expected level, their views of how literacy problems influence people's lives, and the extent to which reading deficits appear to have affected poor readers' self-esteem. A related question pertains to whether negative effects of illiteracy are linked solely to their perceptions of their academic abilities or more broadly to self-

esteem. To address these topics, the proposed study will consist of a survey to evaluate adolescent students' understanding of the possible effects/consequences of illiteracy, and will investigate how adolescents with and without reading difficulties feel about themselves. Group comparisons will be sought between adolescents who are identified as poor readers and peers reading at their expected level.

Prior to elaborating on the proposed study, several topics related to the afore-mentioned issues will be discussed in greater detail. First, the magnitude of reading problems, particularly in adolescents, will be discussed. Next, the process of reading acquisition and the skills necessary to become a proficient reader will be reviewed. Subsequently, research on the nature of the reading problems and the characteristics of adolescent poor readers will be presented. Fourth will be a brief discussion on self-concept. Finally, a review will follow pertaining to possible consequences of illiteracy; namely, economic, employment, legal, and/or emotional ramifications of not becoming literate, including studies regarding the effects of reading difficulties.

Magnitude of reading problems in the United States

Approximately twenty years ago, the National Commission on Excellence in Education put forth a report, "A Nation at Risk" (1983) in response to concern regarding the seemingly deteriorating status of education in this country. In its review of the condition of education in the United States, the Commission found at that time that approximately twenty- three million adults were illiterate according to the "simplest tests of everyday reading, writing, and comprehension..." (p. 8). According to this same

document, the U.S. Navy reported that nearly one-quarter of its recruits were not able to read at the ninth grade level, the minimum level necessary to comprehend written safety instructions.

A more recent study of adults, the National Adult Literacy Survey, conducted in the early 1990s, discovered that about 52 percent of the adult respondents (between the ages of 16 and 65) performed "at the two lowest levels of literacy," (Brown et al., 1996; also, see Vogel, 1996), and that almost one-quarter of the respondents performed at the lowest level of literacy (National Institute for Literacy, 1998). In fact, according to Stein (1997), these results were confirmed by the International Adult Literacy Survey in 1993. The U.S. emerged as the country with the highest percentage of workers displaying abilities at the lowest literacy levels when compared with seven other industrialized nations.

The problems noted in adults also appear to be continuous with the failure rate in children across the U.S. Recent research has confirmed the widespread problems of illiteracy in the younger elementary population. According to the National Assessment of Educational Progress (NAEP, 1999), reading failure continues to be an "epidemic" in this country. Only approximately 31 percent of fourth-grade students reach at least the proficient level in reading, and a mere 7 percent of fourth graders performed at the highest achievement level (Advanced). Equally concerning is the finding that the special education population consists of more than 50 percent of youngsters who do not learn how to read (Ellis & Cramer, 1996; NAEP, 1999). This lack of ability clearly affects achievement in other academic domains.

With these statistics it is apparent that literacy problems remain prevalent in the United States. Although the focus has more often been on children in early elementary grades or on adults, this phenomenon clearly pertains to the adolescent population that exists between these two age groups. In addition to the statistics regarding the adult population, the "Nation at Risk" report (1983) noted that approximately 13 percent of all 17-year-olds across the country qualified as functionally illiterate, and that about 40 percent of minority youth were functionally illiterate. These numbers are all the more disturbing considering that "reading and writing ability levels that would have been considered literate in the recent past are often no longer adequate... it is now estimated that the equivalent of twelfth-grade reading skills may now roughly correspond to the minimum requirement for functional literacy..." (Fowler & Scarborough, 1993, p. 11).

Moreover, several assessments at both the state and national level have shown that middle and high school students who are poor readers appear to have made insignificant progress since their early elementary school years, as reflected in their continuing decrease in reading skills and abilities as they move through their school years. For example, in March, 1999, the National Assessment of Educational Progress reported that approximately 25 percent of eighth and twelfth grade students were reading below the Basic level; only 33 and 40 percent of eighth and twelfth graders, respectively, performed at the Proficient level of reading achievement. Finally, only three percent of eighth graders and seven percent of twelfth graders were able to perform at the highest (Advanced) achievement level. Multi-year standardized assessments in several U.S. states such as Wisconsin have revealed similar results for adolescents

(Buehl, 1998). Likewise, the Connecticut Longitudinal Study also reported the continuation of poor reading skills into adolescence, stating that about 75 percent of children with diagnosed reading disabilities in third grade continued to have them in the ninth grade.

These reading problems have been found to be even worse for children and adults in minority groups. In urban areas where there is a high concentration of minority groups, a serious elevation of reading failure has been noted. The NAEP (1999) document revealed that the gap between the reading performance of Caucasian students and African-American and Hispanic students continues to exist as well, with approximately 65 percent of fourth grade African-Americans and 64 percent of Hispanics scoring below the basic level of achievement, whereas only 38 percent of Caucasian fourth graders performed at that same level. Additionally, this assessment showed that at the fourth, eighth, and twelfth grades, those students who were eligible for the "free/reduced-lunch" program (an indicator of poverty) had lower average reading scores than those students who did not receive this service.

These wide gaps between different socio-cultural groups were already reported in a previous study done by Mullins and Jenkins (1990). When studying urban youth, these researchers found that about 42 percent of African-American seventeen-year-olds were functionally illiterate, in contrast to only 9 percent of Caucasian-American youth. The numbers are especially concerning when one realizes the fact that the majority of urban school systems across the country are comprised of minority students. In fact, according to one author studying inner-city school districts across the United States, most urban

schools are approximately 95-99 percent non-white (Kozol, 1991). Additionally, as an example of the high rates of illiteracy found in urban schools, Kozol reported that 27 percent of the high school graduates in the city of Chicago read at or below the eighth grade level (Kozol, 1991). Statistics such as these reveal the poor state of affairs regarding literacy in this country, and provide a solid reason for the nation to take immediate action to guarantee an improvement in these numbers.

In "A Nation at Risk," (1983), the Commission wrote the following: "All, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost...to secure gainful employment, and to manage their own lives" (p. 4). This statement referred to the provision of equal educational opportunity for all students, from the early elementary years through high school, regardless of socio-economic background or race. Embedded in this statement is also the understanding that there are specific "tools" that must be acquired in order for individuals to succeed in society, no matter what path of "success" they choose to follow. One of these essential tools is the ability to read, a topic that has continued to be of immense concern ever since the dissemination of this national report. Though most reading research has been focused on reading acquisition in young children, a small body of research has explored the issue of whether the reading problems of adolescents reflect a failure to acquire the early stages of reading or rather a difficulty with later requirements for more advanced reading and comprehension skills. To consider this issue, a brief review of how individuals learn to read will ensue.

The process of reading acquisition and the skills necessary to become a proficient reader

Gleitman and Rozin (1977) discuss the fact that there is a relation between types of writing systems, the structure of language, and the ease of reading acquisition. English is considered to be a difficult writing system to acquire because it is morphophonemic: units correspond to meaning units (i.e., morphemes; e.g., cats (cat) (s)) and meaningless units of pronunciation (e.g., 'cats' and 'keps' both have four phonemes or speech sounds). These multiple layers of representation contribute to the complexity of spelling in the English language and to how easy it is for a child to "crack the code."

The skilled reader has been found to read text rapidly and effortlessly, focusing on meaning and being able to read words not seen in print before. There are several abilities that must be developed in order for an individual to attain this level of proficiency. These skills include phoneme awareness, decoding, letter-sound correspondence, automaticity, and comprehension (all to be discussed shortly). In fact, poor readers have been found to have problems with phonological awareness, decoding and listening comprehension at all ages, and these deficiencies all have an impact on reading comprehension, the ultimate goal of reading. Leading researchers in the reading field (e.g., see Adams, 1990, for review; Ball & Blachman, 1991; see Blachman, 1997, for review; Lundberg, Frost, & Petersen, 1988; see also Snow, Burns, & Griffin, 1998, for review; Torgesen, Wagner, & Rashotte, 1997) have consistently noted the importance of phoneme awareness and decoding in individuals learning to read, and the

apparent deficiency of these abilities in individuals struggling with reading acquisition. Without these skills, students learning how to read are at a distinct disadvantage in that they will be unable to (or will have extreme difficulty with) understanding and mastering our alphabetic writing system.

Phoneme awareness, one of the most critical abilities required for learning how to read, is a final level of phonological awareness: a skill that entails discovering that spoken words are made up of smaller, meaningless segments. Phoneme awareness is defined as the conscious understanding or awareness that spoken words are made up of phonemes. This awareness allows the demonstrated ability to classify speech sounds, the combination of phonemes into sequences (i.e., blending), and the ability to identify the speech sounds making up individual spoken words. In other words, when individuals have acquired phoneme awareness, they have gained the understanding that words can be divided into phonemes and strings of phonemes. This skill develops gradually and typically requires several years to attain full proficiency.

There is widespread agreement that phonemic awareness (and direct teaching of phonemic awareness) greatly increases an individual's achievement/ability in learning how to read (for reviews, see Adams, 1990; and Snow, Burns, & Griffin, 1998) and is a necessary component for reading acquisition. According to Moats (1995), the level of awareness that a child has of the phonological structure of words is a good predictor of the child's future success in reading. Research bears out that phoneme awareness, which underlies decoding (to be discussed later), is significantly correlated with both current and future reading achievement (e.g., Muter & Snowling, 1998; Scarborough, 1998;

Snider, 1995; Tangel & Blachman, 1995; Yopp, 1992). In fact, one longitudinal training study conducted by Lundberg, Frost, and Peterson (1988) confirmed that the level of phonemic ability in kindergarten was a powerful predictor of later reading and spelling performance. More specifically, those children who received direct instruction in phoneme awareness were better readers at the end of kindergarten, first, and second grades than their peers who had not received phoneme instruction. More recent research has documented similar results when phoneme awareness training was provided to beginning readers (Lie, 1991; Schneider, Kuspert, Roth, Vise, & Marx, 1997). For instance, Lie (1991) examined the long-term effects of two phoneme awareness training programs using more than 200 Norwegian first-graders. Results indicated greater gains on reading and spelling in the two treatment groups (112 children total) when compared with their peers in the control group (100 children). In other words, both phoneme awareness treatments had a positive effect on reading and spelling at the end of both first and second grade. Moreover, longitudinal work (Byrne & Fielding-Barnsley, 1991; 1995) conducted with Australian children who received phoneme awareness training when they were four- and five-years-old indicated continued benefits through third grade. Those children who were trained in phoneme awareness tasks performed significantly better than the control children on non-word reading tasks at the end of first and second grades, and in reading comprehension at the end of second grade.

The need for incorporating training in phoneme awareness in regular classrooms is underscored by evidence that children from low socio-economic levels often enter school with notable delays in phonological awareness (Brady, Fowler, Stone, &

Winbury, 1994; see Nicholson, 1997, for review; Robertson, 1997). Likewise, in middle-class schools significant numbers of children in first grade still have incomplete understanding of the phonemic structure of words and their weaknesses co-occur with reading difficulties.

The alphabetic principle

After becoming aware that spoken words are made up of phonemes, an understanding must be attained that speech sounds can be represented with letters, a concept referred to in the literature as gaining the alphabetic principle. In order to "break the code," or to learn how to decode, individuals learning to read must come to understand how the phonemic units in words are reflected in spellings of words (Liberman & Shankweiler, 1985; Shankweiler, 1989). The acquisition of this knowledge is what enables children to figure out probable pronunciations of printed words that they have not encountered in print before. As Lyon (1995a) stated, an "underdeveloped awareness of the speech-sound constituents of words and the consequent inability to associate them with symbols leads to slow and inaccurate decoding and word recognition," (p. 11), which is known to be a prerequisite to understanding written language. In other words, proficient phoneme awareness abilities and an understanding of the alphabetic principle are necessary for later skilled decoding to occur.

Having attained sufficient phoneme awareness and an understanding of the alphabetic principle, the student must master accurate and fluent decoding and develop reading comprehension skills. According to the Simple Theory (Gough & Tunmer,

1986; Hoover & Gough, 1990), variance in reading comprehension, the ultimate goal of reading, is accounted for by decoding (which, in turn is influenced by phoneme awareness) and by language comprehension. These capacities are also necessary to ensure success in reading, and both are comprised of different elements of skill.

Decoding

Skilled decoding is the ability to identify words represented in print, and involves an individual's ability to see and identify letters, understand phoneme-grapheme correspondences, learn spelling rules, and additional complex tasks. This ability also must become an automatic process. In other words, decoding is the process by which individuals automatically and accurately create phonological translations for printed sequences leading to skilled word recognition. The development of such abilities has been widely studied and is noted to occur over several years. Ehri and McCormick (1998) describe five phases of development that comprise the course of word reading from prereading to skilled reading. An individual can, according to this model, experience great difficulty in any one of the five phases, and must receive direct assistance or remediation at that level in order to be able to continue moving to the level of proficiency. Each phase is characterized by an individual's working knowledge of the alphabetic system, which they state is "central for acquiring word reading skill..." (p. 135). The five phases include: pre-alphabetic, partial alphabetic, full alphabetic, consolidated alphabetic, and automatic alphabetic, each of which will be described below.

Preschoolers and older severely-disabled readers who have little working knowledge of the alphabetic system can be characterized by the pre-alphabetic phase. Children or older adults who are in this phase lack letter knowledge and phoneme awareness. They also do not understand that the letters in written words map onto sounds in oral language; in other words, they do not understand the concept of letter-sound correspondence. Since these individuals do not have any working knowledge of the alphabetic system, they are unable to decode words or to analogize, thereby being limited to sight word reading and guessing words from the context in which they occur (e.g., *Budweiser*). The normal reader does not spend much time in this phase, in contrast to the individual who is experiencing significantly delayed reading abilities.

Kindergartners, first graders, and older disabled readers who have only an elementary working knowledge of the alphabetic system can be characterized by the partial alphabetic phase. These individuals have weak decoding and analogizing abilities, and they especially lack vowel knowledge. They can remember how to read words by sight through the use of partial alphabetic cues. They are just beginning to be able to detect letters in words, and to match some letters to specific sounds.

Those individuals who have a working knowledge of the major grapheme-phoneme units in English (including vowels) are characterized by the full alphabetic phase. These children are able to use "orderly" relationships to associate sounds to the letters they see in the words that they read. According to Ehri and McCormick, reading is slow at the start of this phase but improves with practice, and mastery must be achieved in order to move into the next two phases. Students in this phase have

acquired phoneme awareness and are able to read unfamiliar words by analogy to familiar words. This is especially important for the older poor reader because this allows them to focus more on learning larger correspondences such as blends. There is a large increase in the sight vocabularies that these students possess. Individuals in this phase should be able to use sight word memory to read familiar words, and they should be able to apply "decoding or analogizing strategies" to read unfamiliar words.

According to Ehri and McCormick (1998), students in the consolidated-alphabetic phase are typically second graders or beyond who have a working knowledge of the major graphophonic relations. These individuals are ones "who have used this knowledge to build a sizable sight vocabulary, and who as a result have learned how to decode commonly recurring letter patterns as units..." (p. 141). They are able to read more quickly and fluently than others who have not yet reached this phase. These readers are learning chunks of letters (such as syllables) that occur in numerous words. They can apply this new knowledge in order to assist in recognizing sight words by remembering connections that involve these multi-letter combinations.

Finally, those "mature" readers who are able to recognize the majority of words in text automatically by sight, and who can automatically apply the various strategies (such as decoding and analogy) to attack unfamiliar words constitute the automatic-alphabetic phase. Most of the words that a reader in this phase encounters are words in their sight word vocabularies, thereby enabling these readers to read the majority of words without effort, whether they be in or out of context. Recognition of words is

automatic and fluent, allowing readers to focus their attention on the meaning of the text that they are reading.

In sum, acquisition of decoding is an extended process that typically requires many years to attain fluent, accurate reading of text.

Research corroborates the importance of decoding in the reading process. A major line of evidence demonstrates a correspondence between early decoding and later reading achievement (Lundberg, 1984; Perfetti & Roth, 1981; Blachman, 1987) and reading comprehension (Lesgold & Resnick, 1982; Shankweiler, 1989). In addition, numerous studies support the conclusion that reading deficits are the result of decoding problems (Foorman, Francis, Shaywitz, Shaywitz, & Fletcher, 1997; Henry, 1988; Juel, 1988; Moats, 1998b; Perfetti & Roth, 1981; Shankweiler, Lundquist, Dreyer, & Dickinson, 1996; Stanovich, 1982). To go beyond the fourth-grade reading level, when text becomes much less predictable and when thousands of new and longer words are encountered, the ability to decode is critical (see Fowler & Scarborough, 1993, for review; and Cunningham, 1998).

Skilled readers have been found to have quick and accurate decoding skills whereas the reverse hold true for poor readers. Indeed, a significant body of research shows that slow readers rarely catch up and become good readers, especially if not given the proper instruction (Clay, 1979; Stanovich, 1986). According to the Learning First Alliance group (1998), "the bottom line is that all children have to learn to sound out words rather than relying on context and pictures as their primary strategies to determine meaning... research shows that all proficient readers rely on deep and ready knowledge

of spelling-sound correspondence while reading..." (p. 12). Beck and Juel (1995) suggest that early learning of decoding leads to wider reading habits in all arenas, stating "wide reading provides opportunities to grow in vocabulary, concepts, and knowledge of how text is written. Children who do not learn to decode do not have this avenue for growth..." (p. 22). In other words, early acquisition of decoding skills is important because it accurately predicts later skill in reading comprehension. Correspondingly, the importance of instruction in decoding has been demonstrated in numerous studies (e.g., Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998). For example, results from a study with urban first and second grade children indicated that those who received direct instruction in phoneme awareness and decoding improved in their word reading abilities more quickly than peers who had received less explicit spelling instruction or implicit training through exposure to literature (Foorman et al., 1998).

In addition to becoming an accurate decoder, the reader must do so with sufficient automaticity for skilled reading comprehension to occur (Perfetti & Roth, 1981). Sticht (cited in Fowler and Scarborough, 1993), states that as long as decoding is not an automatic process, reading comprehension will lag behind listening comprehension in that the shift from learning-to-read to reading-to-learn cannot occur. Automaticity is what allows reading comprehension to catch up to listening comprehension. Fowler and Scarborough (1993) explain that as an individual's reading skills increase, decoding skills account for less variance in individual differences than in the earlier stages of learning how to read, due to the attainment of automaticity. In accordance with this, several researchers have found that although word recognition is

not sufficient for reading comprehension, it is a necessary influence on reading comprehension. The reverse is not true, however: one cannot comprehend text without recognizing and being able to decode words (Share & Stanovich, 1995). In fact, good readers have been found to be skilled at reading words in context as well as words in isolation (Perfetti & Roth, 1981). This holds true for both younger and older readers.

Comprehension

Finally, comprehension is yet another crucial ability that must be developed. In keeping with the Simple Theory, reading comprehension is the combination of two components (decoding and oral language comprehension), in which a reader is able to achieve the main goal of reading, namely, comprehending written text. According to some researchers, reading comprehension in older readers also is affected by both word recognition and oral language comprehension abilities (see Fowler and Scarborough, 1993, for review).

Research has established that skilled readers clearly have better-developed abilities in applying their world and word knowledge to understand individual words and main ideas (Afflerbach, 1990), in deriving inferences from written text, and in utilizing their comprehension monitoring strategies (Snow, Burns, & Griffin, 1998). When individuals are missing word knowledge, they are less able to comprehend the underlying meanings in written text (Chall, Jacobs, & Baldwin, 1990).

Researchers believe that comprehension skills can be improved "through instruction focused on concept and vocabulary growth and background

knowledge...direct instruction about comprehension strategies such as summarizing, predicting, and monitoring..." (Snow, Burns, & Griffin, 1998, p. 6), and through consistent practice. In addition, when prior knowledge, word and concept training are provided, comprehension scores improve (Stahl and Fairbanks, 1986; Stahl, Jacobson, Davis, & Davis, 1989; see also Clark & Uhry, 1995, for a review of several programs that teach comprehension strategies).

In sum, research has revealed that certain skills such as phoneme awareness, decoding accuracy and automaticity, and oral language comprehension, are required in order to succeed at learning how to read, and to have good reading comprehension. The bulk of research points to phoneme awareness and decoding as critical hurdles that are necessary to master in order to progress to the task of comprehending advanced text.

The nature of reading problems of older poor readers

Numerous studies have found that older poor readers typically present with the same difficulties previously discussed for younger poor readers. According to Fowler and Scarborough (1993), for adults, "the pattern and components of reading implicated in reading disability are similar to those observed in children with reading disability..." (p. 47). Moreover, in essentially every empirically valid study, problems identified in childhood have been found to persist into adulthood, thereby producing evidence of continuing phoneme awareness, word recognition, decoding, and reading comprehension difficulties, regardless of socio-economic class or level of intelligence. In fact, research indicates that problems with phonological awareness and decoding are the hallmark of

most poor readers, regardless of age. The only major difference between adults with reading problems and children experiencing reading difficulties is that the older poor readers have had a longer time to figure out strategies (though not always helpful strategies) to compensate for their reading and writing problems.

Longitudinal studies of reading development have revealed that most poor readers do not catch up and get over their difficulties as time progresses. In a review of research suggesting lasting decoding problems, Beck and Juel (1995) discuss the longitudinal study conducted by Clay (1979). This author studied children who were learning how to read in New Zealand, and found that children who were "late starters" with learning how to decode were not able to catch up to their classmates (age-mate, average readers) throughout the school years. Similarly, Lundberg (1984) conducted a longitudinal study in which he found a significant correlation (.70) between linguistic awareness of words and phonemes in first grade and later reading achievement in the sixth grade. He also found that of the forty-six children who had a low reading achievement level in the first grade, forty of these students were still poor readers as sixth graders. In addition, more recent research corroborates this evidence. Foorman and her colleagues (1997) make a strong case for early reading intervention by reviewing numerous studies (including their own) indicating continued deficits in the skills discussed earlier found to be necessary for becoming a proficient reader. More specifically, they state that "children who fail to grow in literacy-related skills exhibit deficits rather than developmental lags in these skills..." (p. 243), and that early poor

readers do not catch up to their "normal-reading" peers unless they are provided with direct instruction in these basic reading skills.

Studies with older poor readers also have been conducted, indicating continued difficulties with acquiring the pre-requisites for proficient reading skills. Older poor readers have been found to have deficits in metaphonological abilities. Such language-related deficiencies include weaknesses in syllable counting, segmentation and deletion, and rhyming abilities. For instance, Blalock (1981) found that only about one-third of her reading disabled adults were able to count syllables in words that contained between two and five syllables, and approximately two-thirds of this same sample displayed difficulties with the rhyming task which they were presented. Pratt and Brady (1988) studied the relation of phonological awareness to reading disability in both children and adults, and also found that phonological awareness is related to reading skills in children and adults. Older poor readers seem to have difficulty with phoneme awareness that transcends a simple developmental delay or an instructional deficit explanation. Their results also indicated that language abilities independent of IQ are related to reading acquisition. In a study conducted by Bruck (1992), results indicated that adults who had been diagnosed with dyslexia in childhood did not perform as well on tasks involving phoneme awareness skills (deletion and counting of phonemes) as normal third grade readers, even though the adults had higher reading levels. Measures of phoneme awareness with adults have also been found to be a good predictor of word recognition knowledge, just as is the case for children. In fact, problems in phoneme awareness were noted in every study conducted with reading-disabled adults in which phoneme

awareness was measured. In contrast, deficits in phoneme awareness were not observed in normal reading controls, younger reading-matched controls, or with adults who only had "pure" math problems (Blalock, 1981; Felton, Naylor, & Wood, 1990; Greenberg, Ehri, & Perin, 1997; Rack, Snowling, & Olson, 1992; Read & Ruyter, 1985; Shafrir & Siegel, 1994).

Research investigating adolescents and adults experiencing reading problems at the time of the studies has consistently demonstrated problems for older poor readers in decoding and word recognition skills with both real words and non-words (Blalock, 1981; Greenberg et al., 1997; Pratt & Brady, 1988; Read & Ruyter, 1985; Shankweiler et al., 1996). The difficulties reported included non-automatic decoding as well as great deficits in both pseudoword and real word decoding tasks. A study conducted by Carver and Clark (1998) using a varied sample of students from grades three through seven, as well as community college and university students, confirmed significant decoding deficits throughout this entire age range. Results from studies of adults who were identified in childhood as having a reading disability also reveal weak decoding and word recognition skills, especially in reading isolated words and pseudowords (Bruck, 1990; Pennington, Van Orden, Smith, Green, & Haith, 1990; Scarborough, 1984). In all of these studies, the older poor readers performed worse than control groups on the non-word or pseudoword recognition tasks that were administered. For example, college students who had childhood diagnoses of dyslexia were found to show very slow and inaccurate word-recognition abilities when compared with both age-matched (college) and reading-matched (grade six) reading controls (Bruck, 1990). In fact, results

indicated that the performance patterns of these older poor readers closely resembled those of beginning skilled readers as well as dyslexic children. Shankweiler et al. (1996) examined decoding and spelling skills in high school students of average reading achievement and below. Results from this study suggested that differences in decoding abilities were associated with differences in comprehension in these high school students, and therefore, that decoding reliably predicted reading achievement. Once again, the importance of the acquisition of good decoding skills in older poor readers is emphasized.

In addition to these difficulties, research has documented that automaticity and speed often distinguish adult good from poor readers. Fowler and Scarborough (1993) state that "in virtually every group of reading-disabled adults that has been studied, there is some evidence of deficiencies in accuracy, automaticity, or speed of word recognition skills..." (p. 52). In the afore-mentioned study done by Blalock (1981), automaticity was a problem for her self-referred adult participants. These adult poor readers were so slow at decoding that they were unable to comprehend what they were reading. Studies have also shown a deficit in speed in older poor readers when reading isolated word lists, pseudowords, and paragraphs in which content words have been replaced with pseudowords, when compared with younger reading-matched controls (Bruck, 1990; Gross-Glenn, Jallad, Novoa, Helgren-Lempesis, & Lubs, 1990). It is important to note, however, that there is question pertaining to whether these deficiencies in speed could also be related to reduced practice in the older poor reader. Findings from a study conducted by Anderson, Wilson, and Fielding (1988) suggested a significant, positive

relationship between how much individuals (fifth graders) read and their level of reading comprehension and reading speed. They concluded that lack in proficiency in reading could be due to reduced practice in reading. More research, specifically with adults, must be conducted to further validate these data.

Much research also indicates that reading comprehension is yet another difficulty that older poor readers experience. Some of these older poor readers have problems comprehending due to decoding difficulties, whereas others just may have comprehension problems. They appear to lack an understanding of main ideas of written text, being unable to decipher what material is important and must be carefully read versus what material is unimportant and can be read quickly (Baker & Brown, 1984; Wong, 1986). In working with dyslexic college students, Pennington et al. (1990) found that these students performed significantly lower on reading comprehension measures when compared with age-matched, normal readers. Further findings suggest the importance and influence of prior knowledge on reading comprehension and prediction strategies in adults (Afflerbach, 1990; Haenggi & Perfetti, 1992). However, despite these documented deficits with older poor readers, some of these older individuals are able to display relatively adequate reading comprehension scores. This occurrence may be due to the fact that these older poor readers rely more upon context when they read written materials. In fact, research demonstrates that disabled adult readers display greater abilities in reading words when presented in context as compared to their abilities in reading the same words in isolation (Bruck, 1990). In other words, the limited reading comprehension that many adult poor readers are displaying are due to deficits in

their decoding abilities. They are relying on context to figure out what certain words are, an impossible thing to do when simply reading a list of words. Yet there are distinct limitations as to what can be guessed even when reading words in written text. Much research has indicated that the average student encounters approximately ten thousand new words (words that have never been seen in print before) per year after about fifth grade (Nagy & Anderson, 1984). Subsequent findings suggest that the majority of these new words are multisyllabic in contrast to the smaller (only one or two syllable) words used in earlier elementary texts, and that when these words do occur in text, readers must be able to read and understand them in order to gain the general meaning of what is being read (Cunningham, 1998).

In light of the fact that reading comprehension can be affected by either decoding and/or listening comprehension difficulties as discussed earlier, the limited reading comprehension observed in older poor readers could also be due to deficient listening comprehension skills. This has sometimes been found to be the case (Bruck, 1990; Sticht, as cited in Fowler & Scarborough, 1993). For example, in her work with college dyslexics, Bruck (1990) divided her group of dyslexic subjects into "good" comprehenders and "poor" comprehenders and discovered that listening comprehension was the crucial variable that significantly discriminated between these two subgroups.

In sum, there exists a large number of adolescents with a serious degree of reading problems, a significant portion of whom have still not mastered the earliest requirements of phoneme awareness and accuracy of decoding for learning to read. In addition, many experience problems with automaticity of decoding and with

comprehension. Most importantly, these deficits have been found to exist among the entire student population, meaning that both individuals diagnosed as "reading disabled" as well as those not specifically diagnosed suffer from these difficulties, a topic that will be addressed next.

Issues of definition of reading disabilities

At this point, it must be said that the difficulties listed thus far pertain to all poor readers, namely, those individuals who have been specifically identified by a school district as being "reading disabled," as well as those individuals who exhibit more non-specific reading difficulties, referred to as "garden variety" poor readers in the literature (Stanovich, 1988). In fact, Lyon (1995a) specifically stated that "an IQ-reading achievement discrepancy is... an inappropriate and invalid marker..." when discussing individuals experiencing reading problems or disabilities, as all display similar difficulties (Lyon, 1995a, p.15). In other words, there are no qualitative differences between those individuals who have high intellectual aptitude (thereby reaching the discrepancy criteria) and those individuals with lower intellectual abilities who, therefore, do not reach the discrepancy criteria. More recently, Stanovich (1999) admonished the field of learning disabilities for continuing to utilize the "archaic" definition of reading disabilities by indication of aptitude-achievement discrepancies, stating that "there is no converging empirical evidence that the processing mechanism accounting for the primary word recognition problems of poor readers with high IQs is different from the processing mechanism accounting for the primary word recognition problems of poor readers with

low IQs..." (p. 353). In advocating for more appropriate means of identifying and assessing reading difficulties, other researchers discuss critical drawbacks and negative consequences of relying solely on the discrepancy-based diagnostic procedure and distinguishing between these two types of poor readers (see Aaron, 1995; also, Carver & Clark, 1998; Fletcher et al., 1997; Siegel, 1999; Stanovich, 1991). Yet, a distinction between these two types of readers has prevailed (and continues to) within the educational system in the U.S., resulting largely from previous work by Rutter and Yule (1975) in which they distinguished between poor readers with specific reading disorders and those poor readers with "general reading backwardness" using regression procedures.

Since then, ample research has demonstrated that even those children who do not display the typical "discrepancy" (around 1.5 standard deviations) between their achievement and aptitude scores on a battery of standardized assessments present with the same phonological weaknesses as those who have been identified as "reading disabled" (Juel, 1988; Stanovich, 1984). More recent research confirms this conclusion. Specifically, Stanovich and Siegel (1994) examined whether poor readers with and without aptitude/achievement discrepancy differed on various phonological, orthographic, and language processing tasks. Results indicated similar skill weaknesses in both types of poor readers. Similarly, Fletcher and his colleagues (1994) compared dyslexic children who did meet the discrepancy criteria with those children who did not on different measures of decoding, word recognition, and phonological skills, and discovered that there were no differences in performance between these two groups on

any of these measures. The patterns of strengths and weaknesses related to reading are similar for both groups, thereby invalidating the traditional and prevailing distinction of children with reading disabilities who meet IQ-based discrepancy and those who meet low achievement definitions. In other words, those children whose low reading achievement appears to coincide with their expected reading level as per their IQ also exhibit difficulties in the abilities reviewed previously. The deficits discussed thus far have also been observed to occur in children who display learning difficulties that are related to their socio-economic disadvantages. In other words, children from low SES circumstances may have more frequent problems regarding reading, but not ones that are fundamentally different in nature than those difficulties reported for the "reading disabled" individual.

Fowler and Scarborough (1993) maintain a similar view when discussing features of the older poor reader. These authors state that adults who have been diagnosed with a specific reading disability and adults who have reading problems due to a lack of educational opportunity or who have a general weak aptitude for learning are not very different from one another. Other researchers (Blalock, 1981; Bruck, 1990) are in agreement, explaining that the persistence of word recognition/decoding problems are seen both in adults with "pure" reading disabilities as well as those adults who have more general learning problems or who lack educational opportunities. Overall, data consistently show that there is little benefit for either younger or older poor readers in differentiating between discrepant and non-discrepant poor readers, particularly when thinking about course of remediation. Nonetheless, for the current group of adolescents,

services may or may not have been provided depending on calculated discrepancy scores. Or, the type of service may have varied. In either case, reading difficulties broadly affect school performance in the upper grades and may have consequences for both current and future employment, even in entry-level positions. The issue next pertains to how these literacy and literacy-related problems affect the life options and self-esteem of adolescent poor readers.

Research on the possible consequences of illiteracy and students' self-concept in relation to reading

Although evidence exists pertaining to success stories for adults with reading disabilities, the number of these accounts is rather small. Instead, research has more often pointed to the difficulties and negative consequences that adolescents and adults with reading problems experience. Adams and Henry (1997) state rather simply that illiteracy is an "enormous barrier" to the potential knowledge and social opportunities one can acquire and experience as one proceeds through life. Reading difficulties can negatively impact a multitude of domains including continued education, employment opportunities, and economic status, to name a few (Gerber & Reiff, 1992; Gregg, 1996; Kirsch et al., 1993; Levine & Nourse, 1998). In a recent report for the U.S. Department of Education, Brown and her colleagues emphasize that these implications of illiteracy extend well beyond the individual to the nation-at-large (U.S. DOE, 1996). At this point, illiteracy is recognized as a societal problem, with widespread social and economic costs at the national level (Lyon, 1995b).

According to Kirsch et al. (1993), the National Adult Literacy Survey (NALS) documented the incidence and impact of learning disabilities in adults. These authors report that the survey indicated that: roughly one-half of the 26,000 respondents (age 16 and above, representing 100 million out of 191 million adults in the U.S.) performed at the two lowest levels of literacy; close to one-quarter scored at the lowest level of literacy; and two-thirds of the sample did not complete high school. In analyzing the results from the NALS, The National Institute for Literacy (1998) stated that more than 20 percent of adults read at or below a fifth-grade level, which they consider to be well below the level necessary to "earn a living wage."

Economic/social consequences of illiteracy

According to the National Institute for Literacy (NIFL, 1998), "low literacy skills are closely connected to the social problems related to poverty..." (p. 5). Numerous studies have revealed that approximately half of the adults receiving welfare support do not have a high school diploma or graduate equivalency diploma (GED), and that three-quarters of the adults receiving welfare performed in the lowest two literacy levels (Barton & Jenkins, 1995; see also Knell, 1996-1997). In fact, according to Knell (1996-1997) welfare recipients have an average literacy level below that required of unskilled laborers. In the report published by the NIFL (1998), the probability of being on welfare was said to increase as literacy levels decrease; 43 percent of those individuals at the lowest level of literacy skills live in poverty, 17 percent receive food stamps, and almost three-quarters are not employed or hold a part-time job. In contrast, of those adults with

strong literacy skills, only 5 percent live in poverty, and less than 1 percent receive food stamps (NIFL, 1998). Those individuals receiving welfare who have low education skills have also been reported to remain on welfare for longer periods of time than those welfare recipients who have stronger education abilities (NIFL, 1998).

Effects of illiteracy are also evident on income level. Reder (1995) found that adults with self-reported learning disabilities had a much lower income than did adults from the general population ($14,000 compared to $23,000). The National Institute for Literacy (NIFL, 1998) also verifies that low-literacy adults earn less than those adults with stronger literacy abilities. According to a fact sheet by the NIFL, low-literacy adults earn the least money, and as literacy skills increase, so do the average weekly wages of these adults. With regard to unemployment, approximately three-quarters of adults who are unemployed are noted to have reading or writing problems. In other words, the risk appears to be much higher regarding likelihood of being employed and economic well- being for adults with learning disabilities. As Levine and Nourse (1998) state, "post-secondary school opportunities and subsequent employment choices that are meaningful and provide a livable wage teeter out of the reach of young people with learning disabilities..." (p. 212).

Contributing to these consequences of illiteracy is the fact that adolescents with reading and learning difficulties are less likely to graduate from high school and are more limited with regard to their possibilities of continuing their education beyond the high school years (Levine & Nourse, 1998). As mentioned earlier in this paper, the drop-out rate for students experiencing reading or other learning disabilities is relatively high when

compared with their non-disabled peers. Statistics reveal a 61 percent graduation rate for adolescents with learning disabilities in contrast to the 75 percent graduation rate for the general population (Gregg, 1996). Even when a high school graduate with learning disabilities does get accepted into college, the chances that person will complete college are quite slim (Aaron & Baker, 1991). Results reported by Wagner (1989) indicate that approximately 17 percent of students with learning disabilities partake in any kind of post-secondary schooling in contrast to the near 50 percent of the general student population. An analysis of a five-year longitudinal study (Decade Study) also noted a distinct discrepancy between rates of post-secondary education for youngsters with and without learning disabilities (Levine & Edgar, 1995). In this study 37 percent of males and 26 percent of females with learning disabilities participated in post-secondary schooling in the first year after they graduated from high school, somewhat better than the Wagner (1989) figures. However, in this sample 79 percent of males and 71 percent of females without learning disabilities attended some form of post-secondary education in their first year after high school. The Decade Study also documented that of those attending college, more learning-disabled students dropped out of college by the second year (nearly a quarter) while only a small percentage of non-disabled students drop out by that point. This is especially unfortunate since it has come to be widely known that "college education is the best route, and perhaps the only route, to success in America..." (William T. Grant Foundation Commission on Work, Family and Citizenship, 1988, p. 1). The result of not receiving a college degree is that the probability of entering high-salaried occupations is significantly reduced (Knell, 1996-

1997). In fact, the National Institute for Literacy (1998) states that when workers without a high school diploma are compared with college graduates, the difference is highly significant; for every dollar that a college graduate earns, only 34 cents are earned by workers without diplomas. Additionally, when comparing mean monthly incomes, those workers who do not have a high school diploma earn significantly less than those individuals with a college degree (mean monthly income of $452 for those without a high school diploma, versus $1829 mean monthly income for those with bachelor's degree). Explained a bit differently, the NIFL argues that for every dollar earned by a worker with a high school diploma, only 60 cents are earned by those workers who did not graduate from high school. These individuals have to settle for jobs that are much lower paying, making life a struggle. Companies are simply not willing to risk the dangers that can result due to illiteracy, such as misreading names of chemicals, inability to read safety precautions, and a decrease in productivity and efficiency, etc. Approximately 90 percent of Fortune 1000 executives recently admitted that low literacy skills are damaging their "productivity and profitability." American businesses have estimated losses of approximately $60 billion in productivity each year because of the lack of basic skills in their employees (National Institute for Literacy, 1998).

Legal difficulties

A relationship between reading disabilities and juvenile delinquency has not been clearly established. Over the years, researchers have proposed several different theories pertaining to the assumed link between learning disabilities (LD) and juvenile

delinquency (JD) (Brier, 1989; Broder, Dunivant, Smith, & Sutton, 1981; Keilitz & Dunivant, 1986; Murray, 1976). According to the school failure theory, there is a higher school drop-out rate for students with learning disabilities due to academic failure which leads to the development of a negative self-image and poor choices regarding behavior. A second theory, the susceptibility hypothesis, includes the belief that students with learning disabilities are more susceptible to committing crimes because of characteristics such as greater impulsivity and poor social perception skills than students without learning disabilities. A third hypothesis is the differential hypothesis. According to this theory, children with LD are just as likely to become involved with juvenile delinquent acts as non-disabled children, however, they are more likely to be arrested and/or adjudicated because of issues such as interpersonal ineptitude. Inherent in all of these theories is the belief that students with LD are more likely than those without LD to become juvenile delinquents.

Assumptions and results concerning the relationship between LD and JD have varied tremendously throughout the years, an occurrence thought to be the consequence of methodological issues such as lack of operational definitions of LD and lack of control groups. Prevalence rates of learning disabilities among juvenile delinquents have been documented to range from 12 percent to as high as 70 percent (see Brier, 1989, for a review). According to the National Institute for Literacy (1998), older prison inmates typically have "significantly lower" literacy abilities than the general population, and those who increase their abilities have a lower rate of recidivism. Correspondingly, only approximately half of the prisoners in the U.S. have obtained their high school diploma

or GED, in contrast to 76 percent of the general population. Even when prisoners have a high school diploma, they demonstrate lower basic skills than individuals in the general public who have a high school diploma (NIFL, 1998). In 1992, the National Adult Literacy Survey found that seven out of ten prisoners performed in the lowest two literacy levels. Similarly, the Correctional Education Association (1994) reported that approximately three-quarters of all inmates in the U.S. are illiterate, meaning that their reading, writing, and math skills are not sufficient to gain and maintain employment (see McGee, 1996). According to Eggleston (1996), almost half of the adults who are in correctional facilities are "eligible for special education," and the majority of this number have learning disabilities. Further work suggests that 80 percent of those with learning disabilities in fact have reading disabilities (Vogel, 1996).

Reports by Keilitz and Dunivant (1986) of data from a multiyear project (the Learning Disability-Juvenile Delinquency Project) found a relationship between LD and juvenile delinquency. These researchers described the results of a national study utilizing three different designs including longitudinal, cross-sectional, and intervention. The significance of this research is that it addressed one of the concerns for which many earlier studies were criticized, namely, lack of control groups. A sample of 351 non-delinquent adolescent males was utilized, 58 of whom were identified as LD in the longitudinal portion of their study. According to their results, the risk of becoming delinquent and coming into contact with the juvenile court for LD young males was significantly greater than for a similar non-LD group.

In 1996 Crawford reviewed the research findings of the cross-sectional and longitudinal studies in the LD-JD project to assess the possibility of causal effects of learning disabilities on juvenile delinquency. Among the results obtained was evidence that a relationship between learning disabilities and self-reported delinquent behavior does exist: significant differences were found in the frequency (but not seriousness) of violent acts between the LD group and the non-LD group of adolescents. In addition, marijuana and alcohol use, and number of school discipline problems, were also found to be significantly higher with the LD group than for the group without LD. In other words, learning disabilities were found to be highly related to "official delinquency." Results also revealed that learning disabilities add to increases of delinquent behavior "both directly and indirectly through school failure." Finally, results involving an educational intervention showed a significant decrease in delinquency as well as a significant increase in academic achievement in adolescents receiving direct, systematic instruction in areas such as reading. Crawford (1996) concluded that such results provide an impetus for studies to validate the connection between LD and JD.

More recent research corroborates that the link is not a direct, causal one, but rather that learning disabilities and juvenile delinquency are indirectly linked for a variety of reasons. In a review and "reappraisal" of studies looking at the link between learning disabilities and juvenile delinquency, Brier (1989) determined that because the prevalence rate of learning disabilities in offender populations is much higher than would be expected in "non-offender" populations, LD must be considered a risk factor that increases the probability of becoming a juvenile delinquent. He concluded that "the

probability of a youngster with a learning disability becoming delinquent is seen as a consequence of the interaction between specific elements of learning disabilities and specific psychosocial correlates of delinquency..." (p. 546).

Yet, results of one recent study (Malmgren, Abbott, & Hawkins, 1999) with a sample of 515 fifth graders did not confirm the existence of a direct relationship between learning disabilities and juvenile delinquency. More specifically, the study examined longitudinal data from a seven-year prospective study to determine if a child's risk of becoming a juvenile delinquent is increased with the presence of LD. Fifty-one of the 515 students were diagnosed with LD. Data pertaining to delinquency was obtained via self-report and official court records. When demographic variables were controlled for, LD did not account for a significant portion of unique variance in the delinquency variables. In a second longitudinal study assessing the link between learning disabilities and antisocial behavior in a sample of 553 subjects, Hayden (1991) found a link between learning disabilities and juvenile delinquency only if the learning disabled individuals experienced school failure. Thus school failure seemed to be the "mediator" between learning disabilities and juvenile delinquency. It must be noted, however, that Hayden made use of a broader definition of learning disabilities than some former investigators, therefore, the link with reading disabilities, per se, is not certain. For instance, Hayden utilized three definitions to diagnose a learning disability: "low achievement method," where children are classified as learning disabled when they exhibit normal intelligence (FSIQ>80) with WRAT scores one or more years below grade level at age seven; "simple standard score + low achievement method," where children exhibit standard

achievement scores that are one standard deviation below their intelligence score (mean=100; sd=15); and "regression method," where five percent or less of the population exhibits a "severe" discrepancy between intelligence and achievement scores. In addition, school failure was found to be a good predictor of behavior problems such as conduct disorder and antisocial personality disorder. This result corresponds with one of the previously discussed theories pertaining to the relationship between learning disabilities and juvenile delinquency, the school failure theory.

Other studies (Bruck, 1987) that are prospective in nature corroborate the existing data that suggests there is no association between learning disabilities and asocial behavior. More specifically, this analysis of four studies examining the adult outcomes of individuals with learning disabilities found that "childhood learning disabilities were not precursors of asocial behaviors..." (p. 259). Indeed, significant differences were not indicated between LD adults and control subjects in number of delinquent acts or rates of incarceration. However, in concert with the differential hypothesis described previously, one study examined by Bruck found that although there were no differences in the number of offenses, the individuals with learning disabilities were noted to receive "somewhat more frequent and severe penalties..." (p. 259).

A report by Heumann (1996) succinctly summarizes the importance of recognizing the correlational (not causational) link between learning disabilities and juvenile delinquency when she states, "it is critically important to emphasize that delinquency is not a by-product of LD or any other disability category, but rather results from the impact of the failure of our system to provide appropriate services for these

children..." (p. 194). The implication of this statement is quite clear. If more appropriate services were provided, such as effective reading programs, juvenile delinquency may well decrease among the adolescent population. An important caveat to the observed association between LD and economic and legal consequences is that LD traditionally has been an umbrella terms encompassing disparate cognitive and behavioral difficulties (i.e., reading disabilities, math, attention, nonverbal learning disabilities, and so forth). While reading disabilities comprise a large percent of the LD population, lumping such diverse disabilities may be creating misleading information. A recent analysis of longitudinal data for individuals studied from childhood to adulthood suggests that reading disabilities are not linked with a higher rate of legal problems, but attention difficulties are (Buka, 1999). This study also differentiated between reading-disabled individuals with higher IQ scores versus those with lower scores: those with higher IQ scores felt worse about their reading weaknesses and about their academic performance. This study highlights the importance of specifying the kind of learning disability when studying outcomes and of considering the effects of other variables.

What the literature says about adolescents and self-concept or self-esteem

The final issue pertains to whether and how the literacy and literacy-related problems discussed earlier affect self-concept and self-esteem in adolescent poor readers. Prior to discussing studies that have been completed to date investigating the link between reading problems and self-concept/self-esteem, a brief review will be provided regarding self-concept/self-esteem as a construct.

The idea of self-concept has long been of interest in numerous fields, as demonstrated by the extensive literature pertaining to this construct (e.g., Bracken, 1996; Lipka & Brinthaupt, 1992; Wylie, 1974, 1989). Much research has focused on defining and appropriately measuring self-concept, from infancy through adulthood (Lipka & Brinthaupt, 1992). However, a review of the literature reveals an array of overlapping terminology such as self-esteem and self-regard, and on-going issues pertaining to conceptualization. Shavelson, Hubner, and Stanton (1976) concluded that self-concept has descriptive and evaluative aspects in which individuals describe and evaluate themselves in different domains (e.g., academic, non-academic) and sub-areas (e.g., English, Math), and that because no empirical distinction had been made between the two terms, self-esteem and self-concept, the two are used interchangeably. Other authors also make note of this seemingly ambiguous construct (Byrne, 1996; Keith & Bracken, 1992; Wylie, 1989) when describing various instruments purported to measure self-concept, but which are labeled self-esteem inventories, or vice versa (e.g., the Rosenberg Self Esteem Scale (1965) is said to measure global self-concept). Although some consensus does now exist that self-concept entails a broader definition "referring to all self-referent thoughts and attitudes... how adolescents feel and think about themselves" (Demo & Savin-Williams, 1992, p. 117), and self-esteem entails the more limited, evaluative aspect of self-concept, the lack of a clear and precise distinction is still present (Shirk & Renouf, 1992).

Over the years, numerous indices purported to measure self-concept and its various aspects have been formulated (see Wylie, 1989, for review). Due to the lack of a

precise definition and theoretical basis in many studies, measurement instruments have been poor in quality, and there were often methodological problems, resulting in inconsistent findings. Further, some instruments only have been utilized a small number of times, impeding both adequate analysis of the psychometric properties and explanations of results of studies using them. Others have been used more extensively, allowing for a more in-depth critique, resulting in the finding that less than twenty instruments actually meet "the requirements for psychometric adequacy" (Wylie, 1989).

Early work, beginning with William James in the late nineteenth century, explained self-concept in a uni-dimensional manner (see Marsh & Hattie, 1996, for review; Wylie, 1974). The uni-dimensional model defined the concept as "global self-esteem," one in which self-esteem is considered to be global in nature, and where children are thought to have comparable levels of self-esteem across the different domains in their lives (Harter, 1996). However, much empirically validated work conducted by investigators such as Marsh and Shavelson (1985) and Bracken (1992) did not support this view, but demonstrated that self-concept is more appropriately described in a hierarchical, multi-dimensional manner, where both global self-esteem and its component parts exist as distinct items (see also Byrne, 1988; Shavelson, Hubner, & Stanton, 1976). According to some of these models, global self-esteem is at the crest of the model, with more specific domains (e.g., physical, social, and academic self-concepts) underneath (Byrne & Shavelson, 1986). Although different correlates are indicated for global self-esteem and the individual domains, findings suggest that the two are related (moderately correlated) despite being separate and that they mediate the

effects of each other (see Kidder, 1998, for review; Shirk & Renouf, 1992). In a second review of studies, Byrne (1984) maintains that ample validation has been provided for self-concept as a multi-dimensional construct. In addition, one of its specific domains, academic self-concept, is multi-dimensionally structured (see Byrne, 1996). For instance, according to the Shavelson model (1976), not only is global self-concept divided into academic and nonacademic self-concepts, but these two domains are also further subdivided into more specific areas (e.g., English self-concept, Physical Ability self-concept). Other models simply identify two broad domains of self-concept, namely academic and non-academic (see Harter, 1996, for review).

Moreover, Shavelson et al. (1976), who were proponents of the second type of model, were the first investigators to clearly explain the construct of self-concept as having a multi-dimensional nature with a hierarchical structure that remains stable throughout the lifespan. Multidimensionality and stability of the self-concept have also been documented by other researchers (Crain & Bracken, 1994; Dusek, 1978; Harter, 1985; Harter, 1990a; see also Shirk and Renouf, 1992, for review), as has the fact that after age eight, people have the ability to make meaningful judgments about their self-concept (Harter, 1985). According to Demo & Savin-Williams (1992), self-concept stability has also been demonstrated in numerous empirical studies of adolescents, despite the popular notion of adolescence being a time of "storm and stress." These authors note that although changes do occur during adolescence, many are positive, and change does not necessarily imply instability. In other words, although adolescents mature and progress through different relationships and social circumstances, with some

changes in the way they look at themselves, overall, their self-concept remains quite consistent and stable. Additional support to the notion of stability of adolescent self-concept comes from a study conducted by Crain and Bracken (1994). Utilizing the Multi-dimensional Self Concept Scale (Bracken, 1992), results indicated that neither global nor domain-specific self-concepts were influenced by age, race, or gender. Finally, in a review of studies investigating the stability of self-concept in adolescents, Kidder (1998) showed that overall, self-esteem in adolescence is relatively stable; only slight changes in self-esteem scores were noted to occur amongst females and young adolescents in some of the studies reviewed. This information becomes important when investigating the self-concept of all individuals, and when trying to determine the level of self-concept and its relationship to other constructs.

Self-concept in individuals with specific learning disabilities

Finally, regarding reading and self-concept, the National Institute for Literacy (1998) reported that low self-esteem and depression can emerge in many adults with learning disabilities as a result of criticisms and being teased or rejected due to failures in academic, social or vocational efforts. According to Harter (1990b), children diagnosed with specific learning disabilities have been found to exhibit a lack of self-confidence when attempting to work on various academic tasks. Upham (1997) reflected on, and provided a personal account of what it was like to be learning disabled. More specifically, she described feelings of inferiority and "stupidity," as well as negative reactions and behaviors in which she engaged to avoid "being found out" that she was

learning disabled. Castle (1994) reiterates this fact when she describes the behaviors and apparent low self-esteem of individuals with reading problems. It has also been acknowledged that negative self-concept can continue to affect and influence future achievement levels in these children. The measurement of self-concept depends on which theoretical perspective is being used. As previously discussed, two models exist. One model emphasizes the unilateral, general sense of self-worth of an individual. The second, more accepted model places emphasis on a multidimensional view of self-concept; one in which the self- concept of an individual is actually "made up of a person's perceived competence in multiple specific domains..." (see Harter, 1990b; see also Westervelt, Johnson, Westervelt, & Murrill, 1998, p. 194).

It has long been known that reading plays a central role in the educational curricula of all students, from elementary through post-secondary schooling. Therefore, common-sense reasoning would predict that those children and adolescents who demonstrate problems in reading often experience frustration, and possibly, a negative self-concept. Much research has shown a positive relationship between reading achievement and self-concept, particularly with elementary-aged individuals (Brown, 1991; see also Cook, 1988, for review; Revicki, 1981; Rodriquez-Sutil, Calonge, & Scott, 1992; Thai, 1982; Thomson & Hartley, 1980). Bennett (1997) describes common feelings (e.g., frustration, incompetence, embarrassment) and reactions (e.g., filling the role of class clown, avoiding tasks) of students identified with learning and/or reading disabilities, and states that issues concerning self-esteem and a positive identity "can be heightened or exaggerated in the dyslexic population" (p. 2). A small Canadian study

conducted Buck, Warr-Leeper, and Evans (1988) found statistically significant improvements in reading skills as well as increased self-concepts in 7- to 10- year old subjects participating in a home tutoring program. Other studies (Chapman, Tunmer, & Prochnow, 2000) examined only academic self-concept in relation to reading skills in young children, and found that negative academic self concept was clearly related to poor reading skills and negative reading self concept in these beginning school children.

Fewer studies have been conducted with adolescent or adult poor readers. Research conducted by Smith (1991) investigating the relationship between learning disabilities and self-concept in college students revealed differences in self-concept between students with learning disabilities and control subjects who did not have learning disabilities. Utilizing both a global and a "researcher-developed, academically-oriented measure" (Tennessee Self-Concept Scale, and Smith Academic Profile, respectively), the data revealed significant differences between the groups only on the academically-oriented Smith Academic Profile. No differences were noted on the global measure of self-concept. An important note, however, is that research has repeatedly concluded that the Tennessee Self-Concept Scale is not an empirically-valid measure of self-concept because it has some methodological shortcomings (Keith & Bracken, 1996; Wylie, 1974, 1989).

Yet other studies have not found statistically significant correlations between self-concept scores and reading achievement (Young, 1991). Moreover, research pertaining to the social/behavioral functioning of adolescents and adults with learning disabilities has shown that outcomes were similar for individuals who were learning

disabled and those who were not (Falfard & Haubrick, 1981; Kavale, 1988; Kavale & Nye, 1985-86). More specifically, in a meta-analysis of 1077 studies "investigating the nature of learning disabilities," Kavale and Nye (1985-86) found only significant differences in linguistic ability between learning disabled participants and normal controls. Subjects were not found to differ in the social/behavioral domain. In an analysis of four follow-up studies of learning disabled individuals, Bruck (1987) also found no differences between adults identified as learning disabled and those not identified as such, in the social/emotional domain. Indeed, although the LD adults were more likely to show emotional adjustment problems, the rates were very low, and most adults were "well-adjusted." Some important issues concerning the differences that have been obtained are that the assessment techniques and definitions for both reading and self-concept, as well as the usage of "total" versus "domain-specific" self-concept measures varied greatly among the studies, and most of the instruments are no longer considered to be empirically valid (see Wylie, 1989, for review).

In a more recent study (Westervelt et al., 1998), significant increases were observed in general self-concept and in self-concept specific to reading abilities for forty-two young adolescents (ages 9 through 14 years) whose reading and spelling skills improved after attending a six-week remedial summer camp program. Lesser gains were seen for children from private schools or who had attention deficit disorder with hyperactivity. The summer camp program provided campers with a comprehensive program of activities geared toward improving academic, social-emotional, and physical skills. The methods used to address the academic (reading/spelling) difficulties included

tutoring in the Orton-Gillingham and Wilson phonetic approaches. Interestingly, various negative behaviors that depict the frustrations these children were experiencing at the outset diminished as reading abilities improved. Those behaviors included withdrawal, avoidance of tasks, becoming disruptive, sarcastic comments, and anger. Despite these positive results, it must be included that improvements were not observed in either sight word knowledge or reading speed. The authors conclude that the reading results are more than likely due to the fact that the program was so short in nature; the acquisition of automaticity and fluency have both been found to necessitate longer periods of time. Although this study assessed the impact of a program on students' self-concept and reading/writing skills, it did not directly question these campers about how their inability to read made them feel, and if they thought illiteracy impacts their daily lives, currently or in the future. Rather, questions were more in the form of "I like reading," and "Work in reading is easy for me."

In fact, all of the research discussed to this point assessing students' self-concept in relation to their reading skills has typically not focused on the life consequences of reading difficulties. Instead, studies have assessed students' self-concepts as readers, meaning how they feel about themselves as readers, and how motivation is related to the relative importance they place on reading, not how inability to read made them feel. For example, Gambrell, Palmer, Codling, and Mazzoni (1996) formulated the Motivation to Read Profile to assess students' motivation (second through fourth grade) to read by evaluating their self-concept as readers and asking them what value they place on reading. Questions asked how the student's reading ability compares with friends,

whether or not the student feels s/he has the ability to figure out a word that they do not know, how often the student worries about what other children think about his/her reading, how much time they will spend reading when they are grown up, etc. In other words, this survey was created to give teachers a means of assessing reading motivation by evaluating their students' self- concepts as readers and what value these students place on reading. Similarly, McKenna and Kear (1990) formulated a survey (Elementary Reading Attitude Survey (ERAS)) which measured the attitudes toward school-based and recreational reading of elementary school children. Although it has been shown to be reliable and valid, it is limited to use with young children, and does not ask how inability to read makes them feel, nor their thoughts concerning the possible consequences of illiteracy. Additionally, Henk and Melnick (1995) created an instrument to assess fourth, fifth, and sixth grade students' self- perceptions of their reading abilities. This scale only measures how good children think they are at reading, specifically word identification, comprehension, and other reading skills. Studies with these surveys generally find a relationship between self-assessment of reading ability and level of interest in reading activities. Absent from this body of research is a measure of how a deficiency in reading abilities makes high school students feel, as well as a survey pertaining to their beliefs and/or understanding about possible consequences of reading problems. In fact, Murphy (1992) specifically acknowledges this issue, stating, "considerable professional and investigative attention has been directed toward... the provision of formal accommodative and remedial services to persons with learning disabilities. Often neglected are the stigma, the social and psychological dilemmas, and

the consequent individual adjustments..." (p.76). Having heard that a graduate student had begun to explore these issues and observed differences in academic self-concept for reading-disabled and normal-reading college students (personal communication from Doris Johnson at conference, 1999), but not receiving the long-awaited results provides grounds for the development and use of the exploratory survey in the current study.

Purpose of the study

The purpose of this study was to develop a survey that could be utilized for more reliable and accurate measurement of how students with reading difficulties and those reading at their expected age feel about their reading problems or abilities, and if these students think illiteracy negatively impacts other domains of their lives. Results from the exploratory survey were used to determine the level of awareness that adolescents have pertaining to the importance of literacy and to the personal and social effects that it can have on the lives of adolescents as they enter adulthood. Gaining such information is, in part, important for intervention decisions pertaining to adolescents. If adolescents are aware of negative economic and social consequences of illiteracy, they may be more inclined to take advantage of reading programs should they be offered. In addition, understanding how adolescents with literacy problems feel about their circumstances may contribute to broader remedial efforts such as socio-emotional support, as well as to increased prevention efforts. It was hoped that the results of this study would add to the currently sparse knowledge about adolescent poor readers, as well as provide educators with insight regarding adolescents' thoughts and feelings about (the importance of) reading.

This study collected information from, and compared, reading-impaired and normal reading adolescents. Because a sizable proportion of high school students have reading weaknesses, reading ability was assessed to classify students into three groups: special education students identified by the school district as having reading difficulties, regular-education students with reading difficulties (researcher identified), and normal-

reading controls. Likewise, due to the possibility of a wide range of intelligence quotients among the high school population, IQ was measured and statistically controlled in analyzing the results. At the end of the study, names of all participants were entered into a random drawing to win one of several prizes as an incentive to partake in this research.

Two surveys were given in this cross-sectional study: one was a researcher-developed survey measuring how high school students with and without reading difficulties feel about their reading abilities, and their understanding of the possible consequences of illiteracy; the second was an empirically-validated survey measuring self-concept, the Multidimensional Self Concept Scale (MSCS; Bracken, 1992). The rationale for providing normal readers with the exploratory survey, as well as poor readers, was for comparison of the self-concept and understanding of the consequences of illiteracy between both of these groups of adolescents. Furthermore, use of the normed, standardized MSCS allowed for comparison with the exploratory survey. Additionally, the survey design entailed an economical and timely means of collecting a large amount of data, as well as the ability to generalize findings to a larger population of adolescents (Babbie, 1990).

This study asked the following groups of research questions:

1. What is the emotional impact of reading difficulties as identified by adolescent poor readers and those reading at their expected level?

2. How is self-concept in adolescents affected by reading difficulties? Are self-concept problems, if present, limited to academic self-concept or do they extend to non-academic areas as well?

3. What are the beliefs of adolescents regarding the social/economic/employment, educational, and/or legal consequences of illiteracy? Do these differ depending on the presence or absence of reading difficulties?

4. Do adolescent students with reading difficulties display a more limited understanding of the ramifications of illiteracy than those reading at their expected level?

5. Does reading-related self-concept, as measured by the researcher-constructed survey, closely correlate with academic self-concept as measured by the MSCS for both groups of adolescents?

Based upon the literature about the different ramifications of illiteracy, the following outcomes were predicted:

1. A greater percentage of adolescent poor readers would indicate lower academic self-concept than their peers reading at their expected level. Additionally, when self-concept problems were present, they would not extend beyond academic self-concept.

2. Both groups of adolescents would demonstrate an understanding of the possible consequences of reading problems. However, it was anticipated that adolescents reading at their expected level would have a greater understanding of the impact that illiteracy can have on adolescents' lives.

METHOD

Participants in the Study

Parent informed consent and student assent forms were distributed to 338 students enrolled in regular education and special education (resource room) English classes in ninth through twelfth grade. The aim was to include approximately 65 poor readers (identified as poor readers by their school district) receiving special education services, 65 adolescents with reading difficulties in non-resource room, regular education average-level English classes, and 65 normal, non-reading disabled adolescents, such that comparisons could be made among these three groups of adolescents. This number of students (195) was chosen in order to achieve sufficient power such that significant differences could be detected with a medium effect size in which about 6% of the variance would be accounted for among the three groups of subjects. To make the groups more comparable in intelligence quotient (IQ) and educational opportunities, students in "average level" and "lower level" regular education English classes were studied.[1]

Based upon the receipt of parent informed consent and student assent forms, 311 students were available for participation in the study (27 chose not to be in the study and another four dropped out of school). An additional 38 students were not included in the database for the following reasons: (a) twenty-one did not complete all of the measures

[1] The school provided two "average level" regular education English classes at each grade level. Two "lower level" regular education English classes were also available: one class was composed of freshman and sophomores, and the other class consisted of juniors and seniors. Additionally, fifteen special education classes were provided. However, since the latter consisted of much smaller numbers of students, two to three classes were combined at a time to maintain consistency during group administration procedures.

administered throughout the study; (b) four had low IQ scores on both the nonverbal (Matrix Reasoning) and verbal (Peabody Picture Vocabulary Test- 3rd edition) intelligence tasks (e.g., T score=38 or below on Matrix Reasoning; Standard score=79 or below on the PPVT-III); and (c) although they are special education students, thirteen were not poor readers (i.e. they demonstrated at or above grade level reading scores).

From the final sample (273), the three groups were formed: Special Education Students (N=68), Regular Education Poor Readers (N=41), and Regular Education Students who read near, at or above their expected grade level (N=164). See Table 1 for a summary of the composition of the groups according to grade level, ethnicity, gender, and age.

Table 1: Composition of Students by Grade Level, Gender, Ethnicity, and Age

Group	Grade	Gender		Ethnicity *					Age
		Male	Female	1	2	3	4	5	(Mean)
		N	N	N	N	N	N	N	Yrs., Mos.
	9 (N= 19)	12	7	1	0	11	6	1	15.2
Special	10 (N= 23)	16	7	0	0	12	9	2	16.2
Education	11 (N= 14)	11	3	0	1	7	5	1	17.5
Students	12 (N= 12)	5	7	1	0	5	5	1	18.2
	Total (N= 68)	44	24	2	1	35	25	5	
	% of Total N	64.7	35.3	2.9	1.5	51.5	36.8	7.4	
	9 (N= 11)	8	3	0	0	7	4	0	14.7
Regular	10 (N= 8)	2	6	1	0	6	1	0	15.6
Education	11 (N= 8)	5	3	0	2	3	3	0	16.9
Poor	12 (N= 14)	5	9	1	3	6	3	1	18.0
Readers	Total (N= 41)	20	21	2	5	22	11	1	
	% of Total N	48.8	51.2	4.9	12.2	53.7	26.8	2.4	
	9 (N= 38)	20	18	1	3	29	3	2	14.9
Regular	10 (N= 43)	21	22	1	0	33	6	3	15.8
Education	11 (N= 34)	15	19	1	4	25	4	0	16.8
Students	12 (N= 49)	24	25	1	2	31	14	1	18.0
	Total (N= 164)	80	84	4	9	118	27	6	
	% of Total N	48.8	51.2	2.4	5.5	72	16.5	3.7	

* Note: for ethnicity, 1=African American, 2=Asian, 3=Caucasian, 4=Hispanic, 5=Other

Instrumentation

A battery of reading and cognitive measures and two self-concept surveys were given during the study. The battery consisted of the following: (a) two reading measures (Woodcock Johnson-Revised, 1989) assessing word recognition and word analysis skills, (b) two cognitive measures evaluating matrix reasoning and receptive vocabulary, and

(c) two surveys of self concept (one multidimensional, standardized instrument and one researcher-constructed survey targeting reading-related issues).

Measures of Reading Ability

Reading ability was evaluated by a student's performance on tests of word recognition (e.g., Word Identification) and pseudoword reading (e.g., Word Attack) on the Woodcock Johnson-Revised (WJ-R, 1989), Form A. The WJ-R is a nationally standardized and widely accepted assessment battery of reading abilities in individuals from age two through adulthood. The following is a brief description of each of the subtests given:

Word Identification

This subtest measures an individual's ability to read isolated words, and taps both sight word reading as well as decoding ability. For two ages spanning the age range assessed here, the internal consistency reliability coefficient for the age 13 level is $\underline{r} = .88$ (N=267), and the internal consistency reliability coefficient for the age 18 level is $\underline{r} = .89$ (N=250). Word Identification consists of 57 items that the individual must read aloud to the evaluator. The 57 items are divided into one picture each (representing a word) on the first five stimulus pages, two letters on the sixth stimulus page, six letters on the seventh stimulus page, one word on the eighth stimulus page, three words on the ninth stimulus page, six words on each of the following 8 stimulus pages, and a final stimulus page with four words on it. A basal level is established for a participant once six consecutively numbered items are read correctly. The ceiling for an individual is reached

once six consecutively numbered items are failed. At this point, the subtest is discontinued. The total raw score consists of the total number of items read correctly (the individual is given credit for any items prior to their basal) until the ceiling item. This raw score is then converted into age or grade equivalents based on a scoring table provided in the WJ-R manual. Grade equivalent scores were used for this study.

Word Attack

The Word Attack subtest measures an individual's ability to decode nonsense words. For two ages spanning the age range assessed in this study, the reported internal consistency reliability coefficient for the age 13 level is $\underline{r} = .88$ (N=215), and the internal consistency reliability coefficient for the age 18 level is $\underline{r} = .92$ (N=97). This subtest consists of two practice items followed by 30 words that the student must read aloud to the evaluator. Two trials are allowed for practice. The 30 test words are divided into three words on the first stimulus page, six words on each of the following four stimulus pages, and a final stimulus page with three words on it. The WJ-R manual specifies that the basal level for all individuals is the first item. The ceiling for an individual is reached once six consecutively numbered items are failed. At this point, the subtest is discontinued. The total raw score is the total number of items read correctly until the ceiling is reached. This score is then converted into age or grade equivalents based on a scoring table provided in the WJ-R manual. As was the case with the Word Identification subtest, grade equivalents were used as a measure of students' reading abilities.

Participants were placed into one of two reading categories based on their reading ability: either as reading below expectancy or as normal-reading controls. Students who performed at least two years below their expected grade level on either of these two tests were classified as reading-disabled, whereas students performing near, at, or above their expected level were classified as normal-reading controls. This method of identification appeared to most closely resemble the suggestion by Siegel (1999) and Stanovich (1999) of identifying students who perform below the 25th percentile on either of these two tests as reading-disabled. Although use of grade equivalent scores brings risk of lack of equivalency for different grades (e.g., two-year lag in ninth grade may not be comparable to a two-year lag in twelfth grade), data from the Connecticut Longitudinal Study suggest that the differences across grades may not be great. In that data set, the reading scores (growth in reading achievement) of three different groups of participants (children without reading disabilities, children with low achievement, and children with a FSIQ-achievement-discrepancy) reached a plateau at age 12 (see Foorman et al., 1997).[2]

Measures of Cognitive Ability (IQ)

Cognitive ability was assessed through the use of two measures of intelligence: a measure of nonverbal intelligence (Matrix Reasoning) and a measure of verbal

[2] Since the process of calculating percentiles would have entailed entering separate data pieces into a computer scoring program for each individual child and time was limited, the decision was made to forego this procedure, and to utilize grade equivalents provided by the scoring tables in the manual for the Woodcock Johnson-Revised (for both Word Identification and Word Attack subtests). Although this sounds like a quantitative procedure, it is actually a qualitative one.

intelligence (PPVT-III). Because verbal performance has been shown to suffer as a consequence of reading difficulties, the inclusion of both a verbal and nonverbal measure was deemed appropriate. The following is a brief description of the two cognitive assessments administered:

Matrix Reasoning

This measure is part of the nonverbal portion of the Wechsler Abbreviated Scale of Intelligence (WASI, 1999). It is a nationally standardized measure of "nonverbal fluid reasoning and general intellectual ability" (p. 4) for individuals aged six through eighty-nine. Total raw scores for this test are converted to T scores ($\underline{M}$=50, $\underline{SD}$=10).[3] These T-scores were used to conduct all analyses in the present study. Test-retest reliability for the children's sample (age group 12-16) is $\underline{r}$ = .77 (N=55). Test-retest reliability for the adult sample (age group 17-54) is $\underline{r}$ = .72.

The Matrix Reasoning subtest on the WASI has an $\underline{r}$ = .66 correlation with the Matrix Reasoning subtest from the WAIS-III (Wechsler Adult Intelligence Scale- 3rd edition). This correlation is expected to be lower than those reported overall between the WAIS-III and the WAIS-R because the two tests (Matrix Reasoning subtests on the WASI and the WAIS-III) share no common items (WASI Manual, 1999, p. 135). Because the WISC-III does not have a Matrix Reasoning subtest, the Matrix Reasoning subtest from the WASI could not be correlated with the WISC-III .

[3] When the T score from Matrix Reasoning is combined with T scores from other nonverbal subtests on the WASI, it can be converted into a Scaled Score to yield an IQ equivalent ($\underline{M}$=100; $\underline{SD}$=15), though this was not done in the present study.

Peabody Picture Vocabulary Test, Third Edition (PPVT-III)

The Peabody Picture Vocabulary Test, Third Edition, Form IIIB (Dunn & Dunn, 1997) was administered as a screening measure of each participant's verbal abilities. This test is a nationally standardized measure of receptive vocabulary of Standard English for individuals aged 2 ½ through 90 years. Form III consists of four training items and 204 test items that are grouped into 17 sets (12 items per set), and are arranged in order of increasing difficulty. Each item is comprised of four black-and-white pictures placed on a page called a PicturePlate. The participant must choose the picture that best represents the meaning of a word orally presented by the examiner. Raw scores can be converted into standard scores (M=100, SD=15) via the use of tables in the norms booklet. In the present study, these standard scores were used in subsequent analyses. Test-retest reliability for the age sample, 12-0 years to 17-11 years, for Form III is r = .94 (N=51). Test-retest reliability coefficients for the age sample, 18-0 years through 25-11 years, are not listed. The PPVT-III has an r = .92 correlation with the WISC-III Verbal IQ, and an r = .90 correlation with the WISC-III Full Scale IQ.

Modifications Made to the Cognitive Measures

The Matrix Reasoning and PPVT-III are standardized cognitive measures as noted above. However, the administration procedures were modified for this study. Because it would have been difficult to obtain school permission for the amount of time required for individual testing of IQ, both tests were altered to a format that allowed

group administration. This was done with the knowledge that some reliability and sensitivity would be lost, but the intention in the study was only to look broadly at the association between IQ and the other measures. The following modifications to the format of each of the measures were implemented.

Matrix Reasoning Modifications

The Matrix Reasoning stimuli cards were transposed onto transparencies such that the researcher could place each item (transparency) onto an overhead projector (provided by the school) located in each classroom. This allowed for group administration in each classroom. All participants were provided with answer sheets (see Appendix A) created for this purpose that were numbered to include the following items: sample items A and B, followed by item numbers 7 (the designated start point for individuals from ages 12-44) through 35. Each item contained five response options, of which the students each had to circle one (the most appropriate answer). The researcher adhered to standard explanatory instructions and to starting and scoring rules as stated in the WASI Manual. The discontinue rule did not apply in this group format as it was not feasible for the researcher to determine when the discontinue criterion was met by each individual. In a pilot evaluation of the procedure with special education students, the students reported they were not uncomfortable continuing beyond their discontinue criterion and that they found themselves to be fully engaged in the task beyond that point.

PPVT-III Modifications

The PPVT-III PicturePlates were also transposed onto transparencies such that the researcher could place each item (transparency) onto an overhead projector. Once again, this allowed for group administration to individual classes of participants. All students were provided with answer sheets (see Appendix B) that were numbered to include the following items: sample items C and D, followed by item numbers 109 through 192 (see below for explanation of the starting point). Each item on the answer sheet contained a blank space in which the student had to write his/her response (i.e., the number 1, 2, 3, or 4). The researcher adhered to standard explanatory instructions and scoring rules as stated in the PPVT-III Examiner's Manual. The starting point rule did not apply in this group administration format as it was not feasible to determine each student's basal set on an individual basis. Rather, all participants started with Set 10 (Item # 109) since the manual listed this set as the starting point for those students between the ages of twelve and sixteen. The rationale for this determination was that it would allow for students who were functioning several years below their expected age level to achieve a basal set. As noted, Item # 192 was the final item to be administered to all participants. This ceiling item was chosen as the common point of discontinuation for two reasons. According to the booklet of norms for the PPVT-III, this is a score on the cusp of the high average to superior range for students between the ages 23-0 through 24-11 (two to three years beyond the age of the oldest participant in the study). In addition, it was determined to be the point of satiation in a trial administration to five high school students identified as having reading difficulties. In other words, according

to these five students, they "didn't mind going until that point," but felt that they "wouldn't want to answer any more questions after that."

Self Concept Measures

Self concept was evaluated by performance on two measures of self concept, the Multidimensional Self Concept Scale (MSCS, Bracken, 1992) and a survey constructed for this study, the Meyer Reading Opinion Survey (MROS). The MSCS was selected because it is a nationally standardized and widely accepted measure of self concept. Additionally, because of the apparent paucity of surveys pertaining to how adolescents feel about their reading abilities or difficulties, and the lack of existence of a test measuring adolescents' opinions of the consequences of poor reading skills, a survey was created that tapped both of those areas.

Multidimensional Self Concept Scale

The Multidimensional Self Concept Scale (MSCS; Bracken, 1992) is an empirically-validated, 150-item self-report inventory. This well-normed instrument was used to provide a validated measure of self concept in multiple areas and to provide a means of comparison with the measure constructed by the researcher. Bracken designed the MSCS to measure self-concept in individuals between the ages of nine and nineteen. The readability level is reported to be at the third-grade level, and administration time is estimated to be between 20 and 30 minutes. Despite the fact that the readability level is reported to be at the third-grade level, the items on the MSCS were read by the researcher to participants in a group format (15-25 students per group) to avoid possible

confounds related to differences in reading skills. The time to complete this survey was approximately 25-30 minutes.

MSCS items are presented in a Likert-scale format with four choices for each response. The measure is based on the hierarchical, multidimensional model of self-concept proposed originally by Shavelson et al. (1976), and is made up of six sub-areas (each comprised of 25 items) that contribute to an overall, global self-concept. The six sub-domains include academic, social, competence, affect, family, and physical self concepts. Raw scores for each of the six sub-areas are calculated by tallying up the 25 individual items that comprise each subscale. The total raw score is calculated by adding up the total raw scores of all six sub-areas. All of these total raw scores (for the six sub-areas and for the total self concept scale) are then converted into standard scores ($\underline{M}$=100, $\underline{SD}$=15) through the use of a table provided in the appendix of the MSCS Manual. The MSCS has demonstrated psychometrically sound characteristics both at the total scale and the sub-scale level, with reliability coefficients ranging from .97 to .99, and .87 to .97, respectively (see Keith & Bracken, 1996, for a review of this instrument). A copy of the MSCS can be found in Appendix C.

Researcher-constructed Survey

Survey Objectives: The goal of developing the researcher-constructed survey was to have a more accurate measure of how adolescent (high school) students with reading difficulties feel about their reading problems, and adolescents' views of the possible consequences of illiteracy.

Survey Development

Description of Survey: The Meyer Reading Opinion Survey (MROS) included a demographics page with items measuring characteristics of student participants such as grade, age, gender, and race, and had a note explaining/providing the option of seeing a school psychologist or counselor to "talk about any issues that may arise as a result of answering the surveys administered." The following pages included the participant's date of birth and several sets of outcome measures (dependent variables). Students' dates of birth were used as a means of identifying the student such that the appropriate ID# assigned at the beginning of the study was utilized for data entry purposes. The outcome measures consisted of 60 items pertaining to how adolescents feel about their reading abilities, and their thoughts about the consequences of illiteracy.

A Likert-scale format was utilized because of the positive outcomes of research assessing its success (DeVellis, 1991). The design of such a scale includes a set of declarative statements that are followed by response choices implying varying degrees of agreement. For this particular scale, five response categories were employed with different rating scales including "strongly disagree- to -strongly agree", "not at all willing- to -extremely willing", "not motivated- to -motivated", and "no priority- to -very high priority." Five response choices were selected based on results obtained from research indicating that responses set up in a five- to seven-response format generally perform the best. In particular, reliability has been found to increase as the number of response categories increases from two responses to five, with little to no increase in reliability beyond the five-response set (Velicer, 1995; Fava, Velicer, & Rossi, 1996).

The time to complete this survey with each group ranged between 10 and 15 minutes. As mentioned earlier, survey items were read by the researcher to groups of participants (15-25 students per group) to avoid any confounds related to difficulties in reading.

Generation of Constructs: The constructs on the MROS were identified from several sources: by an extensive review of the literature as domains that have been hypothesized by researchers as having some kind of relationship to illiteracy, by the committee members of the study, and by several graduate students involved in a reading research seminar at the University of Rhode Island.

As a result of this process, the domains identified and included in the survey are: Employment (Section I); School/Education (Section I); Social (divided into two sub-constructs: economic, legal), located in Section I; Opinions of Reading Ability (Section II); Willingness to Enhance Reading Skills (Section II); Reactions to School/Reading (divided into two sub-constructs: Feelings, Reactions), found in Section III; and Thoughts about Special Education (Section IV).

Statements included in the first section surveyed adolescents' beliefs about the consequences of reading problems in the areas of employment, education, economic stability, and the law. For this section, it was explained to participants that "good reading skills" meant a "solid ability in reading, meaning you're doing well with grade-level reading tasks." Statements in the second section of the survey looked at adolescents' thoughts about their own reading ability, and their level of motivation to change their skills if they had difficulty reading at their expected grade level. The third

section of the survey included statements measuring adolescents' feelings and reactions related to their reading difficulties (e.g., how their reading difficulties made them feel at any point in their educational career). Statements in the fourth section were specific to only those students who had received special education services some time during their school years to remediate their reading skills, and surveyed how these students felt about those services (e.g., did they think enough time was spent on improving reading skills).

There were approximately three to twelve items per construct/sub-construct. Research has determined that there are numerous advantages to the use of measures based on constructs rather than single item measures (Velicer, 1995; Fava, Velicer, & Rossi, 1996). These advantages include an increase in reliability, the provision of an "organizing framework" to ease interpretation, and the fact that "broad constructs can be generalized to unmeasured items."

Generation of item pool: Following the identification of specific constructs, an initial item pool of approximately 75 questions was generated, with the overall intent of developing a measure that would provide information regarding adolescents' feelings about the personal impact that reading has had on their lives, and their thoughts about the consequences of reading problems.

This item pool subsequently underwent numerous phases and forms of revision with the assistance of the researcher's doctoral committee members, as well as a school psychologist and several educators in the field of reading. The committee was comprised of faculty members from the University of Rhode Island with expertise in reading, education, development, and scale development. All reviewers were requested to

critique the individual items for clarity and appropriateness. In the second phase of revision, items were examined and discussed by a reading interest/research group consisting of graduate students in psychology and a lead reading researcher at the University of Rhode Island. This team was requested to provide feedback regarding the simplicity and clarity of items to ensure comprehension for high school students reading at an elementary level. In the final phase of item development, the reading research group, as well as two graduate psychology students not involved in the research group, were asked to comment on the face validity of the individual items, and to determine (on an individual basis) which items fit under specific constructs. Items that appeared to be difficult to classify under one construct (by two or more reviewers) due to various reasons such as lack of clarity, or conciseness, were eliminated from the survey.

The final survey (60 questions) (see Appendix D) was utilized by the researcher to read the questions to the groups of students in order to avoid any confounds related to difficulties in reading, as previously mentioned. A summary table of the proposed constructs, sub-constructs, and their related item numbers can be found in Table 2. The answer form in Appendix E was used by the adolescent participants for responding.

Table 2. Summary of Hypothesized Constructs, Sub-constructs, and Related Item Numbers in Meyer Reading Opinion Survey

Construct	Sub-construct	Section #: Item #
Social	Legal Economic Social	Section I: 8,11,18 Section I: 4,14,15 Section I: 2,7,10
Education		Section I: 3,6,12,16,19
Employment		Section I: 1,5,9,13,17,20
Opinion of Reading Ability		Section II: 21,22,23,24,27
Willingness to Enhance Reading Skills		Section II: 25,26,28,29,30
Reactions to School/ Reading	Feelings Reactions	Section III: 31,33,35,37,39, 40,42,44,46,48,49,51,52-54 Section III: 32,34,36,38,41, 43,45,47,50
Thoughts about Special Education		Section IV: 55-59, 60a-e

Procedure

In order to conduct this study, several steps were taken to contact and secure approval from all necessary administrators in a local public school district. This particular district was chosen due to its classification as an urban ("small city") district in Massachusetts. It was hoped that through the use of an urban high school, the sample would be composed of ethnically-diverse adolescents. First, permission was requested from the superintendent of the school district to work with high school regular and special education students from the local high school. A letter to the Superintendent outlined the purpose of the study, how many participants would be needed, and procedures that would be followed to ensure anonymity of the adolescent respondents (see Appendix F "Letter to Superintendent"). Copies of the surveys (Appendices C &

D), parent consent (Appendices G & H) and student assent forms (Appendix I) were included as enclosures.

Subsequent to the superintendent's written approval, a meeting was held with the principal of the high school to discuss the study and to request his assistance in determining who would be in charge of choosing teachers and their respective students to form a possible subject pool. The principal assigned the head of the English department and the high school Special Education Coordinator as the contact people who would announce the study and its purpose to their designated teachers. Two weeks later, based upon the request of this researcher, the head of the English department designated nine regular education English classes as the sample from which to draw participants. Additionally, the high school Special Education Coordinator provided the researcher with a list of special education teachers and their students. This list of individuals formed the group of special education students from which the researcher could draw participants who had been identified by the school district as having reading problems. The researcher held a meeting with the four English teachers who taught the nine regular education English classes to explain the study and the process it would entail. A separate meeting was held with the special education teachers to review the same material. The following week, the researcher went into each classroom (regular and special education) to explain the study to the students, request their assistance, and to distribute parent consent forms (see Appendix G " Parent Informed Consent Form- English version" and Appendix H "Parent Informed Consent Form- Spanish version") and student assent forms (see Appendix I "Student Assent Form").

Students who returned the parent consent forms and signed the student assent forms formed the sample population for this study. At that point, the researcher and an assistant began administering the reading assessments previously described to students in the regular education English classes. The two reading tests were administered over a period of three weeks (October) to students on an individual basis. Once the testing was complete with the regular education students, the researcher and her assistant began administering the reading assessments to the special education students (over a two week period of time during the last week of October and first week of November). Participating teachers for both regular and special education classes assigned specific days and times that were convenient for them.

Once the administration of the reading assessments with the special education students was complete, the researcher began administering the measures of intelligence to the regular education classes. These tests were administered in group format throughout a period of three weeks (November). These same cognitive assessments were administered to the special education students during a two week period in early December.

The two self concept measures were administered to all participants after completion of the cognitive assessments, following Christmas break. In order to ensure consistency in administration procedures, only the researcher administered the self concept measures. The regular education classes were surveyed over a three week period of time (January). These measures were then administered by her to the special education students during a two week period of time (January/February). For each

group of participants, the researcher first briefly explained what the MSCS survey was about, and then read the directions aloud. Once the students agreed that they understood what the directions were, the survey items were read aloud to them. Next the MROS was conducted following a short, five-minute break. A brief description of the survey was provided to each group of participants, followed by directions. Survey items were also read by the researcher to these groups of participants.

Data analyses: Procedure Overview

Analysis of the data took place in several stages. First, descriptive analyses were conducted on grade, age, reading ability, and IQ of participants for comparison of the three adolescent subgroups. A Chi Square analysis was performed to examine whether there were any differences for grade level across educational group, and a one-way analysis of variance (ANOVA) was conducted to assess whether educational groups were comparable with respect to age. Next, a multivariate analysis of variance (MANOVA) was conducted to assess whether significant group differences existed on the two reading measures. Individual follow-up analyses of variance (ANOVA) with Tukey HSD multiple comparisons tests were performed on each of the reading measures to investigate group differences more specifically. Finally, two one-way analyses of variance (ANOVA), with Tukey HSD multiple comparisons tests, were conducted to ascertain whether differences existed among the three educational groups on the IQ measures. Skewness and kurtosis were also calculated for both reading and IQ measures.

The second set of analyses pertained to the MSCS. First, a one-way MANOVA was conducted on the six MSCS subscales, collapsing across grade, to test for differences in self concept among the educational groups. Next, individual follow-up analyses of variance (ANOVAs) with Tukey HSD multiple comparisons tests were performed on the six dependent measures to determine which of the dependent variables were significantly different across the educational groups. In addition, a separate one-way analysis of variance (ANOVA) with Tukey HSD multiple comparisons tests was

performed on the total self concept scale because it is comprised of the six self concept scales. Finally, scaled scores from the six subscales of the MSCS, and scores from both IQ measures were used in a multivariate analysis of covariance (MANCOVA) to assess any effects due to IQ for the three educational groups.

The third set of analyses pertained to the Meyer Reading Opinion Survey (MROS). Prior to group comparisons on the various dependent measures, constructs were evaluated for validity, and items that were unsatisfactory were eliminated. To examine the component structure coefficients of the individual items that would comprise the subscales representing the theoretical constructs, the MROS items were analyzed using Principal Components Analysis (PCA) (Tabachnick & Fidell, 1996) with Varimax rotation (Kaiser, 1958).[4] Thus, through the use of the PCA methodology, the survey items were reduced to a smaller set of (dependent) variables that were further analyzed. In addition, the possibility existed for the results of the PCA to reveal other subscales than were originally proposed, which could also be included in further analyses. Listwise deletion of individual items was applied in creating the correlation matrices used in the PCAs to ensure that only items that had been answered by all participants would be utilized in the analyses. The determination of the final number of components to be retained in the final PCA solutions was decided through the use of a parallel analysis (PA) approximation technique for determining the number of components to retain in a PCA (Lautenschlager, 1989). The varimax rotated principal

[4] PCAs were conducted within constructs rather than across constructs according to literature suggesting that if the constructs were correlated as they are, they may not have separated well. Hence, to focus more clearly on the integrity of individual constructs, PCAs were restricted to the items within each hypothesized construct.

components solutions were used to distinguish the manifest sets of items for the subscales that represented the constructs of interest. Item reliability analysis and a measure of internal consistency, Cronbach's (1951) alpha statistic, were used to refine the final item sets for the different subscales.

Next, a descriptive analysis of all variables (survey items) was conducted on the MROS (see Appendix J). Preliminary item analysis entailed determining the means, standard deviations, skewness and kurtosis for all individual items. Subsequently, group comparisons were sought on the various MROS subscales. Subscale total scores and some individual variables were used in a multiple analysis of variance (MANOVA) to test for differences between the three groups of adolescents (normal and poor (district-identified and researcher-identified) readers). Follow-up univariate analyses of variance with Tukey HSD multiple comparisons tests were conducted to test for group differences. Finally, subscale total scores from the MROS and scores from both IQ measures were used in a multivariate analysis of covariance (MANCOVA) to remove the (possible) effects of the covariate (IQ) from any differences observed between the three groups of participants.

The fourth, and final, set of analyses entailed performing bivariate correlations between the six MROS constructs and the seven (six self concept constructs and the total self concept construct) MSCS constructs. All analyses were calculated through the use of the SPSS, Version 9.0 statistical program.

RESULTS

GROUP CHARACTERISTICS

The three adolescent subgroups were initially compared on specific variables including grade, age, reading ability, and IQ of participants. First, a Chi Square analysis was performed to examine whether there were any differences for grade level across educational group. Results indicated that the differences were not significant, χ^2 (6, N = 273) = 5.99, p = .425. Second, a one-way analysis of variance (ANOVA) was conducted to assess whether educational groups were comparable with respect to age. Results showed that the differences were not significant, $F(2,270) = 1.48$, p = .230. Because the distribution of participants across the four grades (ninth to twelfth) and for age did not differ for the three groups of adolescents, in further analyses whole group comparisons were conducted.

Next, reading performance was analyzed. Skewness and kurtosis fell within acceptable limits for both measures of reading. A multiple analysis of variance (MANOVA) was conducted to assess whether group differences existed on the two reading measures. A significant group effect occurred on both factors, Wilks' Lambda = .291, $F(4, 538) = 114.72$, $p < .001$. Individual follow-up analyses of variance (ANOVA) with Tukey HSD multiple comparisons tests were performed on each of the reading measures to investigate group differences more specifically. Results indicated that the educational groups differed significantly on both the Word ID test, $F(2,270) = 206.01$, $p < .001$, and the Word Attack test, $F(2,270) = 234.36$, $p < .001$ as expected, since students were selected to differ in reading ability. Furthermore, skewness and kurtosis

fell within acceptable limits. The regular education students reading near, at or above their expected level scored significantly higher than both other groups on the Word ID test. Additionally, regular education poor readers scored significantly higher than special education students on the Word ID test. On the Word Attack test, the regular education students again performed significantly higher than both regular education poor readers and special education students. The regular education poor readers and the special education students did not differ significantly from each other on the Word Attack test. Table 3 displays group (by grade) means and standard deviations for the two reading and IQ measures administered to participants.

As for the reading measures, skewness and kurtosis fell within acceptable limits for the IQ scores. Thus the IQ measures were analyzed with two one-way analyses of variance (ANOVA), with Tukey HSD multiple comparisons tests, to ascertain whether differences existed between the three educational groups. Results indicated that the educational groups did differ significantly on both the Matrix Reasoning test, $\underline{F}(2,270) = 4.12$, $\underline{p} = .017$, and the PPVT-III, $\underline{F}(2,270) = 27.33$, $\underline{p} < .001$. Regular education students performed significantly higher than special education students on the Matrix Reasoning test, whereas the regular education poor readers did not differ significantly from either the regular education students or the special education students. On the PPVT-III, the regular education students again performed significantly higher than special education students. On this measure of receptive vocabulary, the regular education poor readers also scored significantly higher than special education students.

The two regular education groups did not differ significantly from each other on the PPVT-III. Once again, skewness and kurtosis fell within acceptable limits.

Table 3. Means and Standard Deviations for IQ [a] and Reading Measures [b] by Group and Grade Level

Group	Grade	MR IQ Mean (SD)	PPVT-III IQ Mean (SD)	Word ID Mean (SD)	Word Attack Mean (SD)
Special Education Students (N=68)	9	47.37 (6.29)	92.11 (9.89)	4.90 (1.90)	4.05 (2.88)
	10	48.52 (4.82)	90.96 (6.59)	5.43 (1.68)	4.00 (1.78)
	11	49.36 (4.38)	93.21 (10.12)	6.04 (1.99)	3.97 (1.60)
	12	47.42 (5.68)	86.17 (8.46)	5.04 (1.60)	3.40 (1.84)
	Total	48.18 (5.28)	90.90 (8.82)	5.34 (1.80)	3.90 (2.09)
Regular Education Poor Readers (N=41)	9	53.55 (6.24)	99.36 (7.22)	6.48 (.63)	4.16 (1.47)
	10	51.38 (5.58)	102.75 (6.69)	7.11 (.89)	4.58 (1.33)
	11	44.13 (7.61)	108.50 (5.10)	7.60 (1.38)	4.60 (1.01)
	12	49.57 (5.46)	99.50 (12.56)	7.53 (2.14)	5.24 (2.13)
	Total	49.93 (6.77)	101.85 (9.45)	7.18 (1.51)	4.69 (1.64)
Regular Education Students (N=168)	9	53.66 (5.81)	104.79 (7.34)	10.28 (2.84)	11.81(4.76)
	10	51.16 (5.76)	102.14 (9.46)	11.29 (3.47)	12.14 (5.39)
	11	47.94 (8.20)	100.32 (9.24)	10.97 (3.01)	11.18 (4.99)
	12	50.39 (6.54)	95.08 (9.67)	11.71 (3.32)	11.67 (4.40)
	Total	50.84 (6.79)	100.27 (9.69)	12.00 (2.80)	13.11 (4.00)

[a] IQ measures: Matrix Reasoning (MR), Peabody Picture Vocabulary Test-III (PPVT-III) (standardized scores)

[b] Reading Measures: Word Identification (Word ID), and Word Attack subtests from the Woodcock Johnson-Revised (WJ-R) (grade equivalents)

EDUCATIONAL GROUP COMPARISONS

Multidimensional Self Concept Scale (Bracken)

A one-way MANOVA was conducted, collapsing across grade, to test for differences in self concept among the educational groups, on the MSCS as represented by the six subscales. The results indicated a significant group effect on the six dependent measures, Wilks' Lambda = .874, $F(12,530) = 3.09$, $p < .001$.

Next, individual follow-up analyses of variance (ANOVAs) with Tukey HSD multiple comparisons tests were performed on the six dependent measures to determine which of the dependent variables were significantly different across the educational groups. Results showed that two of the six subscales significantly contributed to the multivariate effect for educational group. More specifically, significant group differences were noted on the academic self concept subscale, $F(2,270) = 9.93$, $p < .001$, eta squared = .07, with regular education students demonstrating significantly higher academic self concept than both their special education and regular education poor reading peers. No significant differences were noted between regular education poor readers and special education students. In addition, significant group differences were noted on the family self concept scale, $F(2,270) = 5.48$, $p = .005$, eta squared = .04, with regular education students indicating significantly higher family self esteem than their special education peers. No significant differences were obtained between the regular education poor readers and either of the other groups. Significant group differences were not indicated on the competence self concept scale, $F(2,270) = 2.43$, $p = .09$, the affect self concept scale, $F(2,270) = 3.24$, $p = .06$, and the physical self concept scale,

$F(2,270) = .54$, $p = .59$. The overall ANOVA for the social self concept scale was significant, $F(2,270) = 3.87$, $p = .02$, however, individual group differences were not noted on the Tukey HSD multiple comparisons test for this dependent variable. Eta squared was used as a measure of effect size to compute the amount of variance accounted for. According to Cohen (1977), for a one-way analysis of variance, a small effect size is approximately equal to .01, medium is approximately equal to .06, and a large effect size is approximately equal to .14.

Because the six Bracken subscales also combine to form the Total Self Concept scale, a separate one-way analysis of variance (ANOVA) with Tukey HSD multiple comparisons tests was performed on this dependent variable. Results indicated a significant group effect on this single variable, $F(2,270) = 5.51$, $p = .005$, eta squared = .04, with the regular education group obtaining significantly higher total self concept values than their special education peers, as they did on both the academic and family subscales. Though significant differences were seen between the regular education students and the regular education poor readers on the academic subscale, the groups were not significantly different on the total self concept scale. Differences in total self concept also were not found between the regular education poor readers and the special education students.

In order to assess any effects due to IQ for the three educational groups on the MSCS, scaled scores from the six subscales of the MSCS and scores from both IQ measures were used in a multivariate analysis of covariance (MANCOVA). This was done to obtain a purer measure of the relationship between the dependent variables and

the three groups of adolescents, and reduced the chance that IQ was not contributing to the variances of the dependent variables. Results showed that IQ was not a predictor of the six dependent measures. An effect for Matrix Reasoning was not significant, Wilks' Lambda = .976, $F(6,263) = 1.08$, $p = .38$. An effect for the PPVT-III was also not significant, Wilks' Lambda = .974, $F(6,263) = 1.18$, $p = .32$. Consequently, the IQ measures were removed from the analyses of the relevant dependent measures on the MSCS.

Meyer Reading Opinion Survey (MROS)

Prior to group comparisons, the construct validity of the MROS was evaluated using Principal Components Analysis (PCA) with Varimax rotation, and items that were unsatisfactory were eliminated. Additionally, parallel analysis was used to determine the final number of constructs to be retained in the final PCA solutions. Item reliability analysis and Cronbach's alpha statistic were then used to refine the final item sets for the different subscales. The following is a description of these procedures.

PRINCIPAL COMPONENTS ANALYSES (PCA)

1) PCA (items 1-20): Effects of Literacy

Items 1-20 on the Meyer Reading Opinion Survey (MROS) were designed to evaluate student views on the long-term effects of literacy. An initial PCA (N=273) was conducted to examine the structure of those 20 items. The parallel analysis approximation value suggested a three-component solution. This was somewhat different from what the researcher had originally hypothesized, namely, that the PCA

would result in three constructs (i.e., Employment, Education, Social), with one of the constructs actually divided further into two sub-constructs (i.e., Social: Legal, Economic). Additionally, the items in the initial PCA loaded onto components differently than had originally been hypothesized. A second PCA (N=273) testing the three component solution obtained by the first PCA was subsequently conducted, followed by a reliability analysis. This procedure resulted in a clearly delineated three component solution. At this point, two items were deleted due to their complexity (they loaded >.4 on two constructs) and the determination that neither fit the underlying theoretical constructs. These included # 7 (Good reading skills are important to one's ability to parent well) and #18 (Poor readers are more likely to engage in delinquent acts).

A final PCA was performed on the remaining 18 items, resulting in a three component solution, and was in agreement with the reliability analysis that was conducted on those three sets of items. The three component solution accounted for 48.34% of the variance. The three component variables were defined as: 1) SUCCESS, measured by 8 items; 2) FAILURE, measured by 6 items; and 3) SOCIAL EFFECTS, measured by 4 items. The final items for each component variable were then summed to form the subscale dependent measures that were subsequently used for further analyses. Coefficient alphas were moderate and supportive of the stability of the three component structure: .80 (N=273) for SUCCESS; .80 (N=273) for FAILURE; and .63 (N=273) for SOCIAL EFFECTS. Content of the 18 items retained under section I (The Effects of

Literacy) of the survey and the resulting component pattern loading matrix are presented in Table 4.

Table 4. Varimax Rotated Component Structure Coefficient Matrix for the Reduced Item Sets for Section I: The Effects of Literacy

Item Description	Component		
	SUCCESS	FAILURE	SOCIAL
I. SUCCESS			
1. Good reading skills are important to current job possibilities.	.65	-.11	.12
3. It is harder for poor readers to complete college.	.49	.17	-.07
4. Reading ability is important to one's future income.	.64	.18	.16
5. Good reading skills increase the likelihood of being employed.	.69	.03	.01
6. Good reading ability is important to your academic success.	.66	.14	-.12
9. Good reading skills are important to future career opportunities.	.64	.14	-.06
12. Students who are good readers have a higher acceptance rate into college.	.60	.16	.02
13. Good reading skills are important for career advancement.	.70	.22	.07
II. FAILURE			
14. People who are poor readers are more likely to go on welfare.	-.02	.67	.36
15. Poor reading skills increase the likelihood of living in poverty.	-.03	.68	.16
16. Poor readers are less likely to complete high school.	.25	.74	.07
17. It is harder for poor readers to get well-paying jobs.	.28	.67	.09
19. Poor readers have a higher drop-out rate from school.	.20	.67	.09
20. It is harder for poor readers to maintain their jobs.	.26	.52	.28
III. SOCIAL EFFECTS			
2. Your reading ability is important to the relationships you have.	.40	-.09	.62
8. Students who are good readers are less likely to abuse drugs and/or alcohol.	.01	.29	.66
10. Your reading ability is important to your choice of friends.	-.11	.20	.73
11. Students who are good readers are less likely to get in trouble with the law.	-.08	.26	.61

2) PCA (items 21-30): Opinion of Reading Ability and Willingness to Enhance Reading Skills

Items 21-30 on the MROS were designed to evaluate student opinions about their reading abilities and their willingness to enhance their reading skills. An initial PCA (N=273) was conducted on items 21-30. The parallel analysis approximation value suggested a two-component solution, and a PCA that displayed two varimax rotated components was clearly interpretable. One item was subsequently dropped as a result of reliability analysis, item # 24 (When do you think you became a skilled reader), as it was judged to be less supportive of the proposed construct, and the coefficient alpha increased with it being deleted. Item # 27 was noted to be negatively correlated with the remaining items, and was, therefore, reversed to ensure proper procedures with analyzing the data. A second PCA (N=273) was performed on the remaining 9 items, and was found to maintain the original two component solution, with the exception of one item. Item # 27 was a complex item and was consequently deleted after a determination that it was actually encompassed in the other items that loaded much higher. Additionally, the removal of this item resulted in a slightly improved coefficient alpha (from .83 to .85). The two resulting components included the following: 1) OPINION OF READING ABILITY, measured by 3 items; and 2) WILLINGNESS TO ENHANCE READING SKILLS, measured by 5 items. The two components extracted accounted for 67.37% of the variance. Coefficient alphas were moderate to high and supported the stability of the component structure: .85 (N=273) for OPINION OF READING ABILITY; and .73 (N=273) for WILLINGNESS TO ENHANCE

READING SKILLS. The final component structure closely resembled the originally proposed constructs for these 10 items, although the initial hypothesis incorporated the two items that were deleted. The items in each of the two components were summed to form their respective dependent measures that were used in later analyses. A list of the 8 items retained under section II (Opinion of Reading Ability and Willingness to Enhance Reading Skills) of the survey and the resulting component pattern loading matrix is presented in Table 5.

Table 5. Varimax Rotated Component Structure Coefficient Matrix for the Reduced Item Sets for Section II: Opinion of Reading Ability and Willingness to Enhance Reading Skills

Item Description	Component	
	Reading Ability	Will. to Enhance
I. READING ABILITY		
21. Are you as good a reader as you think you should be in your grade?	-.10	.88
22. How good a reader do you think you are?	-.10	.89
23. Do you think you'll graduate from high school reading at a 12th grade level?	-.04	.85
II. WILLINGNESS TO ENHANCE READING SKILLS		
25. You want to improve your reading ability.	.57	-.23
26. You want to graduate from high school knowing how to read at a 12th grade level.	.50	.33
28. How motivated are you to improve your reading ability?	.81	-.06
29. How much time would you be willing to practice daily in order to learn how to read?	.69	-.01
30. How high a priority is improving your reading skills for you?	.87	-.16

3) PCA (items 31-54): Reactions to School/Reading

An initial PCA (N=273) of the 24 items assessing personal feelings and reactions (items 31-54 on the MROS) examined a possible two component solution based on original study hypotheses (i.e., feelings about being a poor reader and school behaviors associated with those feelings). The reliability statistic supported this solution, with

coefficient alphas of .96 for the first component, and .90 for the second component. However, based upon the parallel analysis approximation value and the fact that all items looked as if they would hold together equally well under one single construct, a second PCA was performed on this set of 24 items, resulting in a strong, one component solution with a very high coefficient alpha of .97, and accounting for 60.07% of the variance. The component was defined as: 1) REACTIONS TO SCHOOL/READING, measured by all 24 items. The final component structure resembled the originally proposed construct for items 31-54. These 24 items were then summed to form the subscale dependent measure (REACTIONS TO SCHOOL/READING) that was used in subsequent analyses. The 24 items and the resulting component pattern loading matrix are presented in Table 6.

Table 6. Component Structure Coefficient Matrix for Section III: Reactions to School/Reading

Item #	Description	Component
	I. REACTIONS TO SCHOOL/READING	Reactions
	Have you ever had any reading problems during your school years that affected you such that:	
31.	It was embarrassing.	.73
32.	You sat in the back of class and kept quiet to get out of having to read out loud.	.62
33.	You felt dumb.	.77
34.	You skipped (at least one of) your classes to get out of having to read in class.	.68
35.	You often felt incompetent because of your reading difficulties.	.83
36.	You talked back to your teacher to avoid having to read out loud.	.61
37.	You often felt confused because you couldn't understand what you were reading.	.68
38.	You skipped school (at least once) because of your reading problem.	.68
39.	You were often afraid of "being discovered" that you couldn't read.	.86
40.	You felt angry because you had (have) trouble reading.	.83
41.	You had behavior problems as a result of your difficulty with reading.	.79
42.	It felt scary because difficulty with read. sometimes made you do poorly on tests.	.77
43.	You became the "class clown" to get out of having to read in class.	.74
44.	You felt like a "total failure".	.87
45.	You made up excuses to leave class to get out of having to read in class.	.82
46.	You often felt frustrated because you had (have) trouble reading.	.85
47.	You got into fights because other kids made fun of you since you couldn't read.	.78
48.	You were afraid (at least once) you would get held back because you had trouble reading.	.81
49.	You were sick of doing schoolwork because you had trouble reading.	.83
50.	You thought (at least once) about dropping out of school because of read. probs.	.73
51.	You felt depressed because of your difficulty with reading.	.83
52.	You were teased by your peers sometimes because of your reading difficulties.	.81
53.	You were embarrassed because a teacher thought you weren't smart because you had trouble reading.	.85
54.	You felt rejected by your peers sometimes because of your reading problems.	.78

4) PCA (items 55-59): Thoughts About Special Education

For those students who indicated that they had participated in special education at some point during their education (N=129), an initial PCA of the five items assessing students' thoughts about the reading services they received through special education (items 55-59 on the MROS) examined a possible one component solution for these five items. The parallel analysis approximation value suggested a one-component solution, and the PCA that displayed the solution was clearly interpretable. One item was dropped as a result of reliability analysis, item # 4 (You worked on reading and it was very helpful). It was judged to be less supportive of the posited construct, and the coefficient alpha increased (from .65 to .72) with it deleted. A second PCA (N=129) performed on the remaining 4 items maintained the original one component solution: 1) Thoughts About Special Education (SPECIAL EDUCATION). This component accounted for 54.29% of the variance, and resembled the proposed construct for the five items, although the initial proposal incorporated item # 58. The final 4 items were summed to form the subscale dependent measure (SPECIAL EDUCATION) that was used for further analyses. Content of the 4 items retained under section IV (Thoughts About Special Education Services) and the resulting component pattern loading matrix are presented in Table 7.

Table 7. Component Structure Coefficient Matrix for the Reduced Item Set for Section IV: Thoughts About Special Education Services

Item	Description	Component
		SPEC. ED.
	I. SPECIAL EDUCATION	
55.	You wanted them to teach you HOW to read.	.81
56.	You just wanted them to teach you enough to pass exams.	.62
57.	You didn't think enough time was spent on reading skills.	.68
59.	You wish you still had reading help (class, tutoring) in high school.	.82

GROUP COMPARISONS on the MROS

A MANOVA was conducted on the MROS, collapsing across grades, to test for group differences in views pertaining to the effects of reading ability. The results indicated a significant group effect on the six factors, Wilks' Lambda = .535, $F(12,530) = 16.205$, $p < .001$.

Individual follow-up analyses of variance (ANOVAs) with Tukey HSD multiple comparisons tests were performed on each of the six dependent measures to investigate for specific educational group differences. Results showed that five of the six subscales significantly contributed to the multivariate effect for educational group. Analysis of group differences on the SUCCESS subscale was significant ($F(2,270) = 7.14$, $p = .001$). The Tukey HSD test showed that for SUCCESS, regular education students placed a significantly greater emphasis than regular education poor readers on the importance that reading plays in achieving success in life (e.g., complete college, future income, etc.). Neither of these two groups differed significantly from the special education group of

students on this variable. The FAILURE subscale, was also significant ($F(2,270) = 4.62$, $p = .01$. The Tukey HSD test showed that for FAILURE, both regular and special education students endorsed the belief that poor reading skills result in negative consequences (e.g., go on welfare) significantly more so than regular education poor readers. On the SOCIAL EFFECTS subscale, significant differences were not found, $F(2,270) = 2.95$, $p = .054$. The OPINION OF READING ABILITY subscale was significant ($F(2,270) = 60.40$, $p < .001$. The Tukey HSD test showed that for OPINION OF READING ABILITY, regular education students rated themselves as significantly better readers than did the regular education poor readers and special education students. Regular education poor readers also rated themselves as better readers than did their peers in special education. The fourth dependent variable, WILLINGNESS TO ENHANCE READING SKILLS subscale, also was significant ($F(2,270) = 8.29$, $p < .001$. The Tukey HSD test showed that for WILLINGNESS TO ENHANCE READING SKILLS, special education students endorsed a greater willingness to work to change their reading abilities than did their regular education peers, as might be expected. Regular education poor readers did not differ significantly from either of the two other groups.

Finally, the REACTIONS TO SCHOOL/READING subscale, was significant, ($F(2,270) = 73.20$, $p < .001$. The Tukey HSD test showed that for REACTIONS TO SCHOOL/READING, special education students rated themselves as having lower self concept related to reading than both their regular education peer groups. Additionally, regular education poor readers endorsed lower reading-related self concept than their

regular education peers. Table 8 displays results of these analyses in greater detail and includes means, standard deviations, overall F-test values, Tukey HSD results, and eta squared values (Cohen, 1977). Small effect sizes were obtained for the comparison of adolescents' opinions that poor reading skills result in negative consequences (FAILURE) and that reading skills impact social/legal consequences (SOCIAL EFFECTS), although significant group differences were not noted on the latter variable. A medium effect size was obtained for the comparison of adolescents' willingness to change their reading ability (WILLINGNESS TO ENHANCE READING SKILLS). Similarly, adolescents' opinions that good reading skills result in positive consequences (SUCCESS) resulted in an effect size that was just below medium (.05). Not surprisingly, a large effect size occurred for the evaluation of reading ability, reflecting the selection criteria for the groups. Also, noteworthy differences in school experiences and in feelings about reading are reflected in the effect size of .35 on the REACTIONS TO SCHOOL/READING construct.

Finally, a separate one-way analysis of variance (ANOVA) with Tukey HSD multiple comparisons tests was performed on the seventh dependent measure (Thoughts About Special Education) to determine if it was affected by educational group. This dependent variable was analyzed separately due to the sample size being different from the sample size for the other six dependent variables (Total N=129: N=68 for special education students, N=19 for regular education poor readers, N=42 for regular education students). Results indicated a significant group difference on this variable, $F(2,126) = 5.21$, $p = .007$, and a medium effect size, eta squared = .08, with the special

education group showing a stronger desire for more time spent on the development of reading skills than their regular education peers reading at, near or above their expected level. Regular education poor readers did not differ significantly from their regular education or special education peers.

To facilitate interpretation of the MROS results, the scores for each construct were converted to the five-point Likert scales for each participant (see Table 9). These data will be used in the Discussion section for consideration of the meaningfulness of the results obtained.

Once again, to assess any effects due to IQ for the three educational groups on the MROS, scaled scores from the six subscales of the MROS and scores from both IQ measures were used in a multivariate analysis of covariance (MANCOVA). A MANCOVA was conducted using IQ scores as covariates, the six constructs derived from the PCAs and reliability analyses on the MROS were used as dependent variables, and educational group was used as the independent variable. Results showed that IQ was not a predictor of the scores of the six dependent measures. An effect for Matrix Reasoning was not significant, Wilks' Lambda = .972, $F(6,263) = 1.27$, $p = .27$. An effect for the PPVT-III was also not significant, Wilks' Lambda = .966, $F(6,263) = 1.55$, $p = .16$.

Table 8. Summary Statistics For Dependent Variables in the MROS According To Educational Group

	Educational Group						
	Special Ed. Students (N=68)	Reg. Ed. Poor Readers (N=41)	Reg. Ed. Students (N=164)				
Depend. Variables	Mean (SD)	Mean (SD)	Mean (SD)	ANOVA F-test value*	P-value	Tukey HSD	η^2
Success	31.25 (4.94)	30.44 (4.70)	33.04 (4.46)	7.14	<.001	1>3	.05
Failure	19.56 (4.98)	16.78 (5.02)	18.85 (4.51)	4.62	.011	1=2>3	.03
Social Effects	10.99 (3.50)	9.66 (2.60)	9.88 (3.55)	2.95	.054	n.s.	.02
Opinion of Read. Abil.	8.53 (2.47)	9.56 (2.47)	11.99 (2.21)	60.40	<.001	1>3>2	.31
Will. To Enhance Read Skill	17.49 (3.42)	16.32 (2.72)	15.51 (3.52)	8.29	<.001	2>1	.06
Reactions to School/ Reading	73.57(19.69)	53.61(18.47)	42.68(16.66)	73.20	<.010	2>3>1	.35

*Note: degrees of freedom for all F-tests were (2,270).

**For the Tukey HSD tests, 1=regular education students, 2=special education students, and 3=regular education poor readers.

Table 9. Means and Standard Deviations For Dependent Variables in the MROS, Converted to Likert Scale Values, For Each Educational Group

Subscale	Educational Group		
	Special Ed. Mean (SD)	Reg. Ed. Poor Readers Mean (SD)	Regular Ed. Mean (SD)
Success	3.91 (.62)	3.81 (.59)	4.13 (.56)
Failure	3.26 (.84)	2.79 (.84)	3.14 (.75)
Social Effects	2.75 (.88)	2.41 (.65)	2.47 (.88)
Opinion Of Reading Ability	2.82 (.82)	3.19 (.82)	4.00 (.74)
Will. To Enhance Read. Skills	3.50 (.69)	3.26 (.55)	3.10 (.70)
Reactions to School/Reading	3.10 (.82)	2.23 (.77)	1.77 (.69)
Thoughts About Special Ed.	3.32 (.72)	3.13 (.95)	2.77 (.96)

CORRELATIONS BETWEEN MEYER READING OPINION SURVEY CONSTRUCTS AND MSCS SELF CONCEPT SCALES

The last analysis of the data entailed performing Pearson Product Moment bivariate correlations (N=273) using both survey instruments to assess the relationships between constructs on these two surveys. Results indicated a number of significant correlations at the .01 level. First, significant correlations were found between the MROS REACTION TO SCHOOL/READING construct and several MSCS subscales including: academic self-concept, Pearson $r = -.37$, $p < .001$, with 14% of the variance being accounted for between the two scales; family self concept, Pearson $r = -.31$, $p < .001$, with 10% of the variance being accounted for between the two scales; competence self concept, Pearson $r = -.26$, $p < .001$, with 7% of the variance being accounted for

between the two scales; affect self concept, Pearson r = -.20, p = .001, with 4% of the variance being accounted for between the two scales; and total self concept, Pearson r = -.28, p < .001, with 8% of the variance being accounted for between the two scales.

Additionally, significant correlations were indicated between the MROS OPINION OF READING ABILITY construct and several MSCS self concept constructs including: academic self concept, Pearson r = .40, p < .001, with 16% of the variance being accounted for between the two constructs; family self concept, Pearson r = .21, p < .001, with 4% of the variance being accounted for between the two constructs; competence self concept, Pearson r = .19, p = .002, with 4% of the variance being accounted for between the two constructs; and total self concept, Pearson r = .25, p < .001, with 6% of the variance being accounted for between the two constructs.

Finally, significant correlations were also obtained between several constructs on the MROS itself. Some moderate correlations included: SUCCESS and FAILURE, Pearson r = .36, p < .001, with 13% of the variance being accounted for between the two constructs; FAILURE and SOCIAL EFFECTS, Pearson r = .46, p < .001, with 21% of the variance being accounted for between the two constructs; REACTION TO SCHOOL/READING and THOUGHTS ABOUT SPECIAL EDUCATION, Pearson r = .49, p < .001, with 24% of the variance being accounted for between constructs; WILLINGNESS TO ENHANCE READING SKILLS and THOUGHTS ABOUT SPECIAL EDUCATION, Pearson r = .34, p < .001, with 12% of the variance being accounted for between constructs; READING ABILITY and THOUGHTS ABOUT SPECIAL EDUCATION, Pearson r = -.27, p = .002, with 7% of the variance being

accounted for between constructs; and WILLINGNESS TO ENHANCE READING SKILLS and REACTION TO SCHOOL/READING, Pearson $r = .20$, $p = .001$, with 4% of the variance being accounted for between constructs. Not surprisingly, a stronger correlation was found between OPINION OF READING ABILITY and REACTION TO SCHOOL/READING, Pearson $r = -.65$, $p < .001$, with 42% of the variance being accounted for between constructs. The correlation matrix for these two surveys and their respective constructs can be found in Appendix K.

DISCUSSION

The primary purpose of this study was to examine self-concepts of adolescent poor readers and their normal-reading peers, their views of how literacy problems influence people's lives, and the extent to which reading deficits appear to have affected various components of poor readers' self-concept. The last question pertained to whether negative effects of reading problems are linked solely to their perceptions of their academic abilities or more broadly to self-concept. The examination of these issues was accomplished through the administration of a standardized survey, the Multidimensional Self Concept Scale, plus a researcher-designed survey, the Meyer Reading Opinion Survey. The discussion that follows will briefly summarize the results of this study, and will then examine how they fit in with what prior research has revealed. Furthermore, implications of these findings will be addressed, as well as acknowledged limitations of the study.

A Brief Review of Results

The first hypothesis pertained to what the impact of reading difficulties is as identified by adolescent poor readers and those reading at or near their expected level. The outcome predicted was that a greater percentage of adolescent poor readers would indicate lower academic self concept than their peers reading at their expected level. Additionally, it was hypothesized that when self concept problems were present, they would not extend beyond academic self concept. Indeed, results showed that academic self concept was affected by individuals' reading abilities: regular education students

reading near, at or above their expected level demonstrated significantly higher academic self concept than both special education and regular education poor readers on the academic subscale of the MSCS. Significant differences were not noted between regular education poor readers and special education students on the MSCS academic self concept subscale. Contrary to what was originally hypothesized, regular education students also endorsed significantly higher family and total self concepts than their peers in special education. No differences were noted between regular education poor readers and special education students on these two scales. On the MROS, regular education students rated themselves as significantly better readers than both the special education and regular education poor readers. In turn, regular education poor readers rated themselves not as high as normal readers, but as better readers than their special education peers. As would be expected, special education students demonstrated a greater willingness to work to change their reading abilities than did their regular education peers. Regular education poor readers, however, did not differ from either group. Finally, special education students demonstrated a lower reading-related self concept than their peers in either of the other two groups. Regular education poor readers also indicated a lower reading-related self concept than their regular education peers.

Regarding the second hypothesis, that adolescents reading at their expected level would have a greater understanding of the impact that reading problems can have on adolescents' lives, at the most general level, the central findings of this study supported the researcher's original hypothesis and indicated that overall, high school students

appear to hold the opinion that reading skills are related to both current and future opportunities in various domains of their lives. Moreover, as anticipated, there were differences among the three educational groups assessed. Adolescents reading near, at or above their expected level appeared more likely to view good reading skills as leading to positive consequences, as demonstrated by their higher endorsement (than their poor-reading peers in regular education) on these items on the MROS. However, special education poor readers did not differ from either group, contradicting the original hypothesis. Indeed, although there were group differences, all agreed that good reading skills result in positive outcomes. Additionally, regular and special education students appeared more likely than their poor-reading peers in regular education to hold the opinion that poor reading skills result in negative consequences. However, all three groups seemed to be somewhat unsure of the exact relationship between poor reading skills and negative consequences, as they tended to answer in a mid-range that they neither agreed nor disagreed with the statements pertaining to negative ramifications in the MROS. Finally, none of the three groups of participants appeared to hold the opinion that reading skills are related to social and legal issues. The implications of these findings will be discussed later.

Self Concept (MSCS and MROS)

Self Concept as Measured by the MSCS

Based on the results of Smith (1991), which found that the differences between college students with learning disabilities and controls without learning disabilities was

only on academic self concept and not general self concept, the present study compared students using the MSCS, which has both an academic self concept scale, as well as other self concept scales and a total self concept value. Consistent with both this researcher's hypothesis and prior findings (Harter, 1990b; Smith,1991), significant differences among educational group were noted on the academic self concept scale on the MSCS. As expected, regular education students rated themselves as having significantly higher academic self concept (solid average range) compared to both regular education poor readers and special education students (low average range), and no significant differences were noted between regular education poor readers and special education students. These results confirm previous data that investigated the relationship between reading skills and academic self concept in elementary-aged students (Brown, 1991; Harter, 1990b) and adults (NIFL, 1998). Since reading is necessary in all parts of the educational curricula in schools, common-sense reasoning would predict that those adolescents who demonstrate difficulties in reading often experience negative self concepts related to their academic ability. In fact, the academic self concept differences demonstrated in the present study also corroborate recent findings obtained by Chapman, Tunmer, and Prochnow (2000) that even at an early elementary school level (first grade), reading skills were "highly predictive of negative and positive ASC (academic self concept) group membership..." (p. 703). In other words, even at a young age, reading skills have been found to affect academic self concept. As students grow older, one can imagine that the years of failure that students experience in their educational careers (due to a lack of basic skills of any sort, but

especially reading) compound this negative self concept. Certainly, a lack of adequate reading abilities puts these students at a significant disadvantage for performing well on an academic level.

Consistent with findings from Westervelt et al. (1998) who examined students ages nine through fourteen, significant differences among the three educational groups were noted on the total self concept scale in addition to the academic self concept scale. This finding was, however, contrary to results obtained with college students in the study conducted by Smith (1991). Regular education students reading at their expected level were found to endorse items that resulted in significantly higher total self concept than their special education peers. Regular education poor readers did not differ significantly from either of the two other groups, however, they did score themselves somewhat lower than their peers in regular education who are reading near, at, or above their expected level. Since self concept is based on a hierarchical, multidimensional model in which total self concept is comprised of six subscales (Bracken, 1996), it appears that several subscales from the MSCS influenced the results obtained on the total self concept scale. It is interesting that the regular education students scored themselves as having significantly higher family self concept than their special education peers. Regular education students appear to feel they have more positive relationships and support at home than do their peers in special education. These factors may indirectly affect educational progress in a variety of ways such as feeling less confident about themselves, as well as family self concept.

Regular education students also scored themselves higher on two other MSCS subscales, even though the three educational groups did not differ significantly from one another on these two scales. More specifically, the significant ANOVAs for the social and affect self concept scales shows that there were differences among the three educational groups, however, the differences were not clearly established. In other words, although regular education students rated themselves as having higher social and affect self concept than their poor-reading peers in regular and special education, it is unclear how the groups differed from one another. The group differences were not significant when each of the three groups were compared separately, however, there appears to be some kind of complex relationship (e.g., perhaps both regular education groups combined scored significantly higher than the special education group) that led to a significant ANOVA for these two self concept scales. Thus, although there were no significant group differences on these two subscales, both social and affect self concept appear to be influenced in some way by reading ability, which, in turn, has an effect on total self concept, especially when combined with the significantly different scores obtained on the academic and family self concept subscales. Since the affect subscale consists of questions such as "I am proud of myself," "I feel like a failure," and "I often disappoint myself," it seems logical that for those students who experience significant reading problems, the way they feel about themselves would be negatively affected, especially since such a large portion of their lives are spent completing academic tasks in school. In other words, school is a major part of an adolescent's life, so if s/he cannot perform certain skills such as reading, which are needed throughout the entire

curriculum, it appears obvious that they are less likely to feel proud about themselves, but rather feel "like failures." Furthermore, the only clear lack of difference among the three groups was on the physical and competence self concept subscales. Indeed, logic would substantiate that reading skills are not related to one's physical appearance, and they are not necessary for individuals to achieve a positive or strong physical self concept. Additionally, since the competence self concept scale consists of statements such as "I am honest," and "I am not as good as I should be," it seems likely that reading skills would pertain more to academic competence than overall competence. After all, there are many aspects in which one can be or feel competent, including physical tasks, academic tasks, parenting, teaching, etc. Not all of these areas are necessarily affected by reading skills. It also seems that perhaps the special education students' awareness of their deficient reading skills (especially when as severely deficient as was noted in the scores in the special education poor readers in this study), coupled with their awareness of the importance of good reading skills (to be discussed shortly) influences their overall level of self concept. Essentially, all aspects of self concept are interrelated, so when one part is affected, it would seem logical that other areas are also affected. More research is needed to better understand the reasons why these results occurred, however, and to explain more clearly how academic self concept is related to total self concept.

Self Concept as Measured by the MROS

Opinions of Reading Ability and Willingness to Enhance Reading Skills

As anticipated and previously mentioned, significant differences were found among educational groups regarding how they rated their reading abilities. Confirming the hypothesis, regular education students reading near, at or above their expected level rated themselves as significantly better readers than both regular education poor readers and special education students. Of interest is the fact that the regular education poor readers also rated themselves as significantly better readers than their peers in special education, despite having, on average, abilities that were only one to two grade levels higher than those of special education students. Thus, although they appear to have the general feeling that their reading abilities are not quite up to the level at which they should be, as indicated by their lower ranking than their regular education peers, perhaps these regular education poor readers are not completely aware of exactly how far behind in their skills they truly are. Indeed, they have never been identified by the district as being poor readers, and they appear to have compensated in one way or another such that they "survived" and were promoted through the regular education curriculum. It is also important to note here that only about half of the regular education poor readers were in the lower level regular education classes. The remainder of the students in this particular group were students in average level, regular education English classes. That is to say, one would expect that lower reading abilities would be indicated in those students in the lower level English classes when compared to their peers in average-level English classes, as these classes are designed for students experiencing difficulties in

reading, spelling, and/or written language. However, contrary to this researcher's thoughts, the word identification reading scores of the regular education poor readers (M = 7.2 grade equivalent), although significantly different statistically, were only two years above the word identification reading scores obtained by special education students (M = 5.3 grade equivalent). Furthermore, the decoding abilities for the regular education poor readers, as measured by the Word Attack subtest, were not significantly different from those of the special education group, and were found to fall (on average) around the fourth grade level. This becomes alarming when one realizes that the unidentified students receive no form of intervention to remediate their reading skills. Indeed, somehow these students have figured out over the years how to compensate for their lack of reading abilities in order to pass through each grade to the extent that they are not even aware of how low their reading skills truly are. Perhaps they stay after school for assistance on designated help nights with their teachers, or they have had teachers who assign more "hands-on" projects than actual reading assignments. Other efforts by these adolescents could include building inferential abilities, becoming proficient at memorizing materials they need to know for quizzes and exams. There are literally countless strategies that students acquire when they are deficient in one area but need to progress in order to pass through school.

Moreover, as expected, significant differences were noted in students' reported willingness to work to enhance their reading abilities, with special education students clearly stating that they are more willing to enhance their abilities than their regular education peers who are reading near, at or above their expected level. Although this

appears to be common-sense, the implications of this result are important, in that the special education students, aware of how poor their skills are, are indicating that they would accept remedial assistance (specifically targeting reading skills) if it were provided to them. Regular education poor readers, however, did not express this same willingness to enhance their reading abilities, despite having significantly below average reading abilities. In fact, regular education poor readers did not differ significantly from either of the two other groups of participants. The lack of motivation for this group of adolescents could be a result of not having full awareness of how poor their skills in reading are, as well as the fact that since they made it through school without being able to read at their expected level, they simply may not be willing to expend energy to improve something they apparently do not need to complete their classes.

The fact that the special education students did express their willingness to enhance their reading skills is important in that it appears that this, in essence, can be seen as a request for further assistance to improve basic reading skills. However, research has shown that reading courses specific to teaching basic reading skills are not typically an option at the secondary level (Catone, 2000; Fowler & Scarborough, 1993), rather, reading tends to be taught through the content areas such that students learn how to acquire the meaning of their content areas, rather than being skill-specific (Greene, 1998). In other words, although teaching reading skills is heavily emphasized in the early elementary school years, this is no longer the case once the student reaches the later elementary to middle school years, and is almost non-existent once the student

reaches the high school level. This topic will be discussed further in the section on implications of the study.

On the MROS, special education students rated themselves as having lower self concept related to reading than both their regular education peer groups. Regular education poor readers also endorsed lower reading-related self concept than their regular education peers. However, when looking at the results on the Likert scale format, it appears that although the groups are significantly different from one another, with special education students demonstrating the lowest reading-related self concept of all three groups, special education students still were not clearly saying that they had the behavior or emotional difficulties discussed in the literature. In other words, it appears that although the data obtained with the MSCS confirms that reading abilities do affect the self concept of students as many studies have found with youngsters (Brown, 1991; Castle, 1994; Harter, 1990b) and adults (NIFL, 1998), reading-related self concept is not necessarily correlated with reading achievement as measured by the MROS. This finding actually contradicts the descriptions by Bennett (1997) of common feelings and reactions of children with learning or reading disabilities. Bennett describes feelings of frustration, incompetence, embarrassment, and reactions including avoiding tasks, and becoming the class clown as behaviors typical of students with learning or reading disabilities. In fact, Bennett wrote that issues concerning self esteem and a positive identity "can be heightened... in dyslexic populations..." (p. 2). Perhaps the statements on the MROS were phrased too strongly, meaning that the students may have experienced feelings such as embarrassment or reacted by skipping classes as a result of their reading problems, but

may have done so only once or a few times, which, when compared with the number of school days over a nine to twelve year period may not be "all that much." This could have led to poor readers disagreeing with the various statements since they were phrased in a general sense with the implication that the feelings and reactions were common (almost everyday) experiences. Or, perhaps poor readers did not want to admit to their personal feelings (and reactions) about having reading problems, and as such, answered in a more neutral manner, meaning they neither agreed or disagreed with the statements provided. After all, regular education students all strongly disagreed with the statements, meaning that they felt that they never had reading problems that led them to "feel dumb," "feel embarrassed," or "skipped (at least one of) your classes to get out of having to read in class." Regular education poor readers disagreed with the different statements presented in the MROS, although not as strongly as their regular education peers reading near, at, or above their expected level. In other words, this group of students appeared not to disagree with these statements as strongly as the regular education students. Perhaps the students are showing that although they tended to disagree with the (negative) statements, there may have been some validity to these same statements, but that they are not able to admit this. Taking a midpoint stance may actually mean something, especially since the two regular education groups did not answer this same way. Additionally, the question comes to mind of what contributes to the differences that were obtained between the two groups of poor readers and the poor readers in general. The standard deviation for the individual statements in this part of the survey ranged between .74 and 1.4, which allows for quite some variability on the

individual items. The standard deviations for the three educational groups for this particular dependent variable were .69 for the regular education students, .82 for the regular education poor readers, and .77 for the special education students, again showing a rather large amount of variability around the group means for this dependent variable. This shows that for some poor readers, the experiences of having reading problems were awful, whereas for others, this was not the case. More research would certainly be in order to further investigate the validity of this portion of the results.

Understanding the Consequences of Reading Problems: Success, Failure and Social Effects

As previously mentioned and originally hypothesized, overall, the adolescent participants in this study demonstrated the opinion that there are possible consequences of reading problems, although the categorization of the individual survey items was somewhat different from the proposed constructs. Moreover, there were differences in opinion among the three educational groups regarding the extent to which they believed reading problems impact the lives of adolescents, although not necessarily the way it was anticipated prior to the start of the study.

The proposed constructs were originally hypothesized to consist of questions pertaining to specific domains in people's lives that can be affected by reading problems. Namely, in the literature, research questions often targeted education (Gregg, 1996), economics and employment (Barton & Jenkins, 1995; NIFL, 1998; Reder, 1995), and legal areas (Crawford, 1996; McGee, 1996; NIFL, 1998) as domains that can be

influenced by reading ability. In other words, this researcher created constructs based on specific areas of life that could potentially be affected by reading problems, as was historically documented in the literature. However, this group of adolescent students revealed that they view consequences of reading problems in a much broader manner than was originally hypothesized. The participants generally appeared to see reading abilities as resulting in either positive consequences ("success") or negative consequences ("failure"). These notions seem to be structured on a more basic level than the specific target areas (constructs) described in the literature. Success for this sample of adolescents appeared to be determined by achievement in employment (current and future opportunities and advancement), income, and academic success (entrance into and completion of college). Failure seemed to include going on welfare, living in poverty, difficulty in maintaining employment or attaining high-paying jobs, and dropping out of high school.

Despite the apparent consensus regarding the students' beliefs that reading ability affects current and future possibilities for people, group differences were indicated on both the success and failure notions. With regard to the assumption of success, regular education students reading at or above their expected level were found to place a significantly greater emphasis than their regular education poor-reading peers on the importance that good reading skills play in achieving success in life. Special education students (who are identified by the school district as having a reading disability) appeared to believe that good reading skills result in success, however, not significantly more or less than their peers in both regular education groups of students. Two thoughts come

to mind when thinking about these results. One has to do with the fact that regular education students reading at or above their expected level scored significantly different from only one group of poor readers (regular education), and not both. Perhaps the poor readers in regular education believe that good reading skills play less importance in achieving success because they think that one can be successful despite an apparent lack of skills, validated (to some extent) by their own promotion through their primary school years. The second thought has to do with the fact that the special education students did not differ significantly from either of the two regular education groups. Rather, they fell between the two groups in the way they rated the importance of reading skills for achieving success in life. Clearly, they understand the positive impact that good reading skills have on achieving success, a point that may have been emphasized by teachers in remedial and special education classes. Invariably, special education teachers often tend to discuss the importance of acquiring good literacy skills with their students receiving some type of remediation specific to reading. Perhaps the result is, at least in part, a reflection of a carry-over effect from teachers to students.

On the other hand, despite the corroboration of these adolescents' views pertaining to reading abilities and success with national survey data, these same views appear to be somewhat contradictory to other studies that have been conducted. Indeed, in a review of four studies, Bruck (1987) found results that were "weak" even though statistically, they were significantly different. More precisely, learning-disabled individuals were found to be "moderately successful in terms of educational achievements," (p. 258), with most of the participants entering college after high school.

However, it must also be noted that a seemingly high percentage of learning disabled college students in these studies needed extra years to complete their studies, and the more severe the reading and spelling problems, the less likely the LD students were to enter or complete college. These same studies also found that LD adults were "gainfully employed," with many in prestigious positions, however, most of these more elite positions were in sales or management, which rely more on good communication skills rather than literacy skills. One reason why these adult outcomes of children with learning disabilities may be higher than those documented in the national survey data may have to do with the fact that all four studies utilized learning disabled students who attended either private schools or clinics focused on addressing the academic and social-emotional needs of students with learning disabilities. In fact, in three of the four studies, students received daily, individualized remedial programs that incorporated specific remedial techniques. An interesting note to validate this hypothesis is the fact that the fourth study, which did not include specific remedial programs, rather only forms of treatment provided directly through the schools (e.g., tutoring, summer school), showed academic differences between the LD adults and the control groups. Moreover, even the authors themselves state in their discussion, "The results suggest that the most important antecedents of positive outcome are early identification accompanied by adequate intervention..." (p. 262), which will be further discussed shortly.

Upon further investigation of the opinions that were indicated, it became apparent that although they see good reading skills as leading to positive consequences or "success," they were not as clear that poor reading skills result in negative

consequences ("failure"). In other words, these adolescents endorsed the belief that good reading skills are important for academic success, current and future career opportunities, and future income, however, they did not endorse the belief that if one does not have good reading skills, then one is more prone to negative consequences such as dropping out of high school or living in poverty. Perhaps adolescents do not have as clear an understanding of the concept of "failure" as they do "success." This could, in part, be due to the fact that so often, adults discuss (and emphasize) how to achieve success in life, and explain to children and adolescents what society feels success entails. Perhaps students feel more comfortable thinking in terms of success than failure, or they simply do not believe that poor reading skills result in those negative consequences described in the MROS. It could be that students believe that poor reading skills do result in negative consequences, but perhaps not as "severe" as going on welfare or living in poverty. This actually contradicts documentation (Knell,1996-1997; Reder, 1995) that the probability of being on welfare increases as level of literacy decreases, with approximately 43% of adults at the lowest literacy level living in poverty, and differences in income ($14,000 vs. $23,000) between adults with self-reported learning disabilities and those adults in the general population. Their opinion that good reading skills are associated with academic success (entrance into and completion of college) support findings of significant differences with regard to educational opportunities, where an estimated 17% of students with learning disabilities partake in post-secondary schooling, and approximately 50% of the general population participates in post-secondary schooling (Gregg, 1996). Apparently, high school adolescents are picking up

on the importance of acquiring good literacy skills as they proceed through school, and are able to relate literacy skills with current and future educational, employment, and income possibilities, despite not endorsing the negative consequences of having reading problems.

With regard to the differences among educational groups on the notion of failure, both the regular education students reading at their expected level and the special education students endorsed the belief that poor reading skills result in negative consequences significantly more than their poor-reading regular education peers. In fact, when looking at the means for this dependent variable across the groups, the special education students were slightly higher in their endorsement of this construct, and its relation to their idea of failure, than their normal-reading regular education peers. However, as previously mentioned, when looking at the means for the groups for this dependent variable once converted to Likert scale values, it appears that none of the groups firmly demonstrates the opinion that poor reading skills result in negative consequences. The fact that the regular education poor readers did not endorse the belief that poor reading skills result in failure as highly as their peers in both other groups may be suggestive of several things. One, perhaps these individuals, despite the fact that they were never identified by their schools, are acutely aware of how significant their reading problems are, and are attempting to "downplay" the seriousness of the negative consequences of illiteracy. In essence, perhaps by doing so, these students feel better about themselves and their opportunities as they proceed through high school. Secondly, this group of students could simply be in agreement with the results obtained in a review

of four studies (Bruck, 1987), that found that there really are no differences in educational, occupational, and income opportunities for individuals with and without reading problems. On the other hand, the strongest opinion that poor reading skills result in negative consequences by special education students may be reflective of the influence of special education (reading) teachers on the thought processes of the special education students, or perhaps these students have been subjected to the invariably difficult tasks of applying for different kinds of employment or schools for higher education. It may be that they have experienced some form of failure, or have seen friends with reading problems experience school failure, or the increased difficulty in obtaining higher-paying jobs than their peers who are reading at or above their expected grade level.

In sum, even though none of the groups firmly established that poor reading skills result in negative consequences, or "failure," success is a notion that is heavily imparted upon all students proceeding through school, and all students identified that good reading skills result in positive experiences (success).

Another note of interest pertaining to the effects of literacy was the non-significant finding with regard to the students' beliefs concerning the social and legal ramifications of illiteracy. More specifically, differences among the educational groups were not indicated regarding their thoughts about possible social and legal consequences of reading problems. Further, students' responses appeared to correspond with some of the literature pertaining to the social and legal results of illiteracy (Buka, 1999; Hayden, 1991; Malmgren, Abbott & Hawkins, 1999) in that they endorsed the opinion that

reading ability is not important to people's choice of friends or the relationships that they have, and that students who are good readers are not less likely to abuse drugs and/or alcohol or get in trouble with the law. Other studies (Crawford, 1996; Keilitz & Dunivant, 1986; NALS, 1992; NIFL, 1998) however, contradict the adolescent opinions and other research findings that have been reported. Indeed, it seems that the adolescent opinions reflect the (more recent) views of the public-at-large that drugs and alcohol no longer separate one group of students from the rest, rather, they have become a widespread phenomenon that can be found to occur anywhere, regardless of SES, reading ability, IQ, etc. More importantly, results from the current study are also consistent with findings of prospective studies reviewed by Bruck (1987) that indicated that childhood learning disabilities are not precursors of asocial behaviors, nor are there differences between LD and non-LD adults in terms of number of delinquent acts or rates of incarceration. At any rate, the controversy regarding the legal and social ramifications of illiteracy continues to prevail, and certainly warrants further investigation for future clarification.

Correlations Between MROS Constructs and MSCS Self Concept Scales

Regarding the correlations between constructs on the two surveys, several significant correlations were obtained. First, it must be noted that there were many correlations under .2, which although weak, were significant. Next, the constructs that were expected to correlate had significant correlations that fell within the modest range. These included correlations between the MROS Reaction to School/Reading construct

and the MSCS academic, family, competence, total, and affect self concept scales. The strongest correlation, as anticipated was found between the MROS construct and the MSCS academic self concept scale (Pearson r = -.4). In addition, significant correlations were found between the MROS Opinion of Reading Ability construct and the MSCS academic, total, competence, and family self concept subscales. Again, as expected, the strongest correlation was found to be between the MROS Opinion of Reading Ability construct and the MSCS academic self concept subscale (Pearson r = .4). Similar to previously discussed results, it appears logical that these particular MROS constructs would correlate with the MSCS subscales listed because reading skills are central to performance in the academic domain and hence to opinions about one's academic abilities. Also, positive relationships and support (especially from family) are very important in one's quest to achieve in any arena, but especially academics since school comprises such a large portion of adolescents' lives.

Correlations Within the MROS

Furthermore, as originally predicted, significant correlations were also obtained between several constructs on the MROS itself. The strongest correlation was found to exist between the Opinion of Reading Ability and Reaction to School/Reading constructs (Pearson r = -.65). Clearly, adolescents' reactions to school and or reading tasks would be influenced by their ability to read, or what they think of their reading abilities. A student who does not experience any reading difficulties would not be likely to react negatively to reading tasks or academic tasks that involve reading, whereas a student

who has great difficulty reading may do so. Although the results did not verify this hypothesis as strongly as predicted, personal comments from several special education students included numerous negative feelings and reactions, mirroring statements in the Reaction to School/Reading construct.

As expected, several other moderate correlations were obtained between MROS constructs. Positive correlations were found between the Success and Failure constructs, between Reaction to School/Reading and Thoughts About Special Education, and between Willingness to Enhance Reading Skills and Thoughts About Special Education. Because the Success and Failure constructs were both measuring students' opinions regarding the ramifications of reading problems, one would expect those to correlate at least to some degree. Additionally, because the Thoughts About Special Education questions were only asked to those individuals who had (at some point in their school career) received special education services and pertained to their desire for more time being spent on teaching reading skills, one again would expect that students' willingness to work to enhance their reading skills would correlate with desire for more time to be spent on teaching reading skills. Moreover, because the statements in the Reaction to School/Reading construct described how reading problems made students feel and react in academic situations involving reading skills, one would expect that these feelings would somehow be correlated with a desire (or lack thereof) for more time being spent on acquiring the skills that are presumed to lead to, or result in, certain feelings and reactions when subjected to tasks involving those skills.

In short, the results on the MROS reveal a fairly consistent pattern in which students' opinions of their reading ability were correlated with their reactions to school and/or reading, and self concept related to reading as measured by the MROS was correlated most strongly with the academic self concept scale on the MSCS.

Implications and What Can Be Done to Help Adolescent Poor Readers

The literature pertaining to reading and the effects of reading difficulties has indicated that reading abilities do affect educational, employment, and income opportunities (Barton & Jenkins, 1995; NIFL, 1998; Reder, 1995; Smith, 1991; Westervelt et al., 1998). Consequently, it is important to ask whether the reading problems of the older poor reader can be treated effectively.

Central to the issue of remediation is the question of whether the nature of reading difficulties differ for the adolescent or adult as compared with the young poor reader. In research on this, older poor readers have been found to suffer from problems in the acquisition of reading skills similar to these found with younger poor readers or children just beginning to learn how to read. In other words, numerous studies (Blalock, 1981; Bruck, 1990; Fowler & Scarborough, 1993) have shown that older poor readers suffer from deficiencies in phoneme awareness and decoding, both of which can be remediated through direct systematic instruction. Recent findings point to the importance of the combination of training in gaining an awareness of the sound structure of words, decoding skills, and practice reading for meaning, along with increasing a student's exposure to literature (Greene, 1998; Moats, 1996).

However, regardless of the consensus from research on the nature of reading problems in the older individual (Cunningham, 1998; Greene, 1996) diverse types of programs are available for this age group. Despite the evidence that exists showing consistent decoding weaknesses in older poor readers, this skill is, for the most part, not taught beyond the early elementary school years. Rather, teachers for the junior high and high school level typically focus on content and comprehension, and how to accommodate a student's needs in order to have the individual complete the required curriculum and advance to the next grade (Buehl, 1998; Vacca & Alvermann, 1998). Thus, older poor readers are often given advice on what kinds of strategies can be used to compensate for their reading deficits while the focus is on comprehension. In other words, very little, if any at all, direct, systematic instruction is provided to students in secondary education or beyond. In fact, according to Vaughn, Moody, & Schumm (1998), this lack of direct instruction begins in elementary schools, where children with reading problems are not taught adequately the foundation skills for learning how to read. Instead, children often are taught how to "adapt" to their general coursework. After the early elementary years, the focus on direct instruction further diminishes and is substituted with accommodations and course content modifications. The focus of remediation usually is on knowledge of specific content areas (McKenzie, 1991; Sands, Adams, & Stout, 1995). The problem with this method of remediation is that often what is learned is not generalizable to other content areas, and the individual also missed out on the opportunity to improve decoding skills that can be used in all domains. The lack of attention at the middle school and high school level to the basic skills necessary for

advanced reading has been documented in a review of the individual educational programs (IEPs) by Catone (1999). Catone (1999) discovered that goals and objectives on the IEPs of older students who were identified as having deficits in basic reading skills failed to address those weaknesses. That is, even adolescents specifically identified as poor readers do not receive instruction to ensure the acquisition and mastery of critical skills. Yet, studies (Bruck, 1987) have clearly shown that students with reading problems who are provided with "an adequate and stimulating educational program will have acquired the motivation and skills to continue their education and to become gainfully employed..." (p.261) as well as become successful in other areas of their adult lives.

As stated in the introduction, effective programs designed for adolescents do exist, and instruction, either within a classroom setting, or in a separate "resource room"- type setting, can last anywhere from several months to several years (Moats, 1996; see Wasik & Slavin, 1993, for review). Pikulski (1994) reviewed five effective reading programs in his work, in addition to his own project called the Winston-Salem Project. According to Moats (1996), these programs include some essential ingredients to ensure successful outcomes for individuals learning how to read such as structured, systematic practice using appropriate reading- and writing- level materials. Other programs have been structured specifically to address the needs of adolescents and adults (Adams & Henry, 1997; Greene, 1996; Moats, 1998). These methods for older individuals often focus on direct instruction on the structure of words such as morphemes and syllables, as well as on phoneme awareness and decoding skills, using

language and reading materials that are more appropriate for the older person. In addition to formal programs, separate publications provide various simple, interesting and fun activities that can be employed to teach phoneme awareness (Greene, 1998; Moats, 1998; Snider, 1995; Yopp, 1992).

It is apparent that suitable programs do exist, and should be implemented to provide older disadvantaged students with the reading achieved needed to experience success in educational and work careers. The students in the present study clearly demonstrated that the way they feel about themselves, particularly in academic areas, is affected by the level of their reading abilities, and more importantly, that the poor readers, despite all of the hardships they have encountered to date, are still willing to accept assistance. If we do not act on this knowledge, and provide these poor readers the skills they know they need to attain success, and that they desire to build, we are being not only unfair, but downright unethical.

Strengths and Limitations of the Study, and Suggestions for Future Research

One strength of this study had to do with the number of respondents that participated such that a medium effect size could be detected. While, 195 subjects were required in order to detect a medium effect size, this number was exceeded (N=273). Furthermore, the majority of the respondents appeared to be in agreement regarding which items were to be incorporated in each of the dependent variables (or constructs) as produced in the data reduction techniques. On the MROS, five of the six dependent measures that were subjected to the MANOVA reached significance, two of which had

large effect sizes: Opinion of Reading Ability (eta squared = .31) and Reaction to School/Reading (eta squared = .35), as expected. Additionally, a medium effect size (eta squared = .06) was found on the Willingness to Change dependent measure. The remaining two significant measures, Success and Failure, had small effect sizes, eta squared = .05 for Success, and eta squared = .03 for Failure, making it somewhat difficult to interpret the differences obtained among the three educational groups studied (see earlier description of effect sizes in procedure section). It could be interesting for future research to administer the survey with a larger number of students, also from varying SES backgrounds, to see if the pattern of results replicate.

Another strength of this study is the internal reliability of the MROS. The results of the reliability analyses that were conducted in conjunction with the principal components analyses indicated moderate to very high coefficient alphas (.63 (Failure) to .97 (Reaction to School/Reading)). Even after several items were dropped due to their complexity, all dependent measures had at least three items, the minimum recommended for a construct to have meaning and to be considered reliable (Velicer, 1995). Perhaps future work could include the creation of more items to broaden and provide support to one construct, Opinion of Reading Ability, because reliability could increase with the addition of several items. At this point, since surveys geared toward high school adolescents appear to be lacking, particularly ones measuring how their reading ability makes them feel, and their understanding of the consequences of illiteracy, it seems that the MROS is a pretty adequate measure of the constructs it purported to measure.

With regard to relative ease of responding on the MROS, students appeared to follow along quite easily as the individual items were being read to them. In part, this may be a result of the attempt of the researcher to minimize the level of difficulty of the words used in each question, and the relative brevity of the survey (60 items), especially when contrasted with the lengthy 150-item MSCS. Indeed, several participant complaints were related to the length and "repetitiveness" of the MSCS. Future replication of this study could include the administration of only one survey each day, rather than both surveys in one class period. It must be added however, that in general, most students agreed that the current set-up was adequate. Additionally, the time of year turned out to be most appropriate when speaking with teachers and students alike, both of whom explained that if the study had taken place later in the school year (spring semester), significant issues would have arisen due to the standardized testing that takes place in the spring (e.g., MCAS).

It is also believed that validity of the study was improved as a result of the assurance of the investigator to participants that all answers would be kept confidential, and that each participant would be assigned an ID number after the completion of the reading assessments such that only ID numbers would be utilized for the remainder of the study (e.g., the IQ measures and both surveys). Additionally, the provision of small tokens of appreciation (e.g., tootsie roll pops) after the completion of each portion of the study (e.g., reading assessments, IQ assessments, and surveys) were also found to be helpful reinforcers for participants in addition to having their name put in a raffle at the end of the study.

The diverse representation of people in this particular sample also appeared to be a strength of the present study. The cohort was derived from an urban, mixed SES composition school, thereby encompassing the varied ethic and financial backgrounds that exist. This allows for a greater ability in generalizing the results to a larger population. It would still be interesting, however, to conduct this study in various districts to see if the results would be replicated.

There are several limitations that come to mind when thinking about this study and what it entailed. The first pertains to the inability to generalize these findings due to the limited sample size, as well as the fact that this survey was merely exploratory in nature, meaning it was not a standardized measure. In other words, what needs to be addressed in future studies is the issue concerning reliability and validity of the MROS such that results could be generalized across the population. Indeed, although the measure appears to have measured what it purported to measure, several individual items were dropped through statistical analyses that did not appear to fit with other construct items. It would be helpful to re-administer the survey (minus the dropped items) to the current study participants to see whether their answers would remain similar if not identical. It would also be important to administer the survey to other groups of high school adolescents to ensure that the measure held up across time and different samples of students. Additionally, it would be interesting to look at rephrasing some of the questions under the Reaction to School/Reading construct, to see if they can be written in a manner that is not as strong as they were in the MROS. In other words, as mentioned earlier in the Discussion, perhaps poor readers did not answer the questions

with more definitive opinions because it was not clear enough to them that the feelings and reactions did not have to occur on a regular basis, but instead could have occurred only several times over their educational career.

Another suggestion has to do with the dependent measure, Thoughts About Special Education from the MROS. Although there were significant differences among the educational groups that appeared to make sense, the results obtained were difficult to interpret. Results showed that special education students showed a stronger desire to have more time spent on the development of reading skills than their regular education peers who read at or above their expected level. This is a positive finding in that once again, special education students are demonstrating the wish to have more time spent on improving their reading skills. However, this result must be interpreted with caution since only a subset of participants answered this section of the survey, namely, those students who had special education services (at any point in their lives). At the same time, the fact that 129 students (more than one-third of all participants, which is more than the 68 special education and 41 regular education poor readers combined) answered this section leads me to suspect that students may have misunderstood who was supposed to answer this part of the survey, and, as such, may have answered the questions with a disagreement- or a neutral-response set since they never had special education services. In the future, it would be preferable to make this distinction clearer for participants such that only those students who had special education services answer the questions under that specific construct. Additionally, it would be helpful to distinguish what kind of special education services each received. In other words,

perhaps some of the current participants only had special education services to remediate math skills, or organizational skills, or perhaps they were just on a "monitoring basis." This would be important to clarify to ease interpretation of the results regarding the desire of special education students for receiving more instruction specific to improving reading skills.

Another limitation has to do with the potential problems with the utilization of grade equivalent scores. Some literature (Bennett, 1982) suggests that grade equivalent scores "suffer from a variety of technical inadequacies which severely limit their utility as meaningful indices of student achievement... and have unequal variance across...grade and age groups..." (p.139, 140). In other words, grade equivalent scores may not have the same value from one grade to the next in that for educational assessments, grade equivalents at different grade levels correspond with very different percentile ranks. Thus, to be two years behind in the early grades is of greater significance than a two-year lag in high school. However, concern about this potential problem is offset by evidence that growth in reading achievement scores plateaus at age twelve for all students, whether they be normal-reading individuals, low-achieving individuals, or those individuals with a discrepancy between IQ and reading achievement (Foorman et al.,1997). To evaluate the effect of the scoring system, it would be helpful to re-analyze the data in this study using percentile ranks as the means of identification of students with reading disabilities (Siegel, 1999); Stanovich, 1999).

The fourth limitation has to do with the high comorbidity of reading disabilities with other cognitive problems (e.g., attention deficit disorder). Buka (1999) raised the

question of whether reading difficulties really are linked with higher rates of legal issues, and found that rather than reading disabilities being linked with higher rates of legal problems, attention difficulties are. An attention measure was not administered in the present study primarily because of time constraints. Acknowledging his point, it would be helpful to include an attention measure in future research to clarify how much reading problems versus attention difficulties really contribute to legal problems and, more broadly, to self-concept.

Finally, it was not anticipated prior to the study that the differences in family self-concept among the three educational groups would be as great as they turned out to be. It would be interesting to look at this more specifically to see if adolescents identify whether there are any differences in the family system among the three groups of participants, and if certain groups identify a greater lack of stability within the family than other groups. Future research might include the study of family effects on adolescent self-concept by including a (or several) measure(s) of family support. In the same manner, it would also be interesting to look at differences among these three groups of students according to age. In other words, do their levels of self-concept and their opinions regarding the (possible) consequences of reading problems change as students mature. Perhaps views regarding future prospects shift as students get older and begin applying for employment or further education. In addition, research could look at views of adults actually in the work force to explore whether opinions concerning the importance of literacy change with employment experiences.

Conclusion

With the publicity about the NAEP (1999) and NIFL (1998) data, awareness has increased about the alarming incidence of reading problems in adolescents. The scope of the problem was underscored in the present study by the high occurrence of special education students receiving reading services and by the evidence that almost one in four of the regular education students tested had noteworthy reading difficulties. The focus of the study, exploring components of self-concept and opinions about the importance of reading ability, helped address the limited information available about the adolescent poor reader.

The evidence in the study of negative consequences of reading difficulties for Academic self-concept and of lower Family and Total self-concepts for the Special Education students confirms and extends prior research. In turn, the potential ramifications of weak self-concept for future job success and personal well-being are concerning. Clearly it is the responsibility of public education to implement the kinds of reading instruction programs with adolescents that are documented to be effective (Greene, 1998). The fact that the students who demonstrated poor reading skills were interested in receiving assistance to remediate their reading difficulties suggests they would be receptive to such instruction. Taking action on these matters should be a priority in secondary education: those adolescents who have yet to attain adequate reading skills have limited time to get this most basic, yet broad-reaching, educational accomplishment.

APPENDIX A

Name:_____ **Teacher:**_____ **Date:**_____

Matrix Reasoning Answer Sheet

Item #	Response Options (circle one)					Score (0 or 1)
A.	1	2	3	4	5	
B.	1	2	3	4	5	
1.	1	2	3	4	5	
2.	1	2	3	4	5	
3.	1	2	3	4	5	
4.	1	2	3	4	5	
5.	1	2	3	4	5	
6.	1	2	3	4	5	
7.	1	2	3	4	5	
8.	1	2	3	4	5	
9.	1	2	3	4	5	
10.	1	2	3	4	5	
11.	1	2	3	4	5	
12.	1	2	3	4	5	
13.	1	2	3	4	5	
14.	1	2	3	4	5	
15.	1	2	3	4	5	
16.	1	2	3	4	5	
17.	1	2	3	4	5	
18.	1	2	3	4	5	
19.	1	2	3	4	5	
20.	1	2	3	4	5	
21.	1	2	3	4	5	
22.	1	2	3	4	5	
23.	1	2	3	4	5	
24.	1	2	3	4	5	
25.	1	2	3	4	5	
26.	1	2	3	4	5	
27.	1	2	3	4	5	
28.	1	2	3	4	5	
29.	1	2	3	4	5	

APPENDIX B

PPVT - III Answer Sheet **ID# :** _____

Name:_____ **Teacher:**_____ **Date:**_____

Item	Answer	Item	Answer	Item	Answer
C.		138.		169.	
D.		139.		170.	
109.		140.		171.	
110.		141.		172.	
111.		142.		173.	
112.		143.		174.	
113.		144.		175.	
114.		145.		176.	
115.		146.		177.	
116.		147.		178.	
117.		148.		179.	
118.		149.		180.	
119.		150.		181.	
120.		151.		182.	
121.		152.		183.	
122.		153.		184.	
123.		154.		185.	
124.		155.		186.	
125.		156.		187.	
126.		157.		188.	
127.		158.		189.	
128.		159.		190.	
129.		160.		191.	
130.		161.		192.	
131.		162.			
132.		163.			
133.		164.			
134.		165.			
135.		166.			
136.		167.			
137.		168.			

APPENDIX C

MSCS

Multidimensional Self Concept Scale

Bruce A. Bracken

RECORD BOOKLET

Section I: Identifying Information

Name/ID No.

Address

Parents' Name

School/Agency

Referred by

Place of testing | Tested by

Race B W Other | Spanish Origin Yes No

	Year	Month	Day		
Date Tested		/	/	Age	
Date of Birth		/	/	Sex	
Chronological Age		/	/	Grade	

Section II: Directions and Scales

Please rate the following statements according to how well the statement applies to you. There are no right or wrong answers, but it is important that you rate each statement according to how you honestly feel. Be sure to be honest with yourself as you consider the statement you are rating. To mark your answer, simply circle the letters that correspond with your feelings toward the statement. Each statement should be rated as:

Strongly Agree (SA)	Agree (A)	Disagree (D)	Strongly Disagree (SD)

Additional copies of this form (#5182) are available from PRO-ED, Inc., 8700 Shoal Creek Boulevard, Austin, Texas 78757 512/451-3246

S SCALE

Strongly Agree (SA)	Agree (A)	Disagree (D)	Strongly Disagree (SD)

		SCORE
1. I am usually a lot of fun to be with	SA A D SD	
2. People do not seem interested in talking with me	SA A D SD	
3. I am too shy	SA A D SD	
4. Most people like me	SA A D SD	
5. People avoid me	SA A D SD	
6. A lot of people make fun of me	SA A D SD	
7. I am not accepted by people who know me	SA A D SD	
8. Most people think I am interesting	SA A D SD	
9. People enjoy being with me	SA A D SD	
10. Most of the time I feel ignored	SA A D SD	
11. I feel desired by members of the opposite sex	SA A D SD	
12. No one seems to laugh at my jokes	SA A D SD	
13. Most people appreciate me just the way I am	SA A D SD	
14. I often feel like I am left out of things	SA A D SD	
15. People tell lies about me	SA A D SD	
16. I have a lot of friends	SA A D SD	
17. I spend a lot of time feeling lonely	SA A D SD	
18. I am never sure how to act when I am with people I don't know well	SA A D SD	
19. People tell me their secrets	SA A D SD	
20. People pick on me	SA A D SD	
21. People do not seem to notice me	SA A D SD	
22. I get a lot of phone calls from friends	SA A D SD	
23. Many people have a low opinion of me	SA A D SD	
24. I let people bully me too much	SA A D SD	
25. People have to get to know me before they like me	SA A D SD	
S Scale Total Raw Score		

C SCALE			
Strongly Agree (SA)	**Agree (A)**	**Disagree (D)**	**Strongly Disagree (SD)**

		SCORE
26. I am honest	SA A D SD	
27. Too often I say the wrong thing	SA A D SD	
28. I am too lazy	SA A D SD	
29. I have a good sense of humor	SA A D SD	
30. I am basically a weak person	SA A D SD	
31. I feel that most people respect me	SA A D SD	
32. I am not very good at speaking my mind	SA A D SD	
33. I am assertive when I need to be	SA A D SD	
34. I am unlucky	SA A D SD	
35. I am very self confident	SA A D SD	
36. I don't seem to have any control over my life	SA A D SD	
37. I frequently put off doing important things until it is too late	SA A D SD	
38. I give people good reason to trust me	SA A D SD	
39. I am not as good as I should be	SA A D SD	
40. I don't keep quiet when I should	SA A D SD	
41. I am successful at most things	SA A D SD	
42. I handle my personal business responsibly	SA A D SD	
43. I lack common sense	SA A D SD	
44. I always seem to be in trouble	SA A D SD	
45. I can do most things pretty well	SA A D SD	
46. I am not very smart	SA A D SD	
47. I am a coward in many ways	SA A D SD	
48. Others believe that I will make something of myself	SA A D SD	
49. Too often I do dumb things without thinking	SA A D SD	
50. I waste money foolishly	SA A D SD	
C Scale Total Raw Score		

AFF SCALE

Strongly Agree (SA)	Agree (A)	Disagree (D)	Strongly Disagree (SD)

		SCORE
51. I enjoy life	SA A D SD	
52. I am afraid of many things	SA A D SD	
53. There are many things I would like to change about myself	SA A D SD	
54. I am not able to laugh at myself very easily	SA A D SD	
55. I am not a happy person	SA A D SD	
56. I am proud of myself	SA A D SD	
57. I feel like a failure	SA A D SD	
58. My life is discouraging	SA A D SD	
59. I am happy with myself just the way I am	SA A D SD	
60. I am too emotional	SA A D SD	
61. I have good self control	SA A D SD	
62. I often disappoint myself	SA A D SD	
63. My life is unstable	SA A D SD	
64. I have a positive outlook on life	SA A D SD	
65. I am frequently confused about my feelings	SA A D SD	
66. Sometimes I feel worthless	SA A D SD	
67. I often feel ashamed of things I have done	SA A D SD	
68. I frequently feel helpless	SA A D SD	
69. I feel loved	SA A D SD	
70. I wish I could be someone else	SA A D SD	
71. I feel insecure	SA A D SD	
72. I am a good person	SA A D SD	
73. I am not as happy as I appear	SA A D SD	
74. I am usually very relaxed	SA A D SD	
75. There are times when I don't like myself	SA A D SD	
AFF Scale Total Raw Score		

AC SCALE			
Strongly Agree (SA)	**Agree (A)**	**Disagree (D)**	**Strongly Disagree (SD)**

		SCORE
76. Classmates usually like my ideas	SA A D SD	
77. I frequently feel unprepared for class	SA A D SD	
78. I am good at mathematics	SA A D SD	
79. Learning is difficult for me	SA A D SD	
80. I usually do well on tests	SA A D SD	
81. I am proud of my school work	SA A D SD	
82. I can spell better than most people my age	SA A D SD	
83. I read as well as most people my age	SA A D SD	
84. I don't think very quickly	SA A D SD	
85. I work harder than most of my classmates	SA A D SD	
86. I don't understand much of what I read	SA A D SD	
87. I learn fairly easily	SA A D SD	
88. I never seem to have good ideas	SA A D SD	
89. My teachers like my classroom behavior	SA A D SD	
90. I often feel dumb	SA A D SD	
91. Most of my teachers seem to like me	SA A D SD	
92. I have poor study habits	SA A D SD	
93. Science is easy for me	SA A D SD	
94. I am uncomfortable in school	SA A D SD	
95. I usually work very hard	SA A D SD	
96. Most people would rather work with me than someone else	SA A D SD	
97. My teachers have a low opinion of me	SA A D SD	
98. Most subjects are pretty easy for me	SA A D SD	
99. I am not very creative	SA A D SD	
100. I usually feel good about my written work	SA A D SD	
AC Scale Total Raw Score		

F SCALE

Strongly Agree (SA)	Agree (A)	Disagree (D)	Strongly Disagree (SD)

		SCORE
101. My parents care about my happiness	SA A D SD	
102. My family makes me feel loved	SA A D SD	
103. My family ruins everything for me	SA A D SD	
104. In my family, we take care of each other	SA A D SD	
105. I feel appreciated by my family	SA A D SD	
106. I have fun with my family	SA A D SD	
107. I wish I could trade families with someone else	SA A D SD	
108. My parents are interested in me	SA A D SD	
109. My parents don't trust me	SA A D SD	
110. My home is warm and caring	SA A D SD	
111. My parents do not like my being around them	SA A D SD	
112. My parents help me when I need it	SA A D SD	
113. I am an important member of my family	SA A D SD	
114. My parents are proud of me	SA A D SD	
115. My family is no good	SA A D SD	
116. Nothing I do seems to please my parents	SA A D SD	
117. My parents attend events that are important to me	SA A D SD	
118. My parents believe in me	SA A D SD	
119. I am proud of my family	SA A D SD	
120. My parents care about my education	SA A D SD	
121. My family is one of the most important parts of my life	SA A D SD	
122. My parents love me just as I am	SA A D SD	
123. I don't know why my family stays together	SA A D SD	
124. My parents care about my future	SA A D SD	
125. My home is not a happy place	SA A D SD	
F Scale Total Raw Score		

P SCALE			
Strongly Agree (SA)	**Agree (A)**	**Disagree (D)**	**Strongly Disagree (SD)**

		SCORE
126. I feel good	SA A D SD	
127. I am attractive	SA A D SD	
128. I am in poor shape	SA A D SD	
129. When I look in the mirror, I like what I see	SA A D SD	
130. I tire too quickly	SA A D SD	
131. I have nice looking teeth	SA A D SD	
132. I look nice in just about anything I wear	SA A D SD	
133. I am ugly	SA A D SD	
134. I am stronger than most people	SA A D SD	
135. I have a nice figure	SA A D SD	
136. I am healthy	SA A D SD	
137. I feel good about how I look	SA A D SD	
138. I am good at most sports	SA A D SD	
139. I do not like how my clothes fit me	SA A D SD	
140. I am typically chosen among the last for team sports	SA A D SD	
141. I am physically fit	SA A D SD	
142. My hair never seems to look very good	SA A D SD	
143. My skin is attractive	SA A D SD	
144. I do not like to be seen in a swimsuit	SA A D SD	
145. There are parts of my body that I try to keep others from noticing	SA A D SD	
146. My clothes look good on me	SA A D SD	
147. I do not seem to have the energy to do very much	SA A D SD	
148. My weight is just about where it should be	SA A D SD	
149. I would change my looks if I could	SA A D SD	
150. I am graceful	SA A D SD	
P Scale Total Raw Score		

APPENDIX D

Name: _____ **DOB:**_____ **Grade:**_____ ID# _____

MEYER READING OPINION SURVEY

SECTION ONE: EFFECTS OF LITERACY

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BELOW USING THE FOLLOWING FIVE-POINT SCALE.

Directions: In this section, you will be asked about good reading skills vs. reading difficulties. For this purpose, good reading skills are defined as a solid ability in reading, meaning you're **doing well with grade-level** reading tasks.

Strongly Agree 5
Agree 4
Neither Agree nor Disagree 3
Disagree 2
Strongly Disagree 1

1. Good reading skills are important to current job possibilities	O	O	O	O	O
2. Your reading ability is important to the relationships you have	O	O	O	O	O
3. It is harder for poor readers to complete college	O	O	O	O	O
4. Reading ability is important to one's future income	O	O	O	O	O
5. Good reading skills increase the likelihood of being employed	O	O	O	O	O
6. Good reading ability is important to your academic success	O	O	O	O	O
7. Good reading skills are important to one's ability to parent well	O	O	O	O	O
8. Students who are good readers are less likely to abuse drugs and/or alcohol	O	O	O	O	O
9. Good reading skills are important to future career opportunities	O	O	O	O	O
10. Your reading ability is important to your choice of friends	O	O	O	O	O
11. Students who are good readers are less likely to get in trouble with the law	O	O	O	O	O
12. Students who are good readers have a higher acceptance rate into college	O	O	O	O	O
13. Good reading skills are important for career advancement	O	O	O	O	O
14. People who are poor readers are more likely to go on welfare	O	O	O	O	O

SECTION ONE: EFFECTS OF LITERACY CONTINUED

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BELOW USING THE FOLLOWING FIVE-POINT SCALE.

	Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
15. Poor reading skills increase the likelihood of living in poverty	O	O	O	O	O
16. Poor readers are less likely to complete high school	O	O	O	O	O
17. It is harder for poor readers to get well-paying jobs	O	O	O	O	O
18. Poor readers are more likely to engage in delinquent acts	O	O	O	O	O
19. Poor readers have a higher drop-out rate from school	O	O	O	O	O
20. It is harder for poor readers to maintain their jobs	O	O	O	O	O

SECTION TWO: OPINIONS OF READING ABILITY and WILLINGNESS TO ENHANCE READING SKILLS

This section will get at whether you now think you're a good reader or if there is room for improvement.

21 **Are you as good a reader as you think you should be in your grade?**				
O	O	O	O	O
1 Definitely Not	2 Somewhat Worse	3 Not Sure	4 Pretty Much	5 Definitely Am

22 **How good a reader do you think you are?**				
O	O	O	O	O
1 Not at all good	2 Not very good	3 So- So	4 Very good	5 Extremely good

23 **Do you think you'll graduate from high school reading at a 12th grade level?**				
O	O	O	O	O
1 Definitely Not	2 I Don't Think So	3 Maybe	4 Probably	5 Definitely Will

SECTION TWO: OPINIONS OF READING ABILITY CONTINUED

24. **When do you think you became a skilled reader?**				
O	O	O	O	O
1 still not a good reader	2 early elementary school	3 late elementary school	4 middle school	5 high school

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BELOW USING THE FOLLOWING FIVE-POINT SCALE.

Strongly Agree 5
Agree 4
Neither Agree nor Disagree 3
Disagree 2
Strongly Disagree 1

25. You want to improve your reading ability	O	O	O	O	O
26. You want to graduate from high school knowing how to read at a 12th grade level	O	O	O	O	O
27. You think you need to develop your reading skills more	O	O	O	O	O

28. **How motivated are you to improve your reading abilities?**				
O	O	O	O	O
1 N/A	2 Not motivated	3 Somewhat motivated	4 Very motivated	5 Extremely motivated

29. **How much time would you be willing to practice daily in order to learn how to read?**				
O	O	O	O	O
1 0-15 min.	2 15-30 min.	3 30-45 min.	4 45 min. -1 hour	5 more than one hour

30. **How high a priority is improving your reading skills for you?**				
O	O	O	O	O
1 No priority	2 Only slightly a priority	3 Somewhat of a priority	4 High priority	5 Very high priority

SECTION THREE: REACTIONS TO SCHOOL/READING

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BELOW USING THE FOLLOWING FIVE-POINT SCALE.

All the questions I read next have to do with how your reading ability makes you feel. Have you ever had any reading problems during your school years that affected you such that:

	Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
31. It was embarrassing	O	O	O	O	O
32. You sat in the back of class and kept quiet to get out of having to read out loud	O	O	O	O	O
33. You felt dumb	O	O	O	O	O
34. You skipped (at least one of) your classes to get out of having to read in class	O	O	O	O	O
35. You often felt incompetent because of your reading difficulties	O	O	O	O	O
36. You talked back to your teacher to avoid having to read out loud	O	O	O	O	O
37. You often felt confused because you couldn't understand what you were reading	O	O	O	O	O
38. You skipped school (at least once) because of your reading problem	O	O	O	O	O
39. You were often afraid of "being discovered" that you couldn't read	O	O	O	O	O
40. You felt angry because you had (have) trouble reading	O	O	O	O	O
41. You had behavior problems as a result of your difficulty with reading	O	O	O	O	O
42. It felt scary because difficulty reading sometimes made you do poorly on tests	O	O	O	O	O
43. You became the "class clown" to get out of having to read in class	O	O	O	O	O
44. You felt like a "total failure"	O	O	O	O	O

SECTION THREE: REACTIONS TO SCHOOL/READING CONTINUED

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BELOW USING THE FOLLOWING FIVE-POINT SCALE.

All the questions I read next have to do with how your reading ability makes you feel. Have you ever had any reading problems during your school years that affected you such that:

Strongly Agree 5
Agree 4
Neither Agree nor Disagree 3
Disagree 2
Strongly Disagree 1

45. You made up excuses to leave class to get out of having to read in class	O	O	O	O	O
46. You often felt frustrated because you had (have) trouble reading	O	O	O	O	O
47. You got into fights because other kids made fun of you because you couldn't read	O	O	O	O	O
48. You were afraid (at least once) you would get held back because you had trouble reading	O	O	O	O	O
49. You were sick of doing schoolwork because you had trouble reading	O	O	O	O	O
50. You thought (at least once) about dropping out of school because of reading problems	O	O	O	O	O
51. You felt depressed because of your difficulty with reading	O	O	O	O	O
52. You were teased by your peers sometimes because of your reading difficulties	O	O	O	O	O
53. You were embarrassed because a teacher thought you weren't smart because you had trouble reading	O	O	O	O	O
54. You felt rejected by your peers sometimes because of your reading problems	O	O	O	O	O

SECTION FOUR: THOUGHTS ABOUT SPECIAL ED. SERVICES

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BELOW USING THE FOLLOWING FIVE-POINT SCALE.

REGARDING THE SPECIAL EDUCATION SERVICES YOU HAD (IF YOU HAD THEM):	Strongly Agree 5	Agree 4	Neither Agree nor Disagree 3	Disagree 2	Strongly Disagree 1
55. You wanted them to teach you HOW to read	O	O	O	O	O
56. You just wanted them to teach you enough to pass exams	O	O	O	O	O

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BELOW USING THE FOLLOWING FIVE-POINT SCALE.

IN TERMS OF READING:	Strongly Agree 5	Agree 4	Neither Agree nor Disagree 3	Disagree 2	Strongly Disagree 1
57. You didn't think enough time was spent on reading skills	O	O	O	O	O
58. You worked on reading and it was very helpful	O	O	O	O	O
59. You wish you still had reading help (class, tutoring) in high school	O	O	O	O	O

Other General Questions

60 **If you think you need to develop your reading skills more, which of the following are you willing to do? If you don't think you need to develop your reading skills more, please circle "not applicable"**

Circle all that apply.

O 1 one-on-one instruction	O 2 small group instruction	O 3 an after-school program	O 4 support groups	O 5 daily practice reading	O 6 not applicable

APPENDIX E

Name: _____ **Student's DOB:**_____ **Grade:**_____ **ID# :** _____

MEYER READING OPINION SURVEY- STUDENT ANSWER FORM

SECTION ONE: EFFECTS OF LITERACY

Directions: In this section, you will be asked about good reading skills vs. reading difficulties. For this purpose, good reading skills are defined as a solid ability in reading, meaning you're doing well with **grade-level** reading tasks.

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BEING READ TO YOU USING THE FOLLOWING FIVE-POINT SCALE:					
	Strongly Disagree 1	**Disagree 2**	**Neither Agree nor Disagree 3**	**Agree 4**	**Strongly Agree 5**
1.	1	2	3	4	5
2.	1	2	3	4	5
3.	1	2	3	4	5
4.	1	2	3	4	5
5.	1	2	3	4	5
6.	1	2	3	4	5
7.	1	2	3	4	5
8.	1	2	3	4	5
9.	1	2	3	4	5
10.	1	2	3	4	5
11.	1	2	3	4	5
12.	1	2	3	4	5
13.	1	2	3	4	5
14.	1	2	3	4	5
15.	1	2	3	4	5
16.	1	2	3	4	5
17.	1	2	3	4	5
18.	1	2	3	4	5
19.	1	2	3	4	5
20.	1	2	3	4	5

SECTION TWO: OPINIONS of READING ABILITY and WILLINGNESS TO ENHANCE READING SKILLS

This section will get at whether you now think you're a good reader or if there is room for improvement. Please circle your answer.

21.	Definitely Not 1	Somewhat Worse 2	Not Sure 3	Pretty Much 4	Definitely Am 5

22.	Not at all Good 1	Not very good 2	So-So 3	Very Good 4	Extremely Good 5

23.	Definitely Not 1	I Don't Think So 2	Maybe 3	Probably 4	Definitely Will 5

24.	Still Not a Good Reader 1	Early Elementary School 2	Late Elementary School 3	Middle School 4	High School 5

PLEASE RATE YOUR LEVEL OF <u>AGREEMENT</u> OR <u>DISAGREEMENT</u> WITH THE STATEMENTS BEING READ TO YOU USING THE FOLLOWING FIVE-POINT SCALE:

	Strongly Disagree 1	**Disagree 2**	**Neither Agree nor Disagree 3**	**Agree 4**	**Strongly Agree 5**
25.	1	2	3	4	5
26.	1	2	3	4	5
27.	1	2	3	4	5

28.	N/A 1	Not motivated 2	Somewhat Motivated 3	Very Motivated 4	Extremely Motivated 5

29.	0-15 minutes 1	15-30 minutes 2	30-45 minutes 3	45 min- 1 hour 4	more than 1 hour 5

30.	No priority 1	Only slightly a priority 2	Somewhat of a priority 3	High priority 4	Very high priority 5

SECTION THREE: REACTIONS TO SCHOOL/READING

All the questions I read next have to do with how your reading ability makes you feel. Please circle the answer that best describes how you feel.

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BEING READ TO YOU USING THE FOLLOWING FIVE-POINT SCALE:					
	Strongly Disagree 1	**Disagree 2**	**Neither Agree nor Disagree 3**	**Agree 4**	**Strongly Agree 5**
31.	1	2	3	4	5
32.	1	2	3	4	5
33.	1	2	3	4	5
34.	1	2	3	4	5
35.	1	2	3	4	5
36.	1	2	3	4	5
37.	1	2	3	4	5
38.	1	2	3	4	5
39.	1	2	3	4	5
40.	1	2	3	4	5
41.	1	2	3	4	5
42.	1	2	3	4	5
43.	1	2	3	4	5
44.	1	2	3	4	5
45.	1	2	3	4	5
46.	1	2	3	4	5
47.	1	2	3	4	5
48.	1	2	3	4	5
49.	1	2	3	4	5
50.	1	2	3	4	5
51.	1	2	3	4	5
52.	1	2	3	4	5
53.	1	2	3	4	5
54.	1	2	3	4	5

SECTION FOUR: SOME THOUGHTS ABOUT SPECIAL ED. SERVICES

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BEING READ TO YOU USING THE FOLLOWING FIVE-POINT SCALE:

Regarding the special education services you had (if you had them):

	Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
55	1	2	3	4	5
56	1	2	3	4	5

PLEASE RATE YOUR LEVEL OF AGREEMENT OR DISAGREEMENT WITH THE STATEMENTS BEING READ TO YOU USING THE FOLLOWING FIVE-POINT SCALE:

In terms of reading:

	Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
59	1	2	3	4	5
58	1	2	3	4	5
59	1	2	3	4	5

Other General Questions

60. **If you think you need to develop your reading skills more, which of the following are you willing to do? If you don't think you need to develop your reading skills more, please circle "not applicable" Circle all that apply.**

One-on-one instruction 1	small group instruction 2	an after-school program 3	support groups 4	daily practice reading 5	not applicable 6

****** Is there anything else you think I should have asked? Do you have any other thoughts or comments?**

APPENDIX F

The University of Rhode Island
Department of Psychology
10 Chafee Rd., Suite 8
Kingston, RI 02881

Letter to Superintendent

July 5, 2000

Dr. XXXXXXXX
Superintendent of Schools

Dear Dr. XXXXXXXX,

I am currently a doctoral candidate in School Psychology at the University of Rhode Island. I have had concerns for some time about the relatively high incidence of reading problems in high school students and what the effects are on teens' self concept. An additional problem pertains to adolescents' understanding of the possible consequences of illiteracy. As a result of my interests, I am conducting my dissertation to investigate these topics. It is my hope that you will allow me to obtain data during this school year regarding these issues. Your cooperation and support is crucial in order for me to conduct this study.

This fall, my study will necessitate working with average-level high school (grades 9-12) students in Regular Education English classes and adolescents in Resource Rooms who have been identified with reading difficulties. Since LHS has both of these groups of students, it is eligible to partake in this research. The participation of students will involve the following types of activities: completing two subtests from a reading assessment; completing a short form of an intelligence test; and filling out two surveys. I am committed to ensuring minimal disruption to all classrooms. To minimize time, the intelligence test and surveys will be given in whole groups (classrooms). The intelligence test will require between 15-25 minutes to complete. The surveys will only require a total of 40 minutes (maximum) to complete (15-25 minutes per survey). They will be read by this researcher to each class of participants (regular education and resource rooms) to avoid any difficulties that might be experienced by some students due to reading difficulties and to ensure comparability in procedures. The reading assessment must be individually administered, however, will only require 10 minutes per student to complete. The reading assessment and intelligence test will be given by this researcher and an assistant. This will take place when it is convenient for the teachers.

As a graduate student on a limited budget, I am not able to compensate each student on an individual basis, however, I do wish to express my appreciation to participants. Therefore, I will set up a raffle in which participants will be eligible to win one of several neutral gifts (e.g., a pair of movie tickets, gift certificate to music store, voucher for a free pizza at a local pizzeria, etc.). As a by-product of this study, I will be happy to provide information regarding reading level of the participants to the teachers and principal of LHS for educational purposes. I would also like to give back to your district on a more professional level, and would therefore like to offer the

possibility of giving a workshop about the findings of this study and/or current reading research once this study is complete.

There are no known risks associated with students' participation in these types of tasks. All IQ information and survey data gathered from the students will be kept confidential. Only reading scores will be shared with teachers and the principal as mentioned above. In addition, all records will be stored in a secure filing cabinet. Anonymity is guaranteed in that none of the data forms for these measures will identify students by name, and names will not be used in any publications.

This research and the procedures to be followed will be reviewed/approved by the Institutional Review Board (IRB) at the University of Rhode Island to ensure that all procedures are protective of the students involved. Additionally, I will be sending consent forms to all parents of participants and assent forms for students to complete. Finally, students will be reassured that they will not be penalized in any way if they choose not to take part in this study.

In order for me to proceed with the IRB review before the school year begins, I first need your approval. Therefore, when you feel ready to do so, please sign below to give your consent, and to acknowledge your understanding of what is proposed to take place at LHS. If you have any questions that you would like answered before allowing LHS supervisor of the study, is also available to speak with you at (401) 874- 4258. In addition, you may contact the office of the Vice Provost for Graduate Studies, Research and Outreach, 70 Lower College Road, Suite 2, University of Rhode Island, Kingston, RI, telephone: (401) 874-2635.

I will call next week to speak with you regarding any further clarification you may seek and to schedule a time when I might pick up this signed document. Thank you very much for your time and consideration. It is my hope that the information from this study may provide future educators with useful information regarding the socio-emotional effects of reading problems and may assist in suggesting effective reading interventions for adolescents. I greatly appreciate your support and prompt reply!

_____	_____
Signature of Superintendent	Signature of Researcher
_____	_____
Typed/ printed name	Typed/ printed name
_____	_____
Date	Date

APPENDIX G

The University of Rhode Island
Department of Psychology
10 Chafee Rd., Suite 8
Kingston, RI 02881

Effects of Reading Disability in Adolescents on Self Concept and Future Expectations

Consent Form for Research

Dear Parent or Guardian,

This fall, XXXXXXXXXXXXX School has agreed to take part in a study looking at the relationship between reading ability and self-concept in adolescents, and their understanding of the role of literacy in their future endeavors. This letter is being sent to you to inform you of the study. Your teen has been asked to take part in the research project described below. You and your teen may decide whether or not s/he will take part.

This study will examine the attitudes adolescents have regarding the importance of literacy, and the personal and social effects that literacy can have on their lives. The participation of your teen in this project will involve the following types of activities: completing two subtests from a reading assessment; completing a short form of an intelligence test; and completing two surveys. The reading assessment will be individually-administered and will only take about 10 minutes to complete. The group-administered intelligence test, consisting of a short measure of vocabulary and nonverbal abilities, will be conducted with your teen's English class and will require between 35-45 minutes to complete. The surveys will also be administered to your teen's English class and will only require a total of 40 minutes (maximum) to complete (15-25 minutes per survey). This will take place when it is convenient for your teen's teacher.

There are no known risks associated with adolescents' participation in these types of tasks. Information regarding reading level of participants will only be shared with teachers and the principal of LHS for educational purposes. All other information will be kept confidential (e.g., IQ and survey information). To make this study as confidential as possible, numbers will be assigned to participants to secure identification of these students. Additionally, all records will be stored in a secured filing cabinet. For any publications of this study, information will not identify your teen by name, and names will not be used to ensure anonymity.

Participation is voluntary. Whatever you decide will in no way penalize your teen. Before beginning any tasks, the teacher will ask your teen if s/he agrees to participate. Your teen will be told that s/he may stop at any time s/he feels uncomfortable.

As a small measure of appreciation for those students who do finish this study (for your teen's time and understanding of the importance of this research) his/her name will be entered into a drawing to win one of several prizes (e.g., gift certificate to a music store) once the study has been completed.

Using the above information, please let me know if you are willing to have your teen participate in this project. Please sign and return **one copy** of the appropriate form at the bottom of this letter to your teen's English teacher (attn: Miriam Meyer) within the next eight school days, and keep the second copy for your records.

If you have any questions that you would like answered before allowing your teen to participate, please feel free to call Miriam Meyer at (978) 534- 9404. Dr. Susan Brady, the supervisor of the study, is also available to speak with you at (401) 874- 4258. In addition, if you have any concerns about the study, you may contact, anonymously, the office of the Vice Provost for Graduate Studies, Research and Outreach, 70 Lower College Road, Suite 2, University of Rhode Island, Kingston, RI, telephone: (401) 874-2635.

It is my hope that this information will be beneficial to future educators by providing useful information regarding effective reading interventions (with socio-emotional support) to help children and adolescents. Thank you very much for your time and consideration.

I have read the Consent form. I **do not** want my teen, _____, to participate in this study being done at XXXXXXXXXXXXXXXX School.

_____ _____

Parent/Guardian's Printed Name Teen's Printed Name

_____ _____

Parent/Guardian's Signature Date

I have read the attached Consent form. Any questions I had were answered. I have decided that I **am willing** to have my teen, _____, take part in this study being done at XXXXXXXXXXXXXXXX School.

_____ _____

Parent/Guardian's printed name Date

_____

Parent/Guardian's signature

APPENDIX H

Universidad de Rhode Island
Departamento de Sicologia
10 Chafee Rd., Suite 8
Kingston, RI 02881

Efecto en Adolecentes con dificultad en Lectura, Concepto personal y Futuras Expectaciones

Hoja de concentimiento para Estudios investigativos

Estimados Padres o Familiares,

Este Otoño_____Escuela esta de acuerdo en tomar parte en un estudio con mira a la relación entre ablilidad en lectura y concepto presonal en adolecentes y el entendimiento del lugar que ocupa el alfabetismo en su futuro. Esta carta es enviada a usted para informarle de este estudio. Su adolecente ha sido preguntado si desea tomar parte en este proyecto describido a continuación. Usted y su hijo-a pueden decidir si desa participar este estudio.
Este Estudio examinara las actitudes de los adolecentes con relación a la importancia del alfabetismo y los efectos sociales y personales que este puede inpactar en sus vidas. La participación de su adolecente en este proyecto envolveran las siguientes actividades: completar dos examenes de Lectura, completar un formulario breve de examén de inteligencia y completar dos questionarios. El examén escrito sera individual y administrado y tomara unos 10 minutos para ser completado. El grupo que administra el examén de inteligencia, consistira en una medida corta de vocabulario, sera llevada acabo en la clase de Ingles y requiere unos (15-25) minutos para completar. Esta encueta sera tambien administrada a su adolecente en clase de Ingles y solo requerira un tiempo de 40 minutos como maximo para completar (15-25 minutos por encuesta). Este tomara lugar cuando es conveniente para el maestro-a de su hijo-a.

No hay ningun riesgo asociado con la participación de su adolecente en este tipo de proyecto. Información referida a nivel de lectura de participación sera solamente compartida con maestros-as y el principal de Leominster High School con propositos educativos. Toda la información obtenida sera guardada confidencial (IQ Questionario de Inteligencia). Para llevar acabo estos estudios de una manera confidencial, cada participante seran asignado un número para asegurar la identificación de esos estudiantes. En adición, todo los archivos seran guardado en un almario asegurado. Para cualquier publicación de este estudio, esta información no identificara a su hijo-a por nombre y nombres no seran usados para aseguran anonimacidad.

Participación es voluntaria. Si usted decide no participar su adolecente no sera penalizado. Antes de comenzar cualquier asignación, el profesor preguntara a su adolecente si el o ella estan de acuerdo en participar. Su Adolecente sera dejado saber cuando el o ella puede descansar si se encuentra incomodo.

Como una medida pequeña de apreciación para esos estudiantes quien terminen este estudio (para su adolecente tiempo y entendimiento de la importancia de este proyecto) entraran dentro

de una loteria donde podran ganar diferentes premios como (certificados para las tiendas de música). Una vez que el estudio este completado.

Utilizando la información dada, por favor dejenos saber si usted le da permiso a su hijo-a para que participe en este proyecto. Por favor firme y devuelva **una copia** del formulario apropiado de la parte inferior de esta carta al maestro-a de Ingles con su adolecente (atención Miriam Meyer) en los proximo ocho dias escolares y mantenga una segunda copia para sus archivos.

Si usted tiene alguna pregunta, la cual desea una respuesta antes de dar el concentimiento de participación a su adolecente, por favor llame a Miriam Meyer al (978) 534-9404. Doctora Susan Brady, supervsiora de estos estudios tambien estara disponible para hablar con usted, puede ser localizarda al (401) 874-4258. En adición, si usted tiene alguna duda o preocupación con relación a estos estudios, puede contactarse anonimo-a con la oficiana de Estudios Graduados Vice Provost, estudios y alcanze, 70 Lower College Road, Suite 2 University of Rhode Island, Kingston, RI, teléfono: (401) 874-2635.

Es mi esperanza que esta información sera beneficial para futuros educadores, proveeindo información efectiva en intervención en Lectura (con ayuda social y emocional) para ayudar a niños y adolecentes. Gracias, muchisimas Gracias por su tiempo y consideración.

He leido el formato de concentimiento. Yo **no quiero**_____que
Participe en este estudio llevado acabo en_____ Escuela

_____ _____
Nombre del Padre o Familiar Imprente Nombre del Adolecente Imprente

_____ _____
Firma del Padre o Familiar Fecha

He leido el concentimiento adjuntado. Cualquier pregunta que tengo ha sido respondida. Yo he decidido que Estoy dispuesta-o a permitir a mi adolecentes_____
Que participe en estos estudios llevados acabo_____**Escuela**

_____ _____
Nombre del Padre o Familiar Imprente Fechas

_____
Firma del Padre o Familiar

He dialogado este proyecto con mi adolecente el o ella le gustaria participar.

_____ _____ _____
Nombre del Adolecente y Firma Fecha

APPENDIX I

The University of Rhode Island
Department of Psychology
10 Chafee Rd., Suite 8
Kingston, RI 02881

Effects of Reading Disability in Adolescents on Self Concept and Future Expectations

Student Assent Form for Research

Dear Student,

You have been asked to take part in a research project described below. The researcher will explain the project to you in detail. You should feel free to ask questions. If you have more questions later, Miriam Meyer, the person mainly responsible for this study, (978) 534-9404, will discuss them with you.

You have been asked to take part in a study looking at teenagers' views about the relationship between reading ability and self-concept in adolescents, and the role of literacy in their future. This letter is being given to you to inform you of the study.

If you decide to take part in this study, you will be asked to complete the following types of activities: two subtests from a reading assessment; a short form of an intelligence test; and two surveys. The reading assessment will be individually-administered and will only take about 10 minutes to complete. The group-administered intelligence test, consisting of a short measure of vocabulary and nonverbal abilities, will be conducted during one class-period in your English class. The surveys will also be administered to you in your English class and will only require a total of 40 minutes (maximum) to complete (15-25 minutes per survey). This will take place when it is convenient for your teacher.

There are no known risks associated with adolescents' participation in these types of tasks. Information regarding reading abilities of participants will only be shared with teachers and the principal of LHS for educational purposes. All other information will be strictly confidential (e.g., IQ and survey information). To make this study as confidential as possible, numbers will be assigned to participants to secure your identification. Additionally, all records will be stored in a secured filing cabinet in the researcher's home. For any publications about this study, information will not identify any participants by name; only group results will be presented.

Participation is voluntary. You do not have to participate. If you decide to take part in the study, you may quit at any time. Whatever you decide will in no way penalize you. Before beginning any tasks, the teacher will ask if you agree to participate. You will be told that you may stop at any time you feel uncomfortable.

As a small measure of appreciation for those students who do finish this study (for your time and your understanding of the importance of this research) your name will be entered into a drawing to win one of several prizes (e.g., gift certificate to a music store) once the study has been completed. When you return the assent form to your teacher, your name, and the name of your teacher will be written on a raffle ticket. This ticket will immediately be placed into a raffle bin which will be stored in a secured filing cabinet. Upon completion of the study, ten names will be randomly selected from the raffle bin by a designated LHS administrator. Winners will be notified by their teachers.

If you have any questions that you would like answered before participating, please feel free to call Miriam Meyer at (978) 534- 9404. Dr. Susan Brady, the supervisor of the study, is also available to speak with you at (401) 874- 4258. In addition, if you have any concerns about the study, you may contact, anonymously, the office of the Vice Provost for Graduate Studies, Research and Outreach, 70 Lower College Road, Suite 2, University of Rhode Island, Kingston, RI, telephone: (401) 874-2635.

It is my hope that the results of this study will be beneficial to future educators and to teens by providing information relevant to help those adolescents who are not as good at reading as they would like to be. Thank you very much for your time and consideration.

You have read the Assent Form. Your questions have been answered. Your signature on this form means that you understand the information and you agree to participate in this study. Please sign and return **one copy** of this letter, and keep the second copy for your records.

_____ _____

Teen's printed name Date

_____

Teen's signature

APPENDIX J

Descriptive Statistics for MROS

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
L1	273	1.0	5.0	4.10	.89	-1.56	.15	3.49	.29
L2	273	1.0	5.0	3.07	1.10	-.18	.15	-.64	.29
L3	273	1.0	5.0	4.03	.99	-1.21	.15	1.30	.29
L4	273	1.0	5.0	3.90	.96	-1.09	.15	1.25	.29
L5	273	1.0	5.0	4.04	.83	-1.12	.15	1.93	.29
L6	273	1.0	5.0	4.30	.79	-1.57	.15	3.74	.29
L7	273	1.0	5.0	3.34	1.13	-.48	.15	-.51	.29
L8	273	1.0	5.0	2.40	1.38	.53	.15	-1.01	.29
L9	273	1.0	5.0	4.03	.89	-1.00	.15	1.09	.29
L10	273	1.0	5.0	2.28	1.22	.55	.15	-.82	.29
L11	273	1.0	5.0	2.37	1.27	.42	.15	-1.01	.29
L12	273	1.0	5.0	3.91	1.03	-1.07	.15	.95	.29
L13	273	1.0	5.0	3.89	.89	-.73	.15	.57	.29
L14	273	1.0	5.0	2.64	1.21	.17	.15	-1.03	.29
L15	273	1.0	5.0	2.93	1.18	-.09	.15	-1.07	.29
L16	273	1.0	5.0	3.22	1.13	-.41	.15	-.67	.29
L17	273	1.0	5.0	3.43	1.09	-.56	.15	-.45	.29
L18	273	1.0	5.0	2.80	1.19	-.06	.15	-1.05	.29
L19	273	1.0	5.0	3.40	1.08	-.66	.15	-.08	.29
L20	273	1.0	5.0	3.10	1.02	-.47	.15	-.39	.29
R21	273	1.0	5.0	3.52	1.15	-.68	.15	-.25	.29
R22	273	1.0	5.0	3.31	.89	-.25	.15	.16	.29
R23	273	1.0	5.0	3.93	1.09	-.93	.15	.23	.29
R24	273	1.0	5.0	2.97	1.32	.15	.15	-1.13	.29
R25	273	1.0	5.0	3.79	.86	-.79	.15	.92	.29
R26	273	1.0	5.0	4.45	.74	-1.49	.15	2.96	.29
R27	273	1.0	5.0	3.46	1.06	-.42	.15	-.51	.29
R28	273	1.0	5.0	2.96	.93	.24	.15	.34	.29
R29	273	1.0	5.0	2.17	1.27	.91	.15	-.28	.29
R30	273	1.0	5.0	2.75	1.12	.08	.15	-.46	.29
F31	273	1.0	5.0	2.75	1.32	.08	.15	-1.29	.29
F32	273	1.0	5.0	2.90	1.37	.02	.15	-1.31	.29
F33	273	1.0	5.0	2.56	1.26	.36	.15	-1.06	.29
F34	273	1.0	5.0	2.19	1.29	.83	.15	-.53	.29
F35	273	1.0	5.0	2.31	1.19	.60	.15	-.68	.29
F36	273	1.0	5.0	2.28	1.26	.74	.15	-.58	.29
F37	273	1.0	5.0	2.83	1.29	-.03	.15	-1.24	.29
F38	273	1.0	5.0	1.75	1.02	1.52	.15	1.81	.29
F39	273	1.0	5.0	2.08	1.19	.89	.15	-.33	.29
F40	273	1.0	5.0	2.34	1.27	.57	.15	-.93	.29
F41	273	1.0	5.0	1.93	1.07	1.15	.15	.68	.29
F42	273	1.0	5.0	2.45	1.34	.44	.15	-1.19	.29
F43	273	1.0	5.0	1.99	1.13	1.04	.15	.19	.29
F44	273	1.0	5.0	2.03	1.16	.95	.15	-.09	.29
F45	273	1.0	5.0	2.18	1.25	.82	.15	-.52	.29
F46	273	1.0	5.0	2.30	1.27	.58	.15	-.94	.29
F47	273	1.0	5.0	1.73	.97	1.72	.15	3.00	.29
F48	273	1.0	5.0	2.02	1.21	1.02	.15	-.07	.29
F49	273	1.0	5.0	2.12	1.23	.89	.15	-.43	.29
F50	273	1.0	5.0	1.73	1.04	1.51	.15	1.63	.29
F51	273	1.0	5.0	1.86	1.02	1.28	.15	1.19	.29
F52	273	1.0	5.0	1.89	1.11	1.28	.15	.84	.29
F53	273	1.0	5.0	1.98	1.19	.96	.15	-.36	.29
F54	273	1.0	5.0	1.79	1.01	1.46	.15	1.79	.29
S55	129	1.0	5.0	3.28	1.28	-.63	.21	-.75	.42
S56	129	1.0	5.0	2.71	1.18	-.04	.21	-1.10	.42
S57	129	1.0	5.0	3.23	1.03	-.48	.21	-.49	.42
S58	129	1.0	5.0	3.37	1.00	-.47	.21	-.18	.42
S59	129	1.0	5.0	3.21	1.22	-.38	.21	-.87	.42

APPENDIX K

Correlation Matrix for MROS Constructs and MSCS Constructs

		MSCS-SOCSS	MSCS-COMPSS	MSCS-AFFSS	MSCS-ACADSS	MSCS-FAMSS	MSCS-PHYSSS	MSCS-TOTALSS	MROS-SUCCESS	MROS-FAILURE	MROS-SOCIAL EFFECTS	MROS-READ. ABIL.	MROS-WILL TO ENHANCE	MROS-RXN TO SCHOOL	MROS-TASPED
MSCS-SOCSS	Pearson Correlation	1.00	.633**	.619**	.433**	.352**	.571**	.756**	.100	-.037	-.083	.138*	-.129*	-.142*	.014
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000	.100	.545	.172	.023	.032	.019	.872
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MSCS-COMPSS	Pearson Correlation	.633**	1.00	.699**	.605**	.471**	.555**	.818**	.076	-.004	-.016	.191**	-.012	-.258**	-.047
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000	.208	.950	.790	.002	.843	.000	.600
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MSCS-AFFSS	Pearson Correlation	.619**	.699**	1.00	.560**	.569**	.701**	.888**	.066	-.039	-.035	.147*	-.128*	-.199**	-.026
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000	.277	.523	.566	.015	.034	.001	.766
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MSCS-ACADSS	Pearson Correlation	.433**	.605**	.560**	1.00	.448**	.425**	.720**	.136*	-.010	-.065	.402**	-.026	-.369**	-.157
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000	.024	.868	.283	.000	.671	.000	.075
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MSCS-FAMSS	Pearson Correlation	.352**	.471**	.569**	.448**	1.00	.398**	.717**	.149*	-.123*	-.129*	.212*	.017	-.310*	-.008
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000	.014	.043	.033	.000	.778	.000	.932
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MSCS-PHYSSS	Pearson Correlation	.571**	.555**	.701**	.425**	.398**	1.00	.776**	.062	-.076	-.021	.137*	-.081	-.080	.105
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000	.309	.209	.730	.024	.182	.188	.235
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MSCS-TOTALSS	Pearson Correlation	.756**	.818**	.888**	.720**	.717**	.776**	1.00	.130*	-.063	-.071	.251**	-.072	-.282**	-.008
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.	.032	.301	.244	.000	.239	.000	.931
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MROS-SUCCESS	Pearson Correlation	.100	.076	.066	.136*	.149*	.062	.130*	1.00	.363**	.141*	.157**	.195**	-.128*	.032
	Sig. (2-tailed)	.100	.208	.277	.024	.014	.309	.032	.	.000	.019	.010	.001	.035	.716
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MROS-FAILURE	Pearson Correlation	-.037	-.004	-.039	-.010	-.123*	-.076	-.063	.363**	1.00	.464**	-.042	.138*	.073	.103
	Sig. (2-tailed)	.545	.950	.523	.868	.043	.209	.301	.000	.	.000	.486	.022	.228	.245
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129

		MSCS-SOCSS	MSCS-COMPSS	MSCS-AFFSS	MSCS-ACADSS	MSCS-FAMSS	MSCS-PHYSSS	MSCS-TOTALSS	MROS-SUCCESS	MROS-FAILURE	MROS-SOCIAL EFFECTS	MROS-READ. ABIL.	MROS-WILL TO ENHANCE	MROS-RXN TO SCHOOL	MROS-TASPED
MROS-SOCIAL EFFECTS	Pearson Correlation	-.083	-.016	-.035	-.065	-.129*	-.021	-.071	.141*	.464**	1.00	-.109	.128*	.170**	.220*
	Sig. (2-tailed)	.172	.790	.566	.283	.033	.730	.244	.019	.000	.	.073	.035	.005	.012
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MROS-READING ABILITY	Pearson Correlation	.138*	.191**	.147*	.402**	.212**	.137*	.251**	.157**	-.042	-.109	1.00	-.147*	-.654**	-.272**
	Sig. (2-tailed)	.023	.002	.015	.000	.000	.024	.000	.010	.486	.073	.	.015	.000	.002
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MROS-WILL TO ENHANCE	Pearson Correlation	-.129*	-.012	-.128*	-.026	.017	-.081	-.072	.195**	.138*	.128*	-.147*	1.00	.201**	.342**
	Sig. (2-tailed)	.032	.843	.034	.671	.778	.182	.239	.001	.022	.035	.015	.	.001	.000
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
MROS-RXN TO SCHOOL	Pearson Correlation	-.142*	-.258**	-.199**	-.369**	-.310**	-.080	-.282**	-.128*	.073	.170**	-.654**	.201**	1.00	.491**
	Sig. (2-tailed)	.019	.000	.001	.000	.000	.188	.000	.035	.228	.005	.000	.001	.	.000
	N	273	273	273	273	273	273	273	273	273	273	273	273	273	129
TASPED	Pearson Correlation	.014	-.047	-.026	-.157	-.008	.105	-.008	.032	.103	.220*	-.272**	.342**	.491**	1.00
	Sig. (2-tailed)	.872	.600	.766	.075	.932	.235	.931	.716	.245	.012	.002	.000	.000	.
	N	129	129	129	129	129	129	129	129	129	129	129	129	129	129

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Ball, E. W., & Blachman, B. A. (1991). Does phoneme awareness training in kindergarten make a difference in early word recognition and developmental spelling? Reading Research Quarterly, 26, 49-66.

Barton, P. & Jenkins, L. (1995). Literacy and dependency: The literacy skills of welfare recipients in the United States. Princeton, NJ: Educational Testing Service.

Beck, I. L., & Juel, C. (1995). The role of decoding in learning to read. American Educator, 19(2), 21-25, 39-42.

Bennett, K. L. (1997, Fall). Emotion and learning for the dyslexic: A few thoughts. NEBODS Newsletter, 1-5.

Bennett, R. E. (1982). The use of grade and age equivalent scores in educational assessment. Diagnostique, 7(3), 139-146

Blachman, B. A. (1987). An alternative classroom reading program for learning disabled and other low-achieving children. In R. Bowler (Ed.), Intimacy with language: A forgotten basic in teacher education (pp. 49-55). Baltimore: Orton Dyslexia Society.

Blachman, B. A. (1996). Preventing early reading failure. In S. C. Cramer & W. Ellis (Eds.), Learning disabilities: Lifelong issues (pp. 65-70). Baltimore: Paul H. Brookes Publishing Co.

Blachman, B. A. (1997). Early intervention and phonological awareness: A cautionary tale. In B. A. Blachman (Ed.), Foundations of reading acquisition and dyslexia: Implications for early intervention (pp. 409-430). Mahwah, NJ: Lawrence Erlbaum Associates.

Blalock, J. W. (1981). Persistent problems and concerns of young adults with learning disabilities. In W. M. Cruickshank & A. A. Silver (Eds.), Bridges to tomorrow: The best of ACDL (pp. 35-55). Syracuse, NY: Syracuse University Press.

Bracken, B. A. (1992). Multidimensional Self Concept Scale. Austin, TX: Pro-Ed.

Bracken, B. A. (1996). Clinical applications of a context-dependent, multidimensional model of self-concept. In B. A. Bracken (Ed.), Handbook of self-concept: Developmental, social, and clinical considerations (pp. 463-504). New York: John Wiley & Sons, Inc.

Brady, S. A., Fowler, A., Stone, B., & Winbury, N. (1994). Training phonological awareness: An inner- city intervention project. Annals of Dyslexia, 44, 26-59.

Brier, N. (1989). The relationship between learning disabilities and delinquency: A review and reappraisal. Journal of Learning Disabilities, 22, 546-553.

Broder, P. K., Dunivant, N., Smith, E. C., & Sutton, L. P. (1981). Further observations on the link between learning disabilities and juvenile delinquency. Journal of Educational Psychology, 73(6), 838-850.

Brown, J. (1991). A personalized reading approach for at-risk middle school students. Paper presented at the Annual (36th) Meeting of the International Reading Association, Las Vegas, NV.

Bruck, M. (1987). The adult outcomes of children with learning disabilities. Annals of Dyslexia, 37, 252-263.

Bruck, M. (1990). Word-recognition skills of adults with childhood diagnoses of dyslexia. Developmental Psychology, 26(3), 439-454.

Bruck, M. (1992). Persistence of dyslexics' phonological awareness deficits. Developmental Psychology, 28, 874-886.

Buck, M. J., Warr-Leeper, G. A., & Evans, B. (1988). A home tutoring program designed to improve reading skills and self-esteem of poor readers. Reading Improvement, 25(3), 202-213.

Buehl, D. (1998). Integrating the "R" word into the high school curriculum: Developing reading programs for adolescent learners. NASSP Bulletin, 82, 57-66.

Buka, S. (1999, November). Learning disabled children grow up: Natural history from birth through adulthood. Paper presented at the meeting of the International Dyslexia Association, Chicago, IL.

Byrne, B., & Fielding-Barnsley, R. (1991). Evaluation of a program to teach phonemic awareness to young children. Journal of Educational Psychology, 83(4), 451-455.

Byrne, B., & Fielding-Barnsley, R. (1995). Evaluation of a program to teach phonemic awareness to young children: A 2- and 3-year follow-up and a new preschool trial. Journal of Educational Psychology, 87(3), 488-503.

Byrne, B. M. (1984). The general/academic self-concept nomological network: A review of construct validation research. Review of Educational Research, 54, 427-456.

Byrne, B. M. (1988). Measuring adolescent self-concept: Factorial validity and equivalency of the SDQ III across gender. Multivariate Behavioral Research, 23, 361-375.

Byrne, B. M. (1996). Academic self-concept: Its structure, measurement, and relation to academic achievement. In B. A. Bracken (Ed.), Handbook of self-concept: Developmental, social, and clinical considerations (pp. 287-316). New York: John Wiley & Sons, Inc.

Byrne, B. M., & Shavelson, R. J. (1986). On the structure of adolescent self-concept. Journal of Educational Psychology, 78(6), 474-481.

Carver, R. P. & Clark, S. W. (1998). Investigating reading disabilities using the rauding diagnostic system. Journal of Learning Disabilities, 31, 453-471 & 481.

Castle, M. (1994). Promoting the disabled reader's self-esteem. Reading and Writing Quarterly: Overcoming Learning Difficulties, 10, 159-170.

Chall, J. S., Jacobs, V., & Baldwin, L. (1990). The reading crisis: Why poor children fall behind. Cambridge, MA: Harvard University Press.

Chapman, J. W., Tunmer, W. E., & Prochnow, J. E. (2000). Early reading-related skills and performance, reading self-concept, and the development of academic self-concept: A longitudinal study. Journal of Educational Psychology, 92(4), 703-708.

Clark, D. B., & Uhry, J. K. (1995). Dyslexia: Theory and practice of remedial instruction-Second Edition. Baltimore: York Press.

Clay, M. M. (1979). Reading: The patterning of complex behavior. Portsmouth, NH: Heinemann.

Cohen, J. (1977). Statistical Power Analysis for the Behavioral Sciences (Revised Ed.). New York: Academic Press.

Cook, C. (1988). Self-concept and the disabled reader: An annotated bibliography (Report No. CS 009284). South Bend, IN: Indiana University at South Bend. (ERIC Document Reproduction Service No. ED 298 440)

Crain, R. M., & Bracken, B. A. (1994). Age, race, and gender differences in child and adolescent self-concept: Evidence from a behavioral-acquisition, context-dependent model. School Psychology Review, 23(3), 496-511.

Crawford, D. (1996). Review of research on learning disabilities and juvenile delinquency. In S. C. Cramer & W. Ellis (Eds.), Learning disabilities: Lifelong issues (pp. 203-210). Baltimore: Paul H. Brookes Publishing Co.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16, 297-334.

Cunningham, P. M. (1998). The multisyllabic word dilemma: Helping students build meaning, spell, and read "big" words. Reading and Writing Quarterly, 14, 189-218.

Demo, D. H., & Savin-Williams, R. C. (1992). Self-concept stability and change during adolescence. In R. P. Lipka & T. M. Brinthaupt (Eds.), Self-perspectives across the life span (pp. 116-148). Albany, NY: State University of New York Press.

DeVellis, R. (1991). Scale development: Theory and applications. Newbury Park, CA: Sage Publications.

Dusek, J. B. (1978). The development of the self-concept in adolescence. (Report No. R01-HD-9094). Syracuse: NY: U. S. Department of Health, Education, and Welfare. (ERIC Document Reproduction Service No. ED 189 484)

Eggleston, C. R. (1996). The justice system. In S. C. Cramer & W. Ellis (Eds.), Learning disabilities: Lifelong issues (pp. 197-201). Baltimore: Paul H. Brookes Publishing Company.

Ehri, L., & McCormick, S. (1998). Phases of word learning: Implications for instruction with delayed and disabled readers. Reading and Writing Quarterly, 14, 135-163.

Ellis, W., & Cramer, S. C. (1996). Introduction. In S. C. Cramer & W. Ellis (Eds.), Learning disabilities: Lifelong issues (pp. xxvi-xxxi). Baltimore: Paul H. Brookes Publishing Company.

Fava, J. L., Velicer, W. F., & Rossi, J. S. (1996, March). Procedures for developing quality measures: Part II. Seminar conducted at the Fourth International Congress of Behavioral Medicine, Washington, DC.

Felton, R. H., Naylor, C. E., & Wood, F. B. (1990). Neuropsychological profile of adult dyslexics. Brain and Language, 39, 485-497.

Fletcher, J. M., Morris, R., Lyon, G. R., Stuebing, K. K., Shaywitz, S. E., Shankweiler, D., Katz, L., & Shaywitz, B. A. (1997). In B. Blachman (Ed.), Foundations of reading acquisition and dyslexia: Implications for early intervention (pp. 95-114). Mahwah, NJ: Lawrence Erlbaum Associates.

Fletcher, J. M., Shaywitz, S. E., Shankweiler, D. P., Katz, L., Liberman, I. Y., Stuebing, K. K., Francis, D. J., Fowler, A. E., & Shaywitz, B. A. (1994). Cognitive profiles of reading disability: Comparisons of discrepancy and low achievement definitions. Journal of Educational Psychology, 86(1), 6-23.

Foorman, B. R., Francis, D. J., Fletcher, J. M., Schatschneider, C., & Mehta, P. (1998). The role of instruction in learning to read: Preventing reading failure in at-risk children. Journal of Educational Psychology, 90(1), 37-55.

Foorman, B. R., Francis, D. J., Shaywitz, S. E., Shaywitz, B. A., & Fletcher, J. M. (1997). The case for early reading intervention. In B. Blachman (Ed.), Foundations of reading acquisition and dyslexia: Implications for early intervention (pp. 243-264). Mahwah, NJ: Lawrence Erlbaum Associates.

Fowler, A. E., & Scarborough, H. S. (1993). Should reading- disabled adults be distinguished from other adults seeking literacy instruction: A review of theory and research. Technical Report TR93-7. Philadelphia: National Center on Adult Literacy.

Gallagher, A. M., Laxon, V., Armstrong, E., & Frith, U. (1996). Phonological difficulties in high-functioning dyslexics. Reading and Writing: An Interdisciplinary Journal, 8, 499-509.

Gambrell, L. B., Palmer, B. M., Codling, R. M., & Mazzoni, S. A. (1996). Assessing motivation to read. The Reading Teacher, 49(7), 518-533.

Gerber, P. J., & Reiff, H. B. (1992). Speaking for themselves: Ethnographic interviews with adults with learning disabilities. Ann Arbor, MI: University of Michigan Press.

Gleitman, L. R., & Rozin, P. (1977). The structure and acquisition of reading I: Relations between orthographies and the structure of language. In A. S. Reber and D. L. Scarborough, Toward a Psychology of Reading: The proceedings of the CUNY Conference (pp. 1-53), Hillsdale, NJ: Lawrence Erlbaum Associates.

Gough, P., & Tunmer, W. (1986). Decoding, reading and reading disability. Remedial and Special Education, 7, 6-10.

Greenberg, D., Ehri, L. C., & Perin, D. (1997). Are word- reading processes the same or different in adult literacy students and third- graders matched for reading level? Journal of Educational Psychology, 89, 262-275.

Greene, J. F. (1998). Another chance: Help for older poor students with limited literacy. American Educator, 22, 74-79.

Gregg, N. (1996). Research directions leading toward inclusion, diversity, and leadership in the global economy. In Shirley C. Cramer & William Ellis (Eds.), Learning disabilities: Lifelong issues (pp. 121-133). Baltimore: Paul H. Brookes Publishing Co.

Gross-Glenn, K., Jallad, B., Novoa, L., Helgren- Lempesis, V., & Lubs, H. A. (1990). Nonsense passage reading as a diagnostic aid in the study of adult familial dyslexia. Reading and Writing: An Interdisciplinary Journal, 2, 161-173.

Haenggi, D., & Perfetti, C. A. (1992). Individual differences in reprocessing of text. Journal of Educational Psychology, 84(2), 182-192.

Harter, S. (1985). Competence as dimensions of self-evaluation: Toward a comprehensive model of self-worth. In R. L. Leahy (Ed.), The development of self (pp. 55-122). New York: Academic Press.

Harter, S. (1990a). Processes underlying adolescent self-concept formation. In R. Montemayor, G. R. Adams, & T. P. Gullotta (Eds.), From childhood to adolescence: A transitional period? (pp.205-239). Newbury Park, CA: Sage Publications, Inc.

Harter, S. (1990b). Issues in the assessment of the self- concept of children and adolescents. In A. M. LaGreca (Ed.), Through the eyes of the child (pp. 292-325). Boston: Allyn & Bacon.

Harter, S. (1996). Historical roots of contemporary issues involving self-concept. In B. A. Bracken (Ed.), Handbook of self-concept: Developmental, social, and clinical considerations (pp. 1-37). New York: John Wiley & Sons, Inc.

Hayden, L. (1991). A longitudinal look at learning disability, school failure, and antisocial behavior. Unpublished master's thesis, University of Rhode Island, Kingston.

Henk, W. A., & Melnick, S. A. (1995). The reader self- perception scale (RSPS): A new tool for measuring how children feel about themselves as readers. The Reading Teacher, 48(6), 470-482.

Henry, M. (1988). Beyond phonics: Integrated decoding and spelling instruction based on word origin and structure. Annals of Dyslexia, 38, 258-275.

Heumann, J. E. (1996). Shaping public policy. In S. C. Cramer & W. Ellis (Eds.), Learning disabilities: Lifelong issues (pp. 191-196). Baltimore: Paul H. Brookes Publishing Co.

Hoover, W., & Gough, P. (1990). The simple view of reading. Reading and Writing: An Interdisciplinary Journal, 2, 127-160.

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. Journal of Educational Psychology, 80, 437-447.

Kaiser, H. F. (1958). The varimax criterion for analytic rotation in factor analysis. Psychometrika, 23, 187-200.

Kavale, K. A., & Forness, S. R. (1996). Social skill deficits and learning disabilities: A meta-analysis. Journal of Learning Disabilities, 29(3), 226-237.

Kavale, K. A., Nye, C. (1985-86). Parameters of learning disabilities in achievement, linguistic, neuropsychological, and social/behavioral domains. The Journal of Special Education, 19(4), 443-458.

Keilitz, I., & Dunivant, N. (1986). The relationship between learning disability and juvenile delinquency: Current state of knowledge. Remedial and Special Education, 7(3), 18-26.

Keith, L. K. & Bracken, B. A. (1996). Self-concept instrumentation: A historical and evaluative review. In B. A. Bracken (Ed.), Handbook of self-concept: Developmental, social, and clinical considerations (pp. 91-170). New York: John Wiley & Sons, Inc.

Kidder, S. L. (1998). A review of the current literature regarding global self-esteem and specific self-esteem in adolescent development. Unpublished doctoral dissertation, Biola University, California.

Kirsch, I. S., Jungeblut, A., Jenkins, L., & Kilstad, A. (1993). Adult literacy in America: A first look at the results of the National Adult Literacy Survey. Washington,

DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Knell, S. (1996-1997). Learn to earn: Issues raised by welfare reform for adult education, training and work. Washington, DC: National Institute for Literacy.

Kozol, J. (1991). Savage inequalities: Children in America's schools. New York: Crown.

Lautenschlager, G. J. (1989). A comparison of alternatives to conducting Monte Carlo analyses for determining parallel analysis criteria. Multivariate Behavioral Research, 24(3), 365-395.

Learning First Alliance. (1998, Summer). Every child reading: An action plan of the Learning First Alliance. Washington, DC.

Lesgold, A. M., & Resnick, L. B. (1982). How reading disabilities develop: Perspectives from a longitudinal study. In J. P. Das, R. Mulcahy, & A. E. Wall (Eds.), Theory and research in learning disability. New York: Plenum.

Levine, P., & Edgar, E. (1995). An analysis by gender of long-term postschool outcomes for youth with and without disabilities. Exceptional Children, 61, 282-300.

Levine, P. & Nourse, S. W. (1998). What follow-up studies say about postschool life for young men and women with learning disabilities: A critical look at the literature. Journal of Learning Disabilities, 31(3), 212-233.

Liberman, I. Y., & Shankweiler, D. (1985). Phonology and the problems of learning to read and write. Remedial and Special Education, 6, 8-17.

Lie, A. (1991). Effects of a training program for stimulating skills in word analysis in first grade children. Reading Research Quarterly, 26(3), 234-250.

Lipka, R. P., & Brinthaupt, T. M. (Eds.) (1992). Self-perspectives across the life span. Albany, NY: State University of New York Press.

Lundberg, I. (1984, August). Learning to read. School Research Newsletter: Sweden: National Board of Education.

Lundberg, I., Frost, J., & Petersen, O. (1988). Effects of an extensive program for stimulating phonological awareness in preschool children. Reading Research Quarterly, 23, 264-284.

Lyon, G. R. (1995a).Toward a definition of dyslexia. Annals of Dyslexia, 45, 3-27.

Lyon, G. R. (1995b). Research initiatives and discoveries in learning disabilities: Contributions from scientists supported by the National Institute of Child Health and Human Development. Journal of Child Neurology, 10(Suppl. 1), S120-S126.

Malmgren, K., Abbott, R. D., & Hawkins, J. D. (1999). LD and delinquency: Rethinking the "Link". Journal of Learning Disabilities, 32(3), 194-200.

Marsh, H. W., & Hattie, J. (1996). Theoretical perspectives on the structure of self-concept. In B. A. Bracken (Ed.), Handbook of self-concept: Developmental, social, and clinical considerations (pp. 38-90). New York: John Wiley & Sons, Inc.

Marsh, H. W., & Shavelson, R. J. (1985). Self-concept: Its multifaceted, hierarchical structure. Educational Psychologist, 20, 107-123.

McGee, T. P. (1996). Reducing school failure and preventing criminal behavior. In S. C. Cramer & W. Ellis (Eds.), Learning disabilities: Lifelong issues (pp. 229-234). Baltimore: Paul H. Brookes Publishing Co.

McKenna, M. C., & Kear, D. J. (1990). Measuring attitude toward reading: A new tool for teachers. The Reading Teacher, 43, 626-639.

Moats, L. C. (1995). The missing foundation in teacher education. American Educator, 19(2), 9 & 43-51.

Moats, L. C. (1998a). Reading, spelling and writing disabilities in the middle grades. In B. Wong (Ed.), Learning about learning disabilities. San Diego: Academic Press.

Moats, L. C. (1998b). Teaching decoding. American Educator, 22, 42-51 & 95.

Mullins, I. V. S., & Jenkins, L. B. (1990). The reading report card, 1971-88: Trends from the nations report card. Washington, DC: U.S. Department of Education.

Murray, C. A. (1976). The link between learning disabilities and juvenile delinquency: Current theory and knowledge. Washington, DC: U.S. Government Printing Office.

Muter, V., & Snowling, M. (1998). Concurrent and longitudinal predictors of reading: The role of metalinguistic and short- term memory skills. Reading Research Quarterly, 33, 320-327.

Nagy, W. E., & Anderson, R. C. (1984). How many words are there in printed school English? Reading Research Quarterly, 19, 304-330.

National Commission on Excellence in Education. (1983). A nation at risk: The imperative for educational reform. Washington, DC: U.S. Government Printing Office.

National Institute for Literacy. (1998). Helping equip America for the future. Washington, DC: U.S. Government Printing Office.

Nicholson, T. (1997). Closing the gap on reading failure: Social background, phonemic awareness, and learning to read. In B. Blachman (Ed.), Foundations of reading acquisition and dyslexia: Implications for early intervention (pp. 381-407). Mahwah, NJ: Lawrence Erlbaum Associates.

Pennington, B. F., Van Orden, G. C., Smith, S. D., Green, P. A., & Haith, M. M. (1990). Phonological processing skills and deficits in adult dyslexics. Child Development, 91, 1753-1758.

Perfetti, C. A., & Roth, S. (1981). Some of the interactive processes in reading and their role in reading skill. In A. M. Lesgold & Perfetti, Interactive Processes in Reading. Hillsdale, NJ: Lawrence Erlbaum Associates.

Pratt, A. C., & Brady, S. (1988). Relation of phonological awareness to reading disability in children and adults. Journal of Educational Psychology, 80, 319-323.

Rack, J. P., Snowling, M. J., & Olson, R. K. (1992). The nonword reading deficit in developmental dyslexia: A review. Reading Research Quarterly, 27, 29-53.

Read, C. & Ruyter, L. (1985). Reading and spelling skills in adults of low literacy. Remedial and Special Education, 6, 43-52.

Reder, S.M. (1995, March). National overview of the impact of learning disabilities on literacy, educational attainments, employment, and income level. In S.

Vogel & S. Reder (Co-chairs), Literacy and learning disabilities. Symposium conducted at the meeting of the Third International Conference of the Learning Disabilities Association of America, Orlando, FL.

Revicki, D. A. (1981). The relationship between self-concept and achievement: An investigation of reciprocal effects. Dissertation Abstracts International, 42(6), 2484A.

Robertson, K. (1997). Phonological awareness and reading achievement in children from differing socio- economic status backgrounds. Unpublished doctoral dissertation, University of Rhode Island, Kingston.

Rodriquez-Sutil, C., Calonge, I., & Scott, R. (1992). Academic learning problems and Rorschach indices: A Spanish replication. Perceptual and Motor Skills, 74, 771-778.

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Rutter, M., & Yule, W. (1975). The concept of specific reading retardation. Journal of Child Psychology and Psychiatry, 16, 181-197.

Scarborough, H. S. (1984). Continuity between childhood dyslexia and adult reading. British Journal of Psychology, 75, 329-348.

Scarborough, H. S. (1998). Early identification of children at risk for reading disabilities: Phonological awareness and some other promising predictors. In B. K. Shapiro, P. J. Accardo, & A. J. Capute (Eds.), Specific Reading Disability: A View of the Spectrum. Timonium, MD: York Press.

Schneider, W., Kuspert, P., Roth, E., Vise, M., & Marx, H. (1997). Short- and long-term effects of training phonological awareness in kindergarten: Evidence from two German studies. Journal of Experimental Child Psychology, 66, 311-340.

Shafrir, U. & Siegel, L. S. (1994). Subtypes of learning disabilities in adolescents and adults. Journal of Learning Disabilities, 27, 123-134.

Shankweiler, D. (1989). How problems of comprehension are related to difficulties in decoding. In D. Shankweiler & I. Liberman (Eds.), Phonology and Reading Disability: Solving the Reading Puzzle. Ann Arbor, MI: The University of Michigan Press.

Shankweiler, D., Lundquist, E., Dreyer, L., & Dickinson, C. (1996). Reading and spelling difficulties in high school students: Causes and consequences. Reading and Writing: An Interdisciplinary Journal, 8, 267-294.

Share, D., & Stanovich, K. (1995). Cognitive processes in early reading development: Accommodating individual differences into a model of acquisition. Issues in Education: Contributions from Educational Psychology, 1, 1-57.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Review of construct interpretations. Review of Educational Research, 46, 407-441.

Shaywitz, S. E., Escobar, M. D., Shaywitz, B. A., Fletcher, J. M., & Makuch, R. (1992). Evidence that dyslexia may represent the lower tail of a normal distribution. New England Journal of Medicine, 326, 145-150.

Shirk, S. R., & Renouf, A. G. (1992). The tasks of self-development in middle childhood and early adolescence. In R. P. Lipka & T. M. Brinthaupt (Eds.), Self-perspectives across the life span. Albany, NY: State University of New York Press.

Siegel, L. S. (1999). Issues in the definition and diagnosis of learning disabilities: A perspective on Guckenberger v. Boston University. Journal of Learning Disabilities, 32(4), 304-319.

Smith, N. K. (1991). Self-concept in college students with learning disabilities. Unpublished doctoral dissertation, Northwestern University, Chicago.

Snider, V. (1995). A primer on phonemic awareness: What it is, why it's important, and how to teach it. School Psychology Review, 24, 443-455.

Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). Preventing reading difficulties in young children. Washington, DC: National Academy Press.

Stahl, S. A., & Fairbanks, M. M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. Review of Educational Research, 56(1), 72-110.

Stahl, S. A., Jacobson, M. G., Davis, C. E., & Davis, R. L. (1989). Prior knowledge and difficult vocabulary in the comprehension of unfamiliar text. Reading Research Quarterly, 24(1), 27-43.

Stanovich, K. E. (1982). Individual differences in the cognitive processes of reading: II. Text-level processes. Journal of Learning Disabilities, 15, 549-554.

Stanovich, K. E. (1984). The interactive- compensatory model of reading: A confluence of developmental, experimental, and educational psychology. Remedial and Special Education, 5, 11-19.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. Reading Research Quarterly, 21, 360-406.

Stanovich, K. E. (1988). Explaining the differences between the dyslexic and the garden-variety poor reader: The phonological-core variable-difference model. Journal of Learning Disabilities, 21, 590-612.

Stanovich, K. E. (1991). Discrepancy definitions of reading disability: Has intelligence led us astray? Reading Research Quarterly, 26(1), 7-29.

Stanovich, K. E. (1999). The sociopsychometrics of learning disabilities. Journal of Learning Disabilities, 32(4), 350-361.

Stanovich, K. E., & Siegel, L. S. (1994). Phenotypic performance profile of children with reading disabilities: A regression-based test of the phonological-core variable-difference model. Journal of Educational Psychology, 86(1), 24-53.

Stedman, L. C., & Kaestle, C. F. (1987). Literacy and reading performance in the United States from 1880 to present. Reading Research Quarterly, 22, 8-46.

Stein, S.G. (1997). Equipped for the future: A reform agenda for adult literacy and lifelong learning. Washington, DC: National Institute for Literacy.

Stone, B., & Brady, S. (1995). Evidence for deficits in basic phonological processes in less-skilled readers. Annals of Dyslexia, 45, 51-78.

Tangel, D. M., & Blachman, B. (1995). Effect of phoneme awareness instruction on the invented spelling of first-grade children: A one-year follow-up. Journal of Reading Behavior, 27, 153-185.

Thai, N.-M. T. (1982). The relationship of reading achievement and the self-concept of Vietnamese Refugee Students. Dissertation Abstracts International, 43(6), 1911A.

Thomson, M. E., & Hartley, G. M. (1980). Self-concept in dyslexic children. Academic Therapy, 16(1), 19-36.

Torgesen, J. K. (1998, Summer). Catch them before they fall. American Educator, 22, 32-41.

Torgesen, J. K., Wagner, R. K., & Rashotte, C. A. (1997). Prevention and remediation of severe reading disabilities: Keeping the end in mind. Scientific Studies of Reading, 1, 217-234.

U.S. Department of Education. National Center for Education Statistics. Literacy of Older Adults in America: Results from the National Adult Literacy Survey, NCES 97-576, by Helen Brown, Robert Prisuta, Bella Jacobs, and Anne Campbell. Washington, DC: 1996.

U.S. Department of Education. Office of Educational Research and Improvement. National Center for Education Statistics. The NAEP 1998 Reading Report Card for the Nation and the States, NCES 1999-500, by Patricia L. Donahue, Kristen E. Voelkl, Jay R. Campbell, & John Mazzeo. Washington, DC:1999.

Velicer, W. (1995, March). Measurement development: Part I: Procedures for developing quality measures. Seminar conducted at the Fourth International Congress of Behavioral Medicine, Washington, DC.

Vogel, S. A. (1996). Employment: A research review and agenda. In S. C. Cramer & W. Ellis (Eds.), Learning disabilities: Lifelong issues (pp. 151-164). Baltimore: Paul H. Brookes Publishing Co.

Wagner, M. (1989). The transition experiences of youth with disabilities: A report from the national longitudinal study. Palo Alto, CA: SRI International.

Wechsler, D. (1991). Manual for the Wechsler Intelligence Scale for Children-Third Edition. San Antonio, TX: The Psychological Corporation.

Westervelt, V. D., Johnson, D. C., Westervelt, M. D., & Murrill, S. (1998). Changes in self- concept and academic skills during a multimodal summer camp program. Annals of Dyslexia, 48, 191-212.

William T. Grant Foundation Commission on Work, Family and Citizenship. (1988). The forgotten half: Non- college youth in America. Washington, DC: Author.

Wong, B. Y. L. (1986). Metacognition and special education: A review of a view. The Journal of Special Education, 20, 9-29.

Woodcock, R. W., & Johnson, M. B. (1989). Woodcock-Johnson Psycho-Educational Battery-Revised. Allen, TX: DLM Teaching Resources.

Wylie, R.C. (1974). The self-concept: A review of methodological considerations and measuring instruments. Lincoln: University of Nebraska Press.

Wylie, R.C. (1989). Measures of self-concept. Lincoln, NE: University of Nebraska Press.

Yopp, H. (1992). Developing phonemic awareness in young children. The Reading Teacher, 45, 696-703.

Young, B. N. (1991). Relationship between self-concept and reading achievement level of reading disabled children having an average level of intelligence (Report No. EC304882). TN: (ERIC Document Reproduction Service No. ED 396 500)