Literacy self-efficacy and achievement of secondary students with disabilities

Mary Mau Runnells

College of William & Mary - School of Education

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LITERACY SELF-EFFICACY AND ACHIEVEMENT OF SECONDARY STUDENTS WITH DISABILITIES

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by
Mary Mau Runnells
April 2012
LITERACY SELF-EFFICACY AND ACHIEVEMENT OF SECONDARY STUDENTS WITH DISABILITIES

by

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Dedication

This work is dedicated to the administrators and teachers who have committed their lives to improving education and to ensuring that their students know someone believes in them.

Also, I dedicate this work to Christopher David Mau who lived life to the fullest and who never hesitated to challenge the status quo – his life continues to inspire change in this world.
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I am deeply appreciative of the mentoring, support, and encouragement from my committee members: Dr. Sharon deFur, Dr. Michael DiPaola, and Dr. Bruce Bracken. Special thanks to my advisor, Dr. Brenda Williams, and to all of my professors and colleagues at W&M who inspired the best in me. Dr. Donna Power, Mrs. Mary Dotson, Mrs. Evelyn Perhac, Ms. Deborah Johnson, and Dr. Thomas Manthey have all contributed to my professional growth through their leadership and mentorship.

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Abstract

Adolescent literacy, or adolescents’ ability to read, write, and communicate about the variety of texts they encounter in and out of school, has remained inordinately, and consistently, low for the past 20 years (NCES, 2010). Self-efficacy is a widely-used construct for measuring and predicting student achievement (Pajares, Johnson, & Usher, 2007; Phan, 2011; Schunk & Zimmerman, 2007). A differential level of literacy achievement is noted between certain student subgroups including students with and without disabilities (NCES, 2010). Students with disabilities are also included within other student subgroups that persistently underperform on literacy assessments (NCES, 2010) compounding school districts efforts to achieve Adequate Yearly Progress benchmarks set by the federal government (NCLB, 2001). Presently, a large portion of high school graduates do not meet entry-level literacy requirements for post-graduate employment nor are they prepared for the literacy demands of college (Mikulecky, Smith-Burke, Beatty, 2009; NGA, 2010). Participants in this study include a diverse group of adolescents in seventh, eighth, and ninth grade attending one middle school and one high school in an urban, public school in one mid-Atlantic state. Results of this study support the emergent research area of developmental processes and instructional methods; in particular, this research supports educators’ explicit instruction of strategic learning, self-regulation, and application of metacognitive strategies. Implications for practitioners, instructional leaders, and future research are suggested.
LITERACY SELF-EFFICACY AND
ACHIEVEMENT OF SECONDARY STUDENTS WITH DISABILITIES
Chapter 1

Self-efficacy, or the belief one holds about his/her ability to be successful at a given task (Bandura, 1977), is a widely used construct that explains and predicts student learning and academic achievement (Mucherah & Yoder, 2008; Pajares, Johnson, & Usher, 2007; Phan, 2011). Self-efficacy is not a global construct and therefore measurement of efficacy must be task-specific (Bandura, 2006; Schunk & Meece, 2006). For the purposes of this study, adolescent literacy self-efficacy is defined as the belief that students hold about their skills and abilities that allow them to be successful in reading, writing, thinking, and communicating about the variety of texts they encounter and which prepare them to be lifelong learners (deFur & Runnells, 2010). The Adolescent Literacy and Academic Behavior (ALAB) survey was designed specifically to measure facets of adolescent literacy self-efficacy with the hope that this information would be useful in guiding teachers as they plan and implement instructional strategies that increase student engagement (Learning Point Associates, 2005). Developers of the ALAB also designed the instrument to be used by administrators as one method of data collection within a system of data triangulation for assessing student progress (Sanders & Sullins, 2006). Data collected with the ALAB includes not only student perceptions of the structural tasks of reading and writing, but also perceptions of the processes required to synthesize and apply what has been learned to different situations. Providing students the opportunity for their voices to be heard is identified as one way of improving student outcomes (deFur & Korinek, 2010). Finally, linking the process of learning to academic achievement assessments is an emerging and important area in developmental educational research (Dinsmore, Alexander, & Loughlin, 2008; Schunk, 2008).

Improving adolescent literacy is regarded as a top educational priority due to persistently low levels of achievement across time (National Governors Association Center for Best Practices...
[NGA], 2010; Southern Regional Education Board [SREB], 2009). Federal accountability requirements reveal low literacy achievement for all students in addition to a differential level of achievement between students with and without disabilities (Common Core of State Standards [CCSS], 2010; Individuals with Disabilities Education Act [IDEA], 2004; No Child Left Behind [NCLB], 2001; United States Department of Education [USDOE], 2010). Persistently low reading and writing scores in adolescents beckon further investigation into methods for improving instructional practices (Leibbrand & Watson, 2010; Marat, 2005). Evaluating a students' sense of efficacy is a valid method for measuring and predicting student achievement within a specific domain (Mucherah & Yoder, 2008; Pajares, Johnson, & Usher, 2007; Phan, 2011). Measuring perceptions of domain specific efficacy, literacy efficacy for example, in concert with academic achievement in the domain increases the explanatory and predictive power of the research results (Mucherah & Yoder, 2008; Pajares, 2006; Phan, 2011). Adolescent literacy is defined as having the skills and abilities that allow students to be successful in reading, writing, thinking, and communicating about the variety of texts they encounter and that prepare them to be lifelong learners (Colombo, 2008; Hedley, Antonacci, & Rabinowitz, 1995; Jetton & Dole, 2004; National Council of Teachers of English [NCTE], 2009; Newman, 2002).

Chapter one begins with a brief overview of the research problem. Next, the purpose, significance, and procedures of the study are described. Additionally, the limitations and delimitations of the research are illustrated. Finally, definitions of terms that are unique to this study are offered.
Conceptual Framework

Academic achievement and self-efficacy are inextricably linked (Cantrell & Carter, 2009; Hagenauer & Hascher, 2010; Mucherah & Yoder, 2008). The hypothesis and underlying assumption of the current study is that literacy efficacy can be examined and measured as a construct, when clearly defined, just as reading efficacy (Lau, 2009; Mucherah & Yoder, 2008), math efficacy (Lackaye & Margalit, 2008; Marat, 2005), or science efficacy (Bolshakova, Johnson, Czerniak, 2011; Tsai, Jessie Ho, Jyh-Chong, 2011). Literacy skills and knowledge are fundamental elements of learning in and out of school and involve much more than just the ability to read and to write (Mikulecky, Smith-Burke, & Beatty, 2009; NCTE, 2009; NGA, 2010). Thorough examination and measurement of literacy self-efficacy and literacy achievement of students with disabilities yields information useful to scholars and practitioners as they seek to improve the teaching and learning process. The conceptual model of literacy self-efficacy and academic achievement presented in Figure 1 provides a graphic illustration of

Figure 1. A Conceptual Model of Literacy Self-Efficacy and Academic Achievement
the concomitant association between literacy self-efficacy and literacy achievement, and the effect of both upon overall academic achievement (Carmichael, Callahan, Hay, & Watson, 2010; Phan, 2011).

**Statement of the Problem**

Adolescent literacy, or adolescents' ability to read, write, and communicate about the variety of texts they encounter in and out of school, has remained inordinately, and consistently, low for the past 20 years (NCES, 2010). Furthermore, a differential level of literacy achievement is noted between certain student subgroups including students with and without disabilities (NCES, 2010). Students with disabilities have consistently achieved to a lesser degree when compared to students without disabilities (NCES, 2010). Students with disabilities are also included within other student subgroups that persistently underperform on literacy assessments (NCES, 2010) compounding school districts efforts to achieve Adequate Yearly Progress benchmarks set by the federal government (NCLB, 2001). Presently, a large portion of high school graduates do not meet entry-level literacy requirements for post-graduate employment nor are they prepared for the literacy demands of college (Mikulecky, Smith-Burke, Beatty, 2009; NGA, 2010). The ability to read, write, and communicate effectively are fundamental skills required by employers, for technical training, or for pursuing higher education (Learning Point Associates, 2005; Mikulecky, Smith-Burke, Beatty, 2009; Rissman, Miller, & Torgeson, 2009).

The adolescent period in human development is noted as one in which developing autonomous skills, creating socially related constructions, and building competencies are recognized as foundational developmental needs (Deci & Ryan, 1996; Hagenauer & Hascher, 2010; Yuen et al, 2010). Additionally, specific knowledge, skills, and strategies are identified as fundamental for meaningful engagement with the curriculum (Hattie, 2009; Schunk, 2006).
Students who lack the basic knowledge, skills, and strategies for accessing new information are also not likely to believe they are competent, act autonomously, nor be able to create social relatedness with newly acquired knowledge (Vaughn et al., 2008). Adolescents who lack fundamental knowledge and skills, for example, student subgroups who have consistently underperformed across time, are at a distinct disadvantage when presented with new material (Vaughn et al., 2008). Unmet needs compounded with the biological demands of adolescence result in a decline in learning enjoyment and motivation which impact academic achievement (Hagenauer & Hascher, 2010). Self-efficacy theory provides a model in which adolescent student needs can be examined and supported in the academic environment (Berger & Karabenick, 2011; Lodewyk & Winne, 2005; Pajares, 1996).

**Adolescent Literacy Achievement in the United States**

The National Governors Association Center for Best Practices (2010) emphasized the importance of and need for improving adolescent literacy nationwide citing evidence that 40 percent of high school graduates lack requisite reading and writing skills essential for post-graduation employment success (NGA, 2010). The NGA defines adolescent literacy as “the set of skills and abilities that students need in grades four through twelve to read, write, and think about the text materials they encounter” (NGA, 2010, p.6). Additionally, the NGA noted that 1/3 of high school graduates who enter college require remediation (NGA, 2010). A longitudinal study conducted by the National Assessment of Education Progress, a biennial congressionally authorized project of the National Center for Education Statistics (NCES), categorizes and reports student achievement levels as: (a) Below Basic, (b) Basic, (c) Proficient, and (d) Advanced, using ranges of performance established for each grade (NCES, 2010). For summative purposes, students achieving either Basic or Below Basic proficiency are grouped
and listed as below the proficient level throughout this report. The percent of eighth grade students achieving below the proficient level was 68% in 2009, the same percent as in 1998, and a three-percentage point improvement from 1992 (NCES, 2010). Sixty-two percent of twelfth grade students achieved below the proficient level in 2010 (NCES), demonstrating a two percentage point improvement from twelfth grade students in 1998 (60%) and in 1992 (60%).

**Differential literacy achievement among student subgroups.** Data collected and reported in response to federal accountability requirements reveal low literacy achievement for all students, in addition to a differential level of achievement between certain student subgroups identified in the No Child Left Behind Act of 2001 (CCSS, 2010; IDEA, 2004; NCLB, 2001; USDOE, 2010). Reading achievement gaps between females and males remain relatively unchanged from 1998 through 2008. Seventeen-year old female students achieved, on average, eleven points higher than seventeen-year old male students in 2008. Thirteen-year old female students achieved an average of eight points more than thirteen-year old male students. Twelfth grade and eighth grade students who identified themselves as White or Asian/Pacific Islander averaged significantly higher reading scores than those who identified themselves as Black, Hispanic, or American Indian/Alaskan Native (NCES, 2010). For example, twelfth grade students, by subgroup, who achieved at or above the Proficient level, are as follows: White (46%), Asian/Pacific Islander (49%), Black (17%), Hispanic (22%), and American Indian (29%) (NCES, 2010). Twelfth grade and eighth grade students who identified themselves as students with disabilities or as English Language Learners (ELL) averaged significantly lower scores when compared to students without disabilities and non-ELL students respectively (NCES, 2010). Twelve percent of twelfth grade students with disabilities and two percent of English language learners achieved at or above the proficient level of reading (NCES, 2010). Eight
percent of eighth grade students with disabilities and three percent of students who identified as English language learners achieved at or above the proficient level (NCES, 2010).

These data underscore the importance of developing effective instructional strategies for teaching literacy skills to students with disabilities and English language learners. The sample population for this study provides a large enough participant sample in both groups to explore perceptions of literacy efficacy. These data, then, offer results that add to and augment existing research on students with disabilities and English language learners.

**Students with disabilities’ membership in other NCLB subgroups.** Students with disabilities concomitantly inhabit other subgroups that consistently score lower in high stakes testing, including subgroups of students who are economically disadvantaged, Black, Hispanic, or Limited English Proficient (Office of Special Education Programs [OSEP], 2009). Lashley (2007) illustrates the impact one student can have on a school’s ability to meet Adequate Yearly Progress (AYP). For example, “an African-American male student who has a disability from a family below the poverty level, who also is counted in the whole school subgroup, has a five-fold impact on the school’s progress if he does not meet performance standards” (p. 185). The degree to which educators adequately meet the needs of all students, including students with disabilities, greatly affects the likelihood of meeting the expectations of AYP and achieving AYP status (Lashley, 2007).

**Adolescent Students with Disabilities’ Self-Efficacy**

Research reveals consistently low literacy performance for adolescent students with disabilities (NCES, 2010; OSEP, 2009). Persistent failure is highly correlated with low self-efficacy, reduced effort and hope, and perceptions of loneliness (Lackaye & Margalit, 2008). High levels of efficacy, in contrast, are positively correlated with increased effort, hope, and task
persistence (Bolshakova, Johnson, & Czerniak, 2011; Yuen et al., 2010). Pajares (2006) describes students’ self-efficacy as the belief students’ hold about their ability to succeed at a given task. Perception of one’s own ability to successfully complete a task can result in a self-fulfilling prophecy (Hunter & Csikszentmihalyi, 2003; Schunk & Meece, 2006). Students with disabilities’ longitudinally-documented low performance on reading and writing assessments (NCES, 2010) in concert with research indicating the importance of student self-efficacy to academic performance (Hagenauer & Hascher, 2010; Pajares, Johnson, & Usher, 2007; Phan, 2011) provide the framework upon which this study is based.

**Adolescent Literacy Self-Efficacy**

Perceptions of self-efficacy are task dependent (Bandura, 2006) suggesting assessment within specific domains, such as adolescent literacy, are essential for validly assessing a construct (Pajares, 1996). For the purposes of this study, adolescent literacy self-efficacy is defined as the belief that students hold about their skills and abilities that allow them to be successful in reading, writing, thinking, and communicating about the variety of texts they encounter which prepare them to be lifelong learners (de Fur & Runnells, 2010). A review of the literature on literacy and efficacy revealed a number of instruments useful for collecting data on specific aspects of literacy efficacy but none were developed specifically to measure the construct of *adolescent literacy efficacy* described in the above definition.

The Adolescent Literacy and Academic Behavior (ALAB) survey (de Fur & Runnells, 2010), one of the instruments used in conducting this research, was developed and validated in response to this need. A student’s perception of his or her ability to successfully engage in skills and abilities that facilitate reading, writing, and thinking about the curriculum is highly correlated with academic achievement, motivation, and task focus (Deshler & Hock, 2007;
Schunk, 2003; Schunk and Meece, 2006). Evaluating a students’ sense of efficacy is a valid method for measuring and predicting student achievement (Mucherah & Yoder, 2008; Pajares, Johnson, & Usher, 2007; Phan, 2011) and is consistent with the National Governors Association’s (NGA, 2010) and Southern Regional Education Board’s (SREB, 2009) recommendations for addressing improvement of adolescent literacy in the United States.

**Purpose**

The purpose of this study was to examine adolescent students with disabilities perceptions of literacy efficacy and compare their self-perceptions with achievement on a concurrently administered literacy assessment. The study is significant because it contributes to the evolution of knowledge concerning adolescent self-efficacy, literacy, and achievement with an emphasis on students with disabilities using a research-based, validated instrument for measuring the specific domain of adolescent literacy efficacy. Results will contribute to scholarly conversations about methods of improving student literacy and efficacy during adolescence. Results will also be useful for administrators as they seek to create environments that promote and enhance literacy achievement and literacy self-efficacy among students with disabilities. Practitioners will find the results useful as they develop professional learning communities that address increasing literacy achievement and efficacy among students with disabilities. The hypothesis and underlying assumption of this study is that literacy efficacy can be examined and measured as a construct, when clearly defined, just as reading efficacy (Lau, 2009; Mucherah & Yoder, 2008), math efficacy (Lackaye & Margalit, 2008; Marat, 2005), or science efficacy (Bolshakova, Johnson, Czerniak, 2011; Tsai, Jessie Ho, Jyh-Chong, 2011).

**Research Questions**
Question 1: To what extent do literacy efficacy mean scores differ between students with disabilities and students without disabilities?

Question 2: To what extent do literacy efficacy mean scores differ between students as a function of classification?

Question 3: To what extent do literacy efficacy mean scores differ between students as a function of (a) gender, (b) race/ethnicity, and (c) grade level?

Question 4: What is the relationship between student scores on the MAP assessment and their scores on the ALAB as a function of membership as a student with or without a disability?

Procedures

The Adolescent Literacy and Academic Behavior (ALAB, Appendix A) survey was administered by classroom teachers to all seventh, eighth, and ninth grade students in one small, urban school district in a Mid-Atlantic state who also took the Measure of Academic Progress reading and language assessment. Student participants completed the survey and the MAP assessment between December 1, 2011 and December 15, 2011. Teachers were asked to read the directions and practice items, aloud, with students and to answer questions the students may have prior to their completing the survey. The ALAB survey has 28 statements that describe school-related tasks. Students were asked to respond using the scale to rate how confident they were that they could do each task. The scale ranges from “0” (a belief that you are not sure you can do the task) to “9” (a belief that you are very sure you can to the task). They chose the number from 0 to 9 that best demonstrated how confident they were in regard to each school task using a Scantron® sheet coded with each student’s unique student identifier. School staff processed the ALAB Scantron® forms. The instructional technology staff at the school sent an excel file to the
The researcher with the ALAB results, MAP reading and language results, and demographic data. The researcher imported the excel files into PASW Statistics 18, a statistical software program, for analysis.

**Limitations and Delimitations**

Limitations of a study refer to variables over which the researcher has little control (Rudestam & Newton, 2007). This study was conducted in a small, urban school district in the Mid-Atlantic region of the United States. The sample included students in grades seven through nine who also took the quarterly administered MAP assessment. Students who do not take the MAP assessment are students working toward a diploma other than a standard or advanced diploma. The extent to which findings may be applied to other populations and environments that are dissimilar to those in this study should be considered as one makes generalizations (Gall, Gall, & Borg, 2007). This study is exploratory, seeking to examine literacy efficacy among adolescent students with disabilities using the definition explicated above. Explanation of environmental variables that may influence perceptions of literacy efficacy is not a factor that will be examined at this time. The study of perceptions, rather than observed behaviors, may limit ecological validity due to the possibility participants are responding to how they believe they are supposed to respond rather than responding with what they truly believe (Gall, Gall, & Borg, 2007).

Delimitations of a study are restrictions that are imposed deliberately by the researcher (Rudestam & Newton, 2007). They include factors controllable by the researcher that might affect external validity (Gall, Gall, & Borg, 2007). This study was conducted in a small, urban school district in the Mid-Atlantic region of the United States. Data were collected in December, 2011, in conjunction with the initial phase of implementation of a school-wide literacy initiative.
focusing on secondary students. The 28-item Likert-type survey was administered concurrently with the quarterly administration of the Measure of Academic Progress (MAP) reading and language assessment. The sample included a convenience sample of all students enrolled in grades seven, eight, and nine in the district who took the MAP assessment. Students in these grades were chosen due to the potential for measuring efficacy longitudinally as they progress from middle to high school. Student perceptions of literacy efficacy, evidenced in the results of the ALAB, were compared and correlated with reading and language scores received from the administration of the Measure of Academic Progress (MAP) to provide concurrent validity evidence.

**Definition of Terms**

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<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Adolescence</td>
<td>A transitional stage of human development between childhood and adulthood, culminating with emotional and intellectual maturity (Merriam Webster’s Collegiate Dictionary, 11th edition). A period of life that involves risks and opportunities in restructuring personal organization toward new challenges (Smetana, Campione-Barr, &amp; Metzger, 2006).</td>
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<tr>
<td>Adolescent Literacy</td>
<td>The belief that students hold about their skills and abilities that allow them to be successful in reading, writing, thinking, and communicating about the variety of texts they encounter and which prepare them to be lifelong learners (deFur &amp; Runnells, 2010).</td>
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<tr>
<td>Efficacy</td>
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<tr>
<td>Literacy</td>
<td>Having the skills and abilities that allow students to be successful in</td>
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reading, writing, thinking, and communicating about the variety of texts they encounter and that prepare them to be lifelong learners (Hedley, Antonaci, & Rabinowitz, 1995; Jetton & Dole, 2004; National Council of Teachers of English, 2009; Newman, 2002).

Student Subgroup

Student categories identified under the No Child Left Behind Act for Adequate Yearly Progress reporting. These include subgroups of students identified as by: economically disadvantaged, Limited English Proficient, gender, disability, or race/ethnic group (Office of Special Education Programs [OSEP], 2009).

Students with Disabilities

Students who have been identified as having a disability [1 of the 13 categories identified in IDEA, 2004], and who require specialized instruction in order to engage meaningfully with the general education curriculum (Appendix B).

Overview

The purpose of chapter one was to introduce the reader to the context guiding the research design of this study. Chapter two provides a review of the research on adolescent students with disabilities self-efficacy, literacy, and measurement of adolescent literacy self-efficacy. Chapter three describes the research methodology process. Chapters four and five present the results of this study and a discussion of the results.
Chapter Two

Review of the Literature

Chapter two provides a review of the literature regarding: self-efficacy theory, the theoretical framework upon which this study is based; the relationship between self-efficacy and academic achievement; and the present state of adolescent literacy achievement with an emphasis on literacy achievement of students' with disabilities. The purpose of this study was to examine adolescent students with disabilities perceptions of literacy efficacy and compare their self-perceptions with achievement on a concurrently administered literacy assessment. The hypothesis and underlying assumption of this study is that literacy efficacy can be examined and measured as a construct, when clearly defined, just as reading efficacy (Lau, 2009; Mucherah & Yoder, 2008), math efficacy (Lackaye & Margalit, 2008; Marat, 2005), or science efficacy (Bolshakova, Johnson, Czerniak, 2011; Tsai, Jessie Ho, Jyh-Chong, 2011). Personal conversations with experts in the fields of special education, efficacy, literacy, educational leadership, psychology, giftedness, and statistics (i.e. S. deFur, B. Williams, M. Tschannen-Moran, D. Deshler, M. DiPaola, and B. Bracken) provided preliminary guidance and direction for the review.

Initially, several online education- and psychology-related databases were searched using the following descriptors: adolescent literacy, adolescent literacy efficacy, adolescent efficacy, middle school/high school literacy, middle school/high school literacy efficacy, middle school/high school efficacy, students with disabilities and literacy, students with disabilities and literacy efficacy, students with disabilities and efficacy, and student perceptions. A similar search was conducted using the card catalog and interlibrary loan services at Swem library located on the campus of The College of William and Mary in Williamsburg, Virginia.
Theoretical Framework

Self-efficacy, or the belief one holds about his/her ability to be successful at a given task, is a core principal of social cognitive theory (Bandura, 1986, 2002). The notion that humans are active participants, or agents, who can affect change in their own lives was formally espoused into theory in *Social Foundations of Thought and Action: A Social Cognitive Theory* (Bandura, 1986). Three modes of agency were noted by Bandura: personal agency, proxy agency, and collective agency (1986, 2002). Personal agency is described as the ability to act intentionally to influence one’s own level of functioning and life’s circumstances. Proxy agency is the ability to get others to act on your behalf and collective agency is the ability to act together with others to shape the future.

Personal agency has the capacity to minimize or maximize the effect of proxy agency and collective agency (Bandura, 2002). Personal agency requires intentional use of forethought and planning by a self-motivated individual (Bandura, 2002). Action is not determined by knowledge and skills, but by one’s belief that they can be successful in a given task (Bandura, 1986; Mucherah & Yoder, 2008; Usher & Pajares, 2008). Individual beliefs are integrated with cognitive, social, and behavioral subskills to generate action (Bandura, 1986; Pajares, 1996). Consistent with social cognitive theory, self-efficacy theory recognizes the influence of past experiences, or antecedents, on individual ability and willingness to change (Bandura, 1977, 2004; Pajares, 1996; Nie & Lau, 2010). Individual self-efficacy is a vehicle that transforms and mediates the choices one makes, effort expended, task persistence, thought patterns, and emotional reactions (Bandura, 1986; Klassen & Lynch, 2007; Lackaye & Margalit, 2008). Self-efficacy is the greatest determinant of human agency (Bandura, 2002).
Woolfolk (see Shaughnessy, 2004) suggests that teachers must consider and attend to students' basic needs within school including academic, social, and emotional needs before heightened levels of self-efficacy will produce gains in academic achievement. This suggestion is consistent with current educational leadership models for creating school contexts which support student learning (DiPaola & Hoy, 2008). DiPaola and Hoy (2008) provide one model of classroom supervision intended to maximize the teaching-learning process. This model is based on school climate, authentic trust, teacher efficacy, and relationships in creating classroom environments that effectively support student learning. Woolfolk's (see Shaughnessy, 2004) observations imply similar criteria for teachers as they seek to create a system that support an environment in which all students can learn with a focus on effective instruction.

Self-efficacy theory suggests four sources of efficacy useful for teachers in planning curriculum, instruction, and assessment that is responsive to the needs of all students. These sources provide opportunities for (a) mastery experiences, (b) vicarious experiences, (c) specific verbal praise, and (d) increased physiological arousal through ensuring appropriately challenging curriculum, instruction, and assessment (Bandura, 1986; Schunk & Zimmerman, 2007). Mastery experiences are identified as the most powerful source of efficacy (Bandura, 1986, 2006; Tschannen-Moran & Woolfolk Hoy, 2006).

Mastery experiences provide students with repeated opportunities to practice, and subsequently learn, the underlying skills and abilities requisite to successful completion of the academic task (Farmer et al., 2010; Pajares, Johnson, & Usher, 2007). Providing students the opportunity to master newly acquired knowledge and skills is identified as the most important component for building efficacy and subsequently improving academic achievement. However, what educators know to be best practice is often not implemented with fidelity due to the
constraints imposed by the reality of day-to-day occurrences in the classroom (Compton et al., 2012; Fixsen & Blase, 2009). Fixsen and Blase (2009) identify effective implementation of research-based practices as the missing link in improving academic outcomes. They also note the critical need for ample financial, material, and human resources to be available and in place in order to create an environment where successful implementation will occur (Fixsen & Blase, 2009).

Vicarious experiences are those in which individuals either see or visualize someone similar to them successfully completing a task. As such, modeling, particularly by peers, is recognized as an effective instructional strategy that enhances the teaching-learning process (Schunk & Zimmerman, 2007). Contrary to this, however, and important to note when working with students with learning disabilities is that a majority of students with learning disabilities (13 out of 18) in one qualitative study perceived vicarious experiences as lowering their self-confidence associated with the task (Klassen & Lynch, 2007). Vicarious experiences are an integral part of self-efficacy theory which also involves a facet of self-concept theory, that is, comparing oneself to others (Ferla, Valcke, & Cai, 2009).

Verbal persuasion from peers or teachers may facilitate more positive vicarious experiences for students with disabilities. Verbal persuasion can both enhance and diminish one's sense of efficacy (Farmer et al., 2010). The use of positive, task-specific, verbal persuasion is a recommended method for motivating students with and without disabilities and is fundamental to increasing student engagement (Pajares, Johnson, & Usher, 2007; Weinstein, 2007). Furthermore, an individual's physiological state, or level of engagement, can be positively accessed through verbal persuasion and by teaching at an appropriate instructional level (Vygotsky, 1978). Student engagement is also affected by both internal conversations, for
example self-talk, and external factors (Schunk & Zimmerman, 2007). Internal conversations are mediated by past experiences which inform one’s self-concept and one’s perceptions of external factors (Schunk & Zimmerman, 2007). External factors include student-teacher relationships; teacher instructional style and strategies used; and classroom structure, organization, and management (Farmer et al., 2010).

Building self-efficacy in academic environments as a method for improving academic achievement is supported in research conducted in a variety content areas (Bandura, 2006; Pajares, 1996); across the United States (Mucherah & Yoder, 2008; Pajares, 2006) and abroad (Lau & Lee, 2008; Phan, 2011); with different age groups (Tschannen-Moran & Woolfolk Hoy, 2006; Zimmerman & Schunk, 2008); different grade levels (Pajares, Johnson, & Usher, 2007; Phan, 2011); and with students with and without disabilities (Klassen & Lynch, 2007; Lackaye & Margalit, 2008). Self-efficacy theory is based on the hypothesis that cognitive processes may mediate change but cognitive and behavioral change are “induced and altered most readily by experience of mastery arising from effective performance” (Bandura, 1977, p. 191). Students cannot have mastery experiences without having the requisite knowledge that supports mastery (Woolfolk in Shaugnessy, 2004).

Self-Efficacy Mediators

The degree to which a source for building self-efficacy informs the efficacy of an individual varies depending on a number of factors, such as, type of disability (Farmer et al., 2010; Klassen & Lynch, 2007), cultural background (Bandura, 2002, Lau & Lee, 2008), gender and race/ethnicity (Usher & Pajares, 2006). Some basic needs that are requisite to a student’s ability to learn are salient features within each of these factors.
Disability type. Klassen and Lynch (2007) found that although students with learning disabilities believed frequent verbal feedback was helpful, many preferred to receive verbal guidance discreetly. Students with emotional and behavioral disabilities often require specific attention to social skills as well as to environmental needs that are prerequisite and foundational to their ability to learn (Farmer et al. 2010). Research examining students with disabilities often focuses on the subgroup of students identified as having learning disabilities. Little research exists on students' sense of efficacy that is classified under other IDEA disability categories. Students with disabilities are also included among other student subgroups which suggest additional considerations when planning curriculum, instruction and assessment that supports self-efficacy and academic achievement.

Cultural background. Cultural implications for understanding self-efficacy were described in a study involving Chinese primary and secondary students in Hong Kong (Lau & Lee, 2008). The authors noted that "learning itself has never been viewed as a pure and ultimate goal in the eyes of the Chinese people" (Lau & Lee, 2008, p. 349). They state that Chinese children perceive education as a way of bringing honor to themselves and their families. Lau and Lee (2008) suggest that effective methods for motivating and building efficacy in Chinese students may be different than methods that are effective in motivating and building efficacy in students in the U.S. An additional item to note in examining cultures is that differences exist within cultural categorization as collective or individualist (Bandura, 2001; Lau & Lee, 2008). Research suggests that within each culture, individuals diverge; more specifically, there are individualists in collectivist societies and collectivists in individualist societies (Bandura, 2001; Lau & Lee, 2008; Nie & Lau, 2010).
Gender and race/ethnic classification. Gender and race/ethnicity factors are found to influence self-efficacy in some studies. Usher and Pajares (2006) found verbal persuasion to more greatly influence academic and self-regulatory performance than mastery experiences in adolescent girls. The Usher and Pajares (2006) study also suggests that verbal persuasion is a greater predictor of academic and self-regulation self-efficacy than mastery, vicarious, or engagement self-efficacy for African American students. Additionally, mastery experiences and engagement were identified as the greatest predictors of self-efficacy for White students (Usher & Pajares, 2006).

Self-Efficacy and Academic Achievement

Adolescence is a period of human development where autonomy, social relatedness, and competence are recognized as basic areas of need (Hagenauer & Hascher, 2010; Yuen et al., 2010). Specific knowledge, skills, and strategies are also fundamental requisite needs for students to meaningfully engage with the curriculum (Farmer et al., 2010; Shaughnessy, 2004). Adolescents who lack fundamental knowledge and skills, for example student subgroups who have consistently underperformed across time, are at a distinct disadvantage when presented with new material (Compton et al., 2012; Vaughn, 2008). Unmet needs compounded with the biological demands of adolescence result in a decline in learning enjoyment and motivation which impacts academic achievement (Hagenauer & Hascher, 2010). Several self-efficacy studies are reviewed in the following sections that report findings related to prerequisite adolescent needs regarding motivation, self-regulation, choice, and achievement.

Motivation and self-regulation. Theorists differ on the locus of operation for motivation, however, a common definition is provided in the following statement, “motivation is the process whereby goal-directed activity is instigated and sustained” (Pintrich & Schunk, 2002, p.5). This
definition of motivation expresses an intimate connection with self-regulatory behavior (Pintrich & Schunk, 2002; Zimmerman & Schunk, 2008). Boekarts (2010) refers to motivation and self-regulation as “two close friends” (p. 73). Self-regulation is a process in which individuals organize and manage their thoughts, emotions, behaviors, and social-contextual surroundings to attain a goal (Reeve, Ryan, Deci, & Jang, 2008). Theorists differ in respect to the why, what, and how of self-regulation and motivation. Expectancy value theorists suggest that individuals will be motivated to act when the outcome is valued (Pajares, 1996). Self-efficacy theorists support this suggestion but postulate that because expected outcomes are dependent upon perceptions of ability, they place the locus of operation on self-efficacy rather than on the outcome (Bandura, 2002; Lau, 2009; Usher & Pajares, 2008). Behavioral theorists emphasize arranging the environment to facilitate students’ ability to respond to stimuli while cognitive theorists focus on students’ thoughts, beliefs, and emotions in regard to promoting motivation and self-regulatory abilities (Pintrich & Schunk, 2002; Zimmerman & Schunk, 2008).

Students who are motivated are more attentive, demonstrate greater progress and increased effort, pursue independent learning, and experience greater satisfaction than students who are unmotivated (Zimmerman & Schunk, 2008). Self-regulation is categorized as a metacognitive skill (Usher & Pajares, 2008) and defined as “the directive process by which learners transform their mental abilities into academic skills” (Zimmerman, 2002, p. 65). The ability to self-regulate may vary for students by culture, environment, or task demand (Bandura, 2002; Bernstein & Waber, 2008; Lau & Lee, 2008). Zimmerman and Cleary (2006) note that a student’s sense of efficacy, or belief about his/her ability to succeed at a given task, determines whether or not self-regulation strategies are employed. Students must believe they are able to
complete a task before they will be motivated to act or to employ the behaviors required to be successful (Bandura, 2002; Lackaye & Margalit, 2008).

**Choice and achievement.** Students' sense of efficacy impacts the choices they make which affects both short-term and long-term goals and achievement (Schunk & Meece, 2006). Students who believe they are able to be successful tend to choose more challenging courses, utilize strategies that promote learning, pursue a wide variety of interests, persist longer on difficult tasks, and set higher goals (Lau, 2009; Saunders, 2010). Students who report high efficacy in reading, enjoy reading more challenging material including a wider diversity of genres, and perform better on standardized reading tests (Mucherah & Yoder, 2008). Adolescent self-efficacy determines the courses students take which, in turn, strongly influences post-school career choices (Schunk & Meece, 2006). The following three studies support the link between literacy self-efficacy, choice, and achievement of adolescent students.

**Study one.** Berger and Karabenick (2011) explored the relationship between self-efficacy, motivation, and high school students' use of learning strategies in math class using the Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ distinguishes between cognitive, metacognitive, and resource planning strategies. Cognitive strategies include rehearsal, organization, and elaboration. Metacognitive strategies involve higher order cognitive processes like planning, monitoring, and self-regulation. Resource planning strategies consist of time, study environment, and seeking help. Additionally, the MSLQ examines different theoretical perspectives of motivation including expectancy, value, and control beliefs and included the reciprocal relationship between motivation and use of learning strategies was explored. The results of the cross-lagged structural model across one high school semester revealed that only self-efficacy and value were significant predictors of strategy use (Berger & Karabenick, 2011).
Additionally, students who reported a higher sense of efficacy used metacognitive strategies and resource management strategies whereas self-efficacy was not a predictor of cognitive strategies (Berger & Karabenick, 2011). This may indicate that those students who had higher efficacy were able to use metacognitive strategies because they had the knowledge, skills, and abilities to do so.

**Study two.** A recent longitudinal study conducted with undergraduate and graduate university students in Australia suggests students who are intrinsically motivated are more curious and will use metacognitive strategies to promote learning (Phan, 2011). Use of metacognitive strategies is indicative of accessing a deep learning approach (Phan, 2011). An individual’s use of a deep learning approach was found to be an effective antecedent of academic self-efficacy and its change over time (Phan, 2011). Scaffolding of different levels of strategies like effective note-taking and critical reflection that promote deep learning may assist students in developing positive self-efficacy (Phan, 2011).

**Study three.** An empirical study examining the relationship between interest in statistical literacy, self-efficacy, and achievement was conducted with 438 middle school students in eight schools across three states in Australia (Carmichael, Callahan, Hay, & Watson, 2010). Latent regression modeling suggests self-efficacy is a significant predictor of interest. Prior achievement, in the presence of self-efficacy, was not a significant predictor of interest and more confident students revealed a lack of interest when the material was perceived as too easy (Carmichael et al., 2010). An important finding related to the Carmichael et al. (2010) study is that no significant gender differences were revealed which is atypical in math and science for middle school students. The authors hypothesize that the focus on literacy may be a factor, in that females tend to have a higher sense of efficacy reading and language arts. Improving
adolescent literacy self-efficacy is important to adolescent academic achievement and to successful long-term outcomes for adolescents in the 21st century.

**Literacy in the 21st Century**

Business and education are inextricably connected (Fullan, 2001; Kouzes & Posner, 2007). Educators are responsible for supplying a workforce that is prepared to meet the needs of a competitive, changing world (USDOE, 2010). President Barack Obama stated in a *Letter from the President*, “the countries that out-educate us today will out-compete us tomorrow” (USDOE, 2010). Technology has increased the pace of change and that trend is expected to continue (NJCLD, 2009). Additionally, the rapid pace of technological change has impacted the way society receives information (Hedley, Antonacci, & Rabinowitz, 1995; NJCLD, 2009). Over time, humans have evolved from primarily oral communicators to viewing the written word, either in print or electronic format, as the dominant source for valid and reliable information (Hedley, Antonacci, & Rabinowitz, 1995; NJCLD, 2009). The ability to read, write, receive, and express information effectively to a wide variety of audiences have become essential competencies for individuals and businesses throughout the world (Chance & Bjork, 2008). Equally important is for individuals to have the knowledge, skills, and abilities to choose effective strategies and modes of communication for the task-at-hand (NJCLD, 2009; NCTE, 2009). These collective competencies provide the foundation for a literate public and enable individuals to become independent lifelong learners (Freire, 1970). Lifelong learners are able to create unique solutions to personal and professional challenges as well as to emerging challenges caused by changes due to the increasingly global economy.

Businesses, small and large, must compete both locally and globally if they are to succeed (Kouzes & Posner, 2007). Additionally, local markets in the United States and abroad
are increasingly diverse, presenting unique challenges and opportunities for local businesses (Martin & Midgley, 2006). The demographic makeup of the United States citizenry is changing rapidly. “Overall, the U.S. population has become more racially and ethnically diverse over time” (Humes, Jones, & Ramirez, 2011). The 2000 Census revealed a 44 percent increase from 1990 in the foreign-born population and that trend is expected to continue (U.S. Census Bureau, 2002). An additional factor to note is a shift in the country of origin of individuals migrating from predominantly Northern European countries to increasing numbers from Latin American and Asian countries. In 2000, fifteen percent of the 28.4 million foreign-born populations came from Europe while more than 50 percent came from Latin America and more than 25 percent were from Asia (U.S. Census Bureau, 2002). In the past, immigrants tended to move to large, urban areas; however recent research reveals a shift in that trend to include suburban and rural areas throughout the country (Frey, 2006; Martin & Midgley, 2006). Trends in the U.S. foreign-born populations’ country of origin, use of English as a second language, and shifting minority/majority status of ethnic groups are greatly impacting the constituency of students in public schools (U.S. Census Bureau, 2007). As such, the construct of academic literacy is evolving as the needs of our society are changing (Hedley, Antonacci, & Rabinowitz, 1995; NCTE, 2009; Newman, 2002). In the following sections, four definitions of literacy are provided from prominent literacy organizations in the United States. Additionally, literacy structural components and processes are illustrated.

Following are four definitions from organizations having a national interest in literacy:

(a) the National Institute for Literacy (NIL), (b) the National Council for Teachers of English (NCTE), (c) the National Governors Association (NGA), and (d) the Common Core of State Standards (CCSS).
**National Institute for Literacy.** The National Institute for Literacy identifies three types of literacy required to be functionally literate (NIL, 2011). One, *prose literacy*, is the ability to read and understand continuous text as in newspaper articles and instructions. Another, *document literacy* is the ability to read and understand documents such as job applications and maps. The third type of literacy, *quantitative literacy*, is the ability to understand and perform computations, for example, balancing a checkbook or reviewing a bill.

**National Council for Teachers of English.** The National Council for Teachers of English (NCTE, 2009) describes literacy as a continually evolving construct developing in tandem with societal changes. The NCTE acknowledges the rapid pace of information being presented through technology as having a major impact on the construct of literacy and therefore includes proficiency in technology as a component of literacy. Five other essential literacy components identified by the NCTE include having the ability to: (a) build relationships with others to pose and solve problems collaboratively and cross-culturally; (b) design and share information for global communities to meet a variety of purposes; (c) manage, analyze and synthesize multiple streams of simultaneous information; (d) create, critique, analyze, and evaluate multi-media texts; and (e) attend to the ethical responsibilities required by these complex environments. The NCTE’s definition of literacy acknowledges external, socially constructed factors as influencing the components of literacy and promoting the development of higher-order thinking skills, that is, analyzing, evaluating, creating, and metacognition as essential skills for a literate public.

**National Governor’s Association Center for Best Practices.** The National Governor’s Association Center for Best Practices (NGA, 2010) defines adolescent literacy as the set of skills and abilities needed to read, write, and think about the variety of texts encountered. This
definition incorporates metacognitive activities and processes identified in the NIL (2011) and NCTE (2009) definitions in addition to basic functional skills of reading and writing ability and is the foundation of the Common Core of State Standards.

**Common Core of State Standards.** Finally, the Common Core of State Standards (CCSS), an initiative convened by the National Governors Association and the Chief State School Officers to develop common English-language arts and math standards, presented an integrated model emphasizing instruction of literacy across content areas that is informed by the global economy and society and requires development of higher-order thinking skills (CCSS, 2010). An integrated curriculum provides the opportunity for increased exposure to concepts and maximizes students’ opportunity to learn (Hattie, 2009). These definitions provide a spectrum of structural skills and processes needed for a literate society in the 21st Century. The next two sections further explicate structural components of processes that are fundamental to literacy.

**Literacy Structural Components**

Insight into the structural components and processes of literacy has grown tremendously in the past 40 years as the field of neuroscience has developed, and implications for education have been drawn and tested (Goswami, 2008; Katzir & Pare-Blagoev, 2006). The constructs of reading, writing, and oral communication are three structural components of literacy (ASHA, 2011). Each of these structural components requires a diverse subset of skills (Deshler, 2006; Meltzer, Pollica, & Barzilla, 2008) described in the following sections.

**Reading.** The transition from learning to read to reading to learn occurs in the early adolescent years with increasing emphasis on independent learning (Deshler, 2006; NGA, 2010; SREB 2009). Required reading becomes more complex and varied as students progress through
middle school and high school while reading instruction typically halts (Deshler, 2006; Vaughn et al., 2008). Explicit reading instruction for adolescents is necessary due to the increasing complexity and variety of texts encountered, even for those who read at grade level upon leaving elementary school (Deshler, 2006; NGA, 2010; SREB 2009). Additionally, research suggests that more intense instruction over a prolonged period of time is required for adolescents who enter secondary school reading below grade level (SREB, 2009; Vaughn et al., 2008). Mastery of foundational structural components of reading, like phonemic awareness, vocabulary, fluency, and text comprehension are essential for adolescents in order to become independent learners (Bear, Invernizzi, Templeton, & Johnston, 2004; Ganske & Fisher, 2008; NIL, 2000).

**Writing.** A fundamental relationship exists between reading and writing (Graham & Perrin, 2007; Torgeson et al., 2007). Writing skills like spelling, word choice, and grammar are more advanced in students who have developed phonemic awareness, vocabulary, and fluency skills, as is sentence construction, paragraph construction, and essay construction (Graham & Perrin, 2007; LSH, 2011). Higher order thinking skills are required as students build drafting, revising, editing, and proof reading skills (Graham & Perrin, 2007; LSH, 2011) and as they prepare to present their written material to an audience.

**Oral communication.** Oral communication has both speech and language components and relies on metacognitive skills for effective communication. Speech components include articulation, voice, and fluency while language is a social construction and is dependent on developing shared meaning (ASHA, 2011). Language also involves cognitive processes for synthesizing knowledge and experiences in order to share information meaningfully (ASHA, 2011). Educators can facilitate development of students’ abilities in each component area through supporting the four sources of efficacy in daily classroom routines and procedures; using
research-based instructional strategies that target student needs; and ensuring alignment of the
curriculum, presented, instructional strategies, and assessment methods (Phan, 2011).

Developmental Literacy Processes

Children begin life communicating with sounds and actions (Bear et al., 2004). They learn to categorize, prioritize, and elaborate through communicating with others as speech develops (Bear et al., 2004). Formal education in reading, writing, and other forms of oral and visual communication methods provide the opportunity to develop skills that allow communication with a broader audience which is provender for further development. Student abilities to master the curriculum they are intended to learn across content areas requires that they develop foundational skills to a degree that they are able to effectively relate to others what they have learned (Marat, 2005). In skill development, mastery to automaticity allows students improved access to the executive capacities necessary for literacy processes to be fruitful (Pajares, Johnson, & Usher, 2007; Phan, 2011). The ability to manipulate and generalize the content learned to other learning situations is an essential literacy skill requisite for becoming an independent lifelong learner (KUCRL, 2011).

Executive functioning. The executive functioning system of the brain allows individuals to organize and reorganize attention, intention, and thought (Bernstein & Waber, 2008). Executive functioning capacities allow individuals to assimilate past and present actions to plan future actions (Bernstein & Waber, 2008) and is therefore, inextricably linked with human agency. Development of the executive functioning system is not automatic or preprogrammed (Fields, 2005) nor is learning; rather, these processes are influenced by individual ability, experiences, and their environment (Bandura, 2001).
Adolescent brains are in a stage of rapid development (Bernstein & Waber, 2008). Cognitive processes are diminished by executive functioning disorders associated with many types of disabilities as well as external factors like stress, environment, or external demands (Bernstein & Waber, 2008; Klingberg et al., 2002). It is logical to assume that adolescents, who have experienced repeated failure with components of literacy, have heightened levels of stress when they are put in a position in which they believe they will fail. Cognitive processes, however, can be developed as children learn through mastery demonstration, vicariously, or through shaping, for example, verbal prompts, scaffolding, or limits (Beck, 2010; Klingberg et al., 2010). Additionally, cognitive processes involved in developing the structural components of literacy in adolescents are believed to inform one another, indicating that growth and development in one area will produce growth and development in other areas (Goswami, 2008; Dahlin, 2010; Klingberg et al., 2010).

The student population in the twenty-first century presents a diverse set of needs that can be addressed by classroom teachers and by administrators as they create environments that support positive short-term and long-term outcomes for all students. Teachers’ attention to individual adolescent student needs in regard to reading, writing, and oral communication ensures an essential foundation is provided upon which students can draw in order to facilitate increasing independent and autonomous learning (Bernstein & Waber, 2008; Goswami, 2008; Hedley, Anontonacci, & Rabinowitz, 1995). “A robust research base … tells us that student success in school requires a combination of social, emotional, and academic/cognitive competencies” particularly for the adolescent learner (Leibbrand & Watson, 2010, p. 2).
Adolescent Literacy Efficacy

The use of student perceptions to study literacy efficacy is rooted and grounded in social cognitive theory. Student perceptions are recognized as “complex processes, that are influenced by a variety of factors and that have diverse effects in school” (Schunk, 1992, p.4). Surveying students offers the opportunity for their voices to be heard which is increasingly identified as a potent source of information that supports improved student outcomes (deFur & Korinek, 2010). Perceptions of self-efficacy are task dependent (Bandura, 2006) providing an ideal construct for exploring perceptions of adolescent literacy. For the purposes of this study, adolescent literacy self-efficacy is defined as the belief students hold about their skills and abilities that allow them to be successful in reading, writing, thinking, and communicating about the variety of texts they encounter and which prepare them to be lifelong learners (deFur & Runnells, 2010). Providing students an outlet where their voices are heard is empowering and thereby engenders mental dispositions and attitudes identified as critical to develop in students in the 21st century (Jacobs, 2010).

The construct of adolescent literacy efficacy attends to the unique needs of the adolescent learner (Pajares, Johnson, & Usher 2007; Usher & Pajares, 2006). The “context-specific nature of self-efficacy beliefs make them an ideal vehicle with which to explore the difference in perceptions of competence as a function of factors such as age, race, and ethnicity,” (Pajares, 1996, p. 567). Research suggests that task-oriented self-efficacy is a transformational factor in the processes and outcomes involved in successfully completing tasks (Bandura, 1986). Self-efficacy is a stronger determinant of human agency than culture, geographic locale (Bandura, 2002; Lau & Lee, 2008), or grade differences (Lau, 2009; Mucherah & Yoder, 2008).
Self-efficacy theory assumes that students are agents of their own learning, able to be actively involved in information processing, and are both affected and affectors of classroom events (Bandura, 2002; Pajares, Johnson, & Usher 2007). This view contrasts with earlier behaviorist theories that view individuals as passive recipients of information who respond only to the presentation of stimuli (Schunk, 1992). Self-efficacy theory, as a function of social cognitive theory, also diverges from other theories that place the locus of action within external variables such as intelligence, socioeconomic status, race or ethnicity (Pajares, 1996).

Expectations for adolescents to be agents of their own learning either individually, by proxy, or collectively are set daily in secondary schools throughout the world (Lau & Lee, 2008; Phan, 2011; Weinstein, 2007). Adolescents are expected to act using forethought and planning as well as to self-motivate and self-regulate to accomplish tasks (Usher & Pajares, 2006). Self-reflection, an important feature of social cognitive theory, is a much recommended but often neglected aspect of the teaching-learning process (Deshler & Hock, 2007). Guided self-reflection can be a valid method for learning to accurately self-evaluate one’s actions (Hock, Brasseur, & Deshler, 2008) by assessing actions taken, reasoning for taking action, and evaluating outcomes in order to plan for the future. The interaction of these factors and the degree to which individual students require assistance is mediated by the activity, individual, and circumstance (Bandura, 1986, Pajares, 1996). Clear delineation of expectations for adolescents, identification of a student’s present level of performance in concert with his or her literacy self-efficacy beliefs provide data with which practitioners can align instruction targeting individual needs. The four sources for building efficacy: mastery experiences, vicarious experiences, verbal persuasion, and increasing engagement provide a framework that supports practitioners in
creating positive learning environments which provide deeper levels of understanding, builds knowledge, and increases individual efficacy in regard to school-related tasks.

**Literature Review Summary**

Research supports a clear and predictive relationship between self-efficacy and academic achievement (Schunk & Zimmerman, 2007). As such, self-efficacy is a valid construct for use in measuring students' literacy efficacy perceptions (Lodewyk & Winne, 2005; Pajares, Johnson, & Usher, 2007). Data gathered for this purpose can be used to predict literacy achievement outcomes (Mucherah & Yoder, 2008) or to take baseline and intervention measurements when measuring the effectiveness of school-wide or classroom interventions (Schunk & Zimmerman, 2007). The sources for building self-efficacy are also useful tools for teachers as they seek to improve students' literacy skills and increase students' use of effective research-based strategies that augment understanding (Pajares, 2006; Schunk & Zimmerman, 2007).

Persistently low levels of adolescent literacy achievement among students classified as students with or without disabilities, by dominant language, by gender, or by race/ethnicity suggest continuing research that identifies methods for promoting literacy efficacy and literacy achievement within and across each subgroup. The United States, although always considered to be a melting pot of cultures, is witnessing a change in its immigrants from predominantly white, northern European countries to increasing numbers from Hispanic countries and Asia. A shift in migration locale is also noted as a trend from primarily urban areas in the past to increasing migration to rural, suburban, and urban areas. Additionally, the ethnic and racial demographics of United States citizenship is rapidly changing. The global economy, changing cultural and racial/ethnic demographics, and literacy underachievement of the adolescent population in the U.S.
suggests a need to identify more effective methods for addressing adolescent literacy achievement.
Chapter 3

Method

The literature review conducted for this study suggested an integral connection between adolescent self-efficacy and academic achievement. Additionally, the literature review indicated that the increasingly global environment and rapid rate of technological change have resulted in an expanded and living definition of literacy. Literacy needs of adolescents comprise, not only the ability to read and to write, but also the skills that support the processes that facilitate reading and writing; such as, self-regulation and strategic learning. The Adolescent Literacy and Academic Behavior (ALAB) survey (deFur & Runnells, 2010), one of the instruments used in conducting this research, was developed specifically to measure students’ confidence in their literacy abilities at one point in time as well as longitudinally. The Measure of Academic Progress (MAP), also administered to students in the course of this research, assesses students’ academic progress at one point in time and across time. This study measured students’ literacy efficacy and level of academic achievement at one moment in time. The moment-in-time study allowed this researcher to examine students’ with disabilities literacy efficacy within and across student subgroups that also consistently underperform on literacy achievement assessments. An additional focus of the study, furthered by the moment-in-time study, was to compare the ALAB results with the MAP results to continue exploration of the content validity and predictive validity of the ALAB. Chapter three describes the research methods used in the present study and provides the following: (a) recruitment procedures; (b) participant characteristics, (c) sample description; (d) instrumentation description; and (d) data analysis procedures used for each research question. This study employed quantitative methods, including cross-sectional investigations, to examine adolescent students with disabilities’
perceptions of literacy efficacy and compare their self-perceptions with achievement on a concurrently administered literacy assessment.

**Recruitment Procedures**

An email introduction and request for a meeting to discuss the study was made to the target districts' Deputy Assistant Superintendent of Curriculum in June by the state coordinator for a district-wide literacy program initiative at the request of this researcher. The state coordinator for the target district's literacy program initiative, the researcher, and target district administrators met. School representatives committed to participation in the study at that time. Following this meeting, the researcher sent a formal letter requesting a preliminary agreement to conduct the study. The letter was presented and confirmed at an August, 2011 school board meeting. The written confirmation was included with a request to conduct research using human subjects to the Institutional Review Board (IRB). Upon receiving preliminary approval, the Deputy Superintendent of Curriculum and Instruction was contacted to determine the protocol for proceeding with the study.

In November, 2011, this researcher presented a proposal to a group of seventh, eighth, and ninth grade teachers whose students would be taking the ALAB. The focus of the meeting was to describe the study purpose, potential uses of results within the district, and collaborate with teachers to define a process for convenient and meaningful administration of the survey. Teachers decided the paper and pencil version of the test, provided in conjunction with a pre-labeled Scantron® sheet, would be the best method for administering the survey to students. An online version was offered, however, the amount of time required to move students from the classroom to the computer lab was determined to be an obstacle and that option was eliminated.
The teachers framed a two-week time period in which both the MAP assessment and the ALAB would be given, December 1, 2011 through December 15, 2011.

Students received a print version of the Adolescent Literacy and Academic Behavior (ALAB) survey and a Scantron®, bubble format, sheet that had each student’s unique student identifier pre-labeled and affixed. Teachers were asked to read the first page of the survey, model the two practice items, affirm that their participation was voluntary, and advise students that their participation is important for continuing improvement of the teaching-learning process at their school prior to students completing the ALAB. School staff was responsible for scanning student response sheets. The instructional technology department compiled the ALAB data, MAP language and reading assessment data, and demographic data into an excel spreadsheet that was sent via overnight courier to the researcher in February, 2012.

**Participant Characteristics**

The total student population at the time of the study was 517 seventh-grade, 527 eighth-grade, and 553 ninth-grade students according to the state department of education December 1, 2011 child count data. The combined grade-levels total 1,597 students attending middle and high school in one urban school district in a mid-Atlantic state. From this population, only students who completed both the MAP assessment and the ALAB survey were selected as participants.

**Major demographic and topic specific characteristics.** Students with disabilities \((n = 143)\) comprised 13% of total participants and students without disabilities \((n = 967)\) comprised 87% of total participants (Table 4.1). This population is representative of national statistics on the student population served under IDEA for students aged 12 through 17, which is presently about 12% (United States Department of Education, 2011). Forty-nine percent of participants
were male \( (n = 547) \), fifty percent of participants were female \( (n = 555) \), and seven percent \( (n = 8) \) did not identify gender. Seventeen percent of student participants identified under the category of English as a Second Language (ESOL, \( n = 190 \)). Students identified with disabilities under IDEA categories were as follows: Specific Learning Disabilities \( (n = 92) \), Other Health Impairment \( (n = 17) \), Autism \( (n = 14) \), Emotional Disabilities \( (n = 9) \), Speech or Language Impairment \( (n = 4) \), Hearing Impairment \( (n = 3) \), Orthopedic Impairment \( (n = 1) \), and Intellectual Disabilities \( (n = 1) \). Additionally, two students with disabilities received services through Section 504 of the Rehabilitation Act of 1973. Of the 143 total students with disabilities participants, 36 also received services for English as a Second Language and 7 were identified as twice exceptional, that is, students with disabilities who were also identified as gifted. Student participants \( (n = 1,110) \) identified under the following racial/ethnic classifications: 5% Asian \( (n = 59) \), 15% Black \( (n = 165) \), 39% Hispanic \( (n = 428) \), 32% White \( (n = 353) \), 5% Multiple races \( (n = 53) \), .2% Hawaiian/Pacific Islander \( (2) \), .4% American Indian/Alaskan Native \( (n = 4) \), and 4% unspecified \( (n = 46) \).

**Sampling Procedures**

Study feasibility, data access, time constraints, sample size and diversity were components of primary consideration for participant selection. The sample selected for this study was diverse and representative of the changing demographics in the United States (U.S. Census Bureau, 2010) allowing this researcher to explore subgroups of students with disabilities that also persistently underperform. Maximum variation sampling was used to select a sample from the total student population that took the Measure of Academic Progress (MAP) assessment given quarterly by the school district in order to provide exploration of content validity and predictive validity with the two instruments. Maximum variation sampling is described as a type
of purposeful sampling that reveals central themes across a diverse group of participants (Patton, 2002). This type of sampling provided access to the maximum number of students so that meaningful comparisons could be made across student subgroups.

The literature review revealed the majority of literacy and efficacy research that included students with disabilities, or focused on students with disabilities, mainly identified students classified with learning disabilities as participants. The sample size and diverse group of student participants in this study provided a unique opportunity to include other students with and without disabilities populations that consistently underperform. For example, subgroups of students identified as English as a second language (ESOL), ESOL students with disabilities (ESOL SWD), students with learning disabilities (SLD), students with attention issues (Attention), in addition to students classified under the race/ethnicity category of Hispanic, Black, and White yielded sufficient populations for valid comparisons.

Unique to this study, and important to note, is the subgroup of students categorized under the Attention category. Small sample size among students with disabilities in certain disability categories negated valid analyses; therefore, this researcher classified students with disabilities and students without disabilities using homogenous case (Gall, Gall, & Borg, 2007) sampling. Homogenous case sampling is a type of purposeful sampling in which cases represent a characteristic to a similar extent (Gall, Gall, & Borg, 2007). The researcher created a student subgroup entitled Attention that is comprised of students with autism, emotional/behavioral disorders, and other health impairment based on similarities explicated in disability definitions within the Individuals with Disabilities Education act (2004). This grouping was created to explore differences between students with learning disabilities and students within the researcher classified attention category.
Percentage of Sample Approached that Participated

The participant data set then, those who completed both the MAP and ALAB assessments, totaled 1,110 students for a 70% total response rate (Table 3.1) Differences between the total participant population and the original data set may have occurred due to reporting error, attrition, and exclusion of students with disabilities who did not participate in the MAP assessment (Gall, Gall, & Borg, 2007). The voluntary nature of participation in this study, parental permission form receipt, teacher time constraints and buy-in, and student buy-in and perceptions of over-testing may have also been factors in non-participation in the self-efficacy survey. Furthermore, differences in the day of testing between the ALAB and MAP assessments may have been factors for non-participation.

Table 3.1

Participant Response Rate by Grade Level

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Total Sample Student Population</th>
<th>Total Grade-Level Response</th>
<th>Percent of Total Population Response ( ^a )</th>
<th>Percent of Grade-Level Response ( ^b )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seventh Grade</td>
<td>517</td>
<td>450</td>
<td>28</td>
<td>87</td>
</tr>
<tr>
<td>Eighth Grade</td>
<td>527</td>
<td>404</td>
<td>25</td>
<td>77</td>
</tr>
<tr>
<td>Ninth Grade</td>
<td>553</td>
<td>256</td>
<td>16</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>1597</td>
<td>1110</td>
<td>70</td>
<td>--</td>
</tr>
</tbody>
</table>

\( ^a \) Percent of total population response = total grade level response/total sample population.

\( ^b \) Percent of grade-level response = total grade level response/total grade level in sample population.
Instrumentation

Adolescent Literacy and Academic Behavior survey (ALAB). The need for development of a valid and reliable instrument was revealed during the search for an existing instrument that measured adolescents' sense of academic literacy efficacy. Individual sense of efficacy is not global, and therefore, an instrument that measures efficacy must distill the facets of the trait to be measured (Bandura, 2006). The language of the instrument must also consider the age level and reading ability of the target population, and be consistent with language that elicits the populations' perceptions of efficacy (Bandura, 2006; Fraenkel& Wallen, 2006). Comprehensive self-efficacy assessments tap into behavioral factors over which people can exercise some control (Bandura, 2006).

Critical facets of adolescent literacy are targeted in the Adolescent Literacy and Academic Behavior survey. Adolescent literacy self-efficacy, for the purposes of this study, is defined as the belief that students hold about their skills and abilities that allow them to be successful in reading, writing, thinking, and communicating about the variety of texts that they encounter and that prepare them to be lifelong learners (deFur& Runnells, 2010). This definition is derived from the following research on literacy: Colombo, 2008; Hedley, Antonacci, & Rabinowitz, 1995; Jetton & Dole, 2004; National Council of Teachers of English, 2009; and Newman, 2002.

Pilot study test development. Details of the major steps involved in the development of the Adolescent Literacy and Academic Behavior survey are described below. The first step was identification of the broad elements required for students to (a) make meaningful connections with the curriculum they encounter and (b) communicate those connections through writing, conversations, and formal and informal assessments. Common features across numerous literacy
definitions were identified and are summarized in the following statement. Adolescent literacy includes having the skills and abilities that allow students to be successful in reading, writing, thinking, and communicating about the variety of texts they encounter in and out of school (Hedley, Antonaci, & Rabinowitz, 1995; Newman, 2002; NGA 2010). Seven constructs hypothesized by the developers as important to students' sense of literacy efficacy included having the skills and abilities to: (a) read expository text; (b) read narrative texts, (c) write; (d) apply strategies that support reading and writing comprehension and fluency; (e) stay engaged during classroom instruction; (f) use organizational skills to complete assigned tasks on time; and that (g) allow them to integrate these skills and abilities in order to do well on tests.

The next step was to develop specific items that would allow accurate measurement of each of the broad elements of literacy (Fraenkel & Wallen, 2006). Four items per construct were developed to which participants could respond using a 10-point, Likert-type scale ranging from 0 (Not sure I can do this) to 9 (Real sure I can do this), creating a total of 28-items. The survey phrased items in terms of can do rather than will do to facilitate perceptions of efficacy rather than eliciting responses regarding intentions (Bandura, 2006). Likert scales are commonly used to assess perceptions or attitudes and to describe the characteristics of a population (Fraenkel & Wallen, 2006; Gall, Gall, & Borg, 2007).

The survey was then submitted to experts in statistics and instrument development, literacy, and efficacy for review. All suggestions were considered and integrated into the survey prior to pretesting it with a small group of adolescents (n = 11) representative of the larger population. Pretest participant demographics included students: aged 13 through 18; gender, 3 females, 8 males; race/ethnicity, 10 Caucasian, 1 African American; disability categorization, 2 identified with disabilities, 1 as twice exceptional (learning disability and giftedness), and 1 as
gifted. Pretest participants were informed that the purpose of the questionnaire was to gain understanding about their belief in their ability to perform the school-related tasks identified in the survey. They were told that their responses would be strictly confidential and that there were no right or wrong answers. They were provided an area to fill out their responses privately. Each respondent was informally interviewed immediately following completion of the survey. They were asked an open-ended question about their thoughts in regard to the survey as well as two direct questions inquiring about his/her perceptions concerning item clarity and level of difficulty in understanding survey items. Participants responded that the items were clear and understandable. Obtaining expert opinions and pretesting surveys with a small sample resembling the larger sample contributes to improving reliability and validity of test items (Fraenkel&Wallen, 2006; Gall, Gall, & Borg, 2007).

**Pilot study data collection and analysis.** In April, 2010, an initial email was sent from one of the test developers who had existing professional relationships with administrators in four school districts requesting their assistance and participation in the validation process. The email requested that the survey be administered to a sample of approximately 30 students per grade level. Subsequently, and upon receiving approval from district-level administrators, a similar request was drafted and mailed to the principals of ten schools within the four districts. Thirty copies of the ALAB were included with a cover letter and a brief demographic sheet along with a stamped, return envelope. Participating teachers were asked to read the letter aloud with students prior to administration of the survey. A follow-up email was sent to non-responders two weeks later. Eight out of ten schools responded providing a total of 271 student participants. Participants included 132 females and 138 males ranging in ages from 11 to 18 and representing
grades 6 through 11. Eight percent of the respondents reported having IEPs or being served under Section 504 of the Rehabilitation Act of 1973. No race/ethnic information was provided.

Reliability. Test developers took steps to minimize error through careful, methodical research and subsequent application of the constructs of test development, literacy, and self-efficacy. Additional measures were taken to minimize error through obtaining expert reviews on the survey prior to obtaining pretest data from a small sample of adolescents (Fraenkel & Wallen, 2006; Gall, Gall, & Borg, 2007). Participant sample size in the pilot study exceeded the standard of five subjects to one variable as a method to control for experimentwise Type I error (Bryant & Yarnold, 2008). Cronbach’s alpha is a commonly used statistic that describes the degree to which test items are related to the overall concept and subscale items (Grimm & Yarnold, 2008). The pilot study yielded the following reliabilities:

Table 3.2

| ALAB Pilot Study Total and Subscale Efficacy Factors: Mean, Standard Deviation, and Cronbach’s alpha |
|---------------------------------------------------------------|------------------|------------------|------------------|
| Factor analysis. Principal components analysis is a commonly used model of factor analysis for identifying the underlying dimensions that explain survey responses. George and Mallery (2009) detail the following interrelated steps for conducting factor analyses that include | Mean | SD | alpha |
| Total ALAB Efficacy (260) | 6.8 | 1.6 | .96 |
| Efficacy for Reading (268) | 6.6 | 2.0 | .92 |
| Efficacy for Self-Regulation (268) | 7.2 | 1.6 | .86 |
| Efficacy for Strategic Learning (263) | 6.4 | 2.0 | .89 |
| Efficacy for Writing (269) | 7.0 | 1.8 | .90 |
calculating a correlation matrix of all the variables, extracting and rotating factors to achieve simple structure, and analyzing the results. The correlation matrix reveals the extent to which the factors are related, which determines the type of rotation required (George & Mallery, 2009). ALAB items were found to be correlated. The oblique, direct oblimin rotation method was used within principal components analysis to account for correlated items while retaining independence of the eigenvectors (Bryant & Yarnold, 2008). Table 3.3 provides a visual representation of the results of the pilot study principal components analysis.

Table 3.3

**ALAB Pilot Study Principal Components Analysis**

<table>
<thead>
<tr>
<th>Item</th>
<th>Component 1 (λ = 47%)</th>
<th>Component 2 (λ = 6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading</td>
<td>Self-regulation</td>
</tr>
<tr>
<td>Remember what I read in stories</td>
<td>.809</td>
<td>.106</td>
</tr>
<tr>
<td>Remember what I read in textbooks</td>
<td>.802</td>
<td>.097</td>
</tr>
<tr>
<td>Read novels or stories</td>
<td>.778</td>
<td>-.022</td>
</tr>
<tr>
<td>Read my textbooks</td>
<td>.740</td>
<td>-.099</td>
</tr>
<tr>
<td>Understand what I read in textbooks</td>
<td>.689</td>
<td>.084</td>
</tr>
<tr>
<td>Understand what I read in stories</td>
<td>.648</td>
<td>.175</td>
</tr>
<tr>
<td>Use the vocabulary from textbooks</td>
<td>.618</td>
<td>-.059</td>
</tr>
<tr>
<td>Compare characters in stories</td>
<td>.599</td>
<td>.022</td>
</tr>
<tr>
<td>Complete my homework on time</td>
<td>.031</td>
<td>.854</td>
</tr>
<tr>
<td>Get good grades in school</td>
<td>-.109</td>
<td>.782</td>
</tr>
<tr>
<td>Pass tests in class</td>
<td>.044</td>
<td>.688</td>
</tr>
<tr>
<td>Component 3 ($\lambda = 6%$)</td>
<td>Reading</td>
<td>Self-regulation</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>---------</td>
<td>----------------</td>
</tr>
<tr>
<td>Ask questions in class</td>
<td>-.182</td>
<td>.075</td>
</tr>
<tr>
<td>Volunteer ideas in class</td>
<td>.078</td>
<td>-.041</td>
</tr>
<tr>
<td>Use diagrams or pictures to remember what I am learning</td>
<td>.196</td>
<td>.069</td>
</tr>
<tr>
<td>Answer questions in class</td>
<td>.058</td>
<td>.326</td>
</tr>
<tr>
<td>Use strategies to compare or contrast ideas</td>
<td>.376</td>
<td>.087</td>
</tr>
<tr>
<td>Use strategies to study for tests</td>
<td>.327</td>
<td>.317</td>
</tr>
<tr>
<td>Use strategies to remember what I am learning</td>
<td>.338</td>
<td>.379</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 4 ($\lambda = 5%$)</th>
<th>Reading</th>
<th>Self-regulation</th>
<th>Strategic Learning</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass SOL writing tests</td>
<td>-.054</td>
<td>.085</td>
<td>.093</td>
<td>.786</td>
</tr>
<tr>
<td>Write a good essay</td>
<td>.100</td>
<td>-.017</td>
<td>.136</td>
<td>.751</td>
</tr>
<tr>
<td>Write good paragraphs</td>
<td>.298</td>
<td>.011</td>
<td>.083</td>
<td>.626</td>
</tr>
<tr>
<td>Pass SOL reading tests</td>
<td>.114</td>
<td>.314</td>
<td>-.153</td>
<td>.608</td>
</tr>
<tr>
<td>Write good sentences</td>
<td>.267</td>
<td>-.002</td>
<td>.177</td>
<td>.566</td>
</tr>
<tr>
<td>Write a good research paper</td>
<td>.290</td>
<td>.226</td>
<td>.097</td>
<td>.362</td>
</tr>
</tbody>
</table>

**Note.** Boldface items indicate the highest factor loading per item.

Four eigenvectors, or components, were extracted from 28 items explaining 65% of the variance. Variables with factor loading coefficients of |.35| or greater were interpreted as having
loaded on the eigenvector (B. Bracken, personal communication, July 11, 2011). Examination of item coefficients within each eigenvector revealed the following dimensions that embody central skills and abilities essential for meaningful interaction with the curriculum: reading, self-regulation, use of strategies to learn and/or study, and writing. Two items, however, had secondary loadings at |.35| or above on two components. One, *use strategies to compare and contrast ideas*, loaded under Reading (.38) and Strategic Learning (.51). The other, *use strategies to remember what I am learning*, loaded under both Self-regulation (.38) and Strategic Learning (.38). Both items were considered to fit best under the Strategic Learning component.

All of the original 28 items were retained within the four subscale components.

*Subscale factors.* The Efficacy in Reading subscale score, Efficacy in Self-regulation, Efficacy in Strategic Learning, and Efficacy in Writing subscale scores are computed using the unweighted means of items that load on that factor.

Table 3.4

*ALAB Pilot Study Subscale Items*

<table>
<thead>
<tr>
<th>Efficacy Subscale Item</th>
<th>Number of Items</th>
<th>Item Number on Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy in Reading</td>
<td>(8) Items</td>
<td>4, 5, 11, 12, 18, 19, 25, 26</td>
</tr>
<tr>
<td>Efficacy in Self-regulation</td>
<td>(7) Items</td>
<td>3, 7, 9, 14, 15, 17, 24</td>
</tr>
<tr>
<td>Efficacy in Strategic Learning</td>
<td>(7) Items</td>
<td>1, 2, 8, 10, 16, 22, 23</td>
</tr>
<tr>
<td>Efficacy in Writing</td>
<td>(6) Items</td>
<td>6, 13, 20, 21 27, 28</td>
</tr>
</tbody>
</table>

*Measures of Academic Progress*

The Measures of Academic Progress (MAP), published by Northwest Evaluation Association (NWEA), is computerized and given throughout the year to provide student achievement data for teachers to use in instructional planning and in goal setting with the
students. It is designed to measure Reading, Language, Mathematics, General Science, and Science Concepts for elementary and secondary students. Each test area has approximately 40 to 50 multiple-choice items. The school district and the test publisher collaborate to determine the exact test components that will be used within the district, for example, curriculum alignment, test length, and percentage of items allocated to each goal.

The MAP is tailored for each student using initial responses thereby providing the opportunity for more accurate assessment of academic level and growth in each content area assessed within and across years. The assessment begins with items that are five Rasch (RIT) units below a student’s ability. This is either determined through previous testing or begins at five RITs below grade level. The reading and language data of the MAP assessment was collected for use in this study in concert with the research focus on literacy.

**MAP reliability and validity.** Norm group data were collected between spring 2001 and fall 2004, with approximately 2.3 million students from 5,616 schools in 794 districts across 32 states (NWEA, 2005). NWEA (2005) does not purport student samples match national demographic patterns, arguing that national norms are unlikely to be achieved by any organization. Two types of reliabilities, marginal and test-retest, are reported. Marginal reliability statistics from a Fall, 2005, MAP administration yielded the following reliabilities: Grade 7 Reading (.95), Language (.95); Grade 8 Reading (.94), Language (.95); Grade 9 Reading (.95), Language (.94) (Cronin, 2005). Test-retest reliability statistics from a fall 2004- spring 2005 MAP administration yielded the following reliabilities: Grade 7 Reading (.86), Language (.87); Grade 8 Reading (.86), Language (.87); Grade 9 Reading (.83), Language (.85) (Cronin, 2005).
The comprehensive report describing test development, supplementary documentation detailing procedures and the level of support available for participating schools indicates evidence of both internal and external validity (NWEA, 2005). Additionally, concurrent validity was established as correlations with other instruments are reported. Pearson correlation analysis between the California Standards Test and the MAP, administered within three weeks of each other in Fall, 2005 yielded the following Pearson correlation coefficients: Grade 7 Reading \( (r = .83) \), Language \( (r = .81) \); Grade 8 Reading \( (r = .82) \), Language \( (r = .79) \) (Cronin, 2005). The coefficients indicate a positive relationship between the California Standards Test and the Measure of Academic Progress. The publisher claims less than a .01 standard deviation shift over the past 25 years of MAP administrations (NWEA, 2005) indicating the overall strength of the assessment over time.

**Present Study Data Analysis**

Data collected through the Adolescent Literacy and Academic Behavior survey (deFur & Runnells, 2010) and the Measure of Academic Progress (NWEA, 2005) for the present study were analyzed using PASW Statistics 18. The type of statistical analysis conducted within the statistical package was determined by individual research questions. The purpose of this study was to examine adolescent students with disabilities' perceptions of literacy efficacy and compare their self-perceptions with achievement on a concurrently administered literacy assessment. The larger, more diverse and urban sample population participating in this study supplements data gathered during the pilot study. Also, access to detailed demographic information via the use of unique student identifiers adds to existing research on adolescent literacy and adolescent sense of literacy efficacy.
Table 3.5

**Present Study Levels of Analysis by Research Question**

<table>
<thead>
<tr>
<th>Question</th>
<th>Data Source(s)</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Question 1</strong>&lt;br&gt;To what extent do literacy efficacy mean scores differ between students with disabilities and students without disabilities?</td>
<td>Adolescent Literacy and Academic Behavior survey</td>
<td>Independent t-test&lt;br&gt;Test Variable:&lt;br&gt;Total Efficacy&lt;br&gt;Application Efficacy&lt;br&gt;Self-Regulation Efficacy&lt;br&gt;Writing Efficacy&lt;br&gt;Reading Efficacy&lt;br&gt;Strategic Learning Efficacy&lt;br&gt;Grouping Variable:&lt;br&gt;Student classification: Students with disabilities and Students without disabilities</td>
</tr>
<tr>
<td><strong>Research Question 2</strong>&lt;br&gt;To what extent do literacy efficacy mean scores differ between students as a function of classification?</td>
<td>Adolescent Literacy and Academic Behavior survey</td>
<td>One-way ANOVA&lt;br&gt;Dependent List:&lt;br&gt;Total Efficacy&lt;br&gt;Application Efficacy&lt;br&gt;Self-Regulation Efficacy&lt;br&gt;Writing Efficacy&lt;br&gt;Reading Efficacy&lt;br&gt;Strategic Learning Efficacy&lt;br&gt;Factor:&lt;br&gt;Student classification: ESOL, GE, GT, ESOL SWD, SLD, Attention&lt;br&gt;Least significance difference (LSD) post hoc analyses were used to follow up significant main effects</td>
</tr>
<tr>
<td><strong>Research Question 3</strong>&lt;br&gt;To what extent do literacy efficacy mean scores differ between students as a function of (a) gender, (b) race/ethnicity, and (c) grade level?</td>
<td>Adolescent Literacy and Academic Behavior survey</td>
<td>2 x 3 x 3 Univariate ANOVA&lt;br&gt;Dependent Variables:&lt;br&gt;Total Efficacy&lt;br&gt;Application Efficacy&lt;br&gt;Self-Regulation Efficacy&lt;br&gt;Writing Efficacy&lt;br&gt;Reading Efficacy&lt;br&gt;Strategic Learning Efficacy</td>
</tr>
</tbody>
</table>
Research Question 4
What is the relationship between student scores on the MAP assessment and their scores on the ALAB as a function of membership as a student with or without a disability?

Adolescent Literacy and Academic Behavior survey and Measure of Academic Progress Assessments

Least significance difference (LSD) post hoc analyses were used to follow up significant main effects
Independent samples t-test were used to follow up significant interactions

(3) Pearson, One-tailed, Correlation Analyses
Total sample
SwoD
SWD

Ethical Safeguards

Classroom teachers read the first page of the Adolescent Literacy and Academic Behavior survey aloud with students (Appendix A). They described the importance of the study to improving the teaching-learning process as implementation of a school-wide literacy program began this year. The students were advised that their participation was voluntary and that they could stop taking the survey at any point. They were encouraged to provide honest answers and were informed that there were no right or wrong answers. Additionally, they were advised that all answers remain confidential. Teachers were instructed to thank students for their participation, and again, related how important student participation was to making school better.
Chapter 4

Results

Chapter four presents the statistical results and analyses from the December, 2011 administration of the ALAB, MAP Reading assessment, and MAP Language assessment as they relate to the study purpose and the research questions. The purpose of this study was to examine adolescent students with disabilities perceptions of literacy efficacy and to compare their self-efficacy perceptions with reading and language achievement on a concurrently administered assessment.

This chapter begins with reliability results and factor analyses in order to compare this research study with the pilot study due to the emergence of an additional component. "A test is never fully validated; validation is an incremental, on-going process," (B. Bracken, personal communication, July 28, 2011). Then an examination of each research question is illustrated through descriptive statistics, mean comparisons, and correlational analyses.

ALAB Survey Reliability and Factor Analysis

The ALAB has 28 statements that describe school-related tasks. Students were directed to use the scale to rate how confident they were that they could perform the school-related tasks. The scale ranges from “0” (a belief that you are not sure you can do the task) to “9” (a belief that you are very sure you can to the task). Principal components analysis with direct oblimin rotation was used to extract factors due to significant correlation among items. Significant correlation is expected due to the overall construct of efficacy examined by the ALAB instrument.


Table 4.1

*Current Study ALAB PCA Factor Loadings with Direct Oblimin Rotation*

<table>
<thead>
<tr>
<th>Item</th>
<th>Component 1 (λ = 43%)</th>
<th>Component 2 (λ = 5.2%)</th>
<th>Component 3 (λ = 4.8%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application</td>
<td>Self-regulation</td>
<td>Writing</td>
</tr>
<tr>
<td>Use the vocabulary from textbooks</td>
<td>.703</td>
<td>.335</td>
<td>-.488</td>
</tr>
<tr>
<td>Use diagrams or pictures to remember what I am learning</td>
<td>.645</td>
<td>.327</td>
<td>-.429</td>
</tr>
<tr>
<td>Use strategies to remember what I am learning</td>
<td>.622</td>
<td>.531</td>
<td>-.358</td>
</tr>
<tr>
<td>Compare characters in stories</td>
<td>.584</td>
<td>.357</td>
<td>-.602</td>
</tr>
<tr>
<td>Complete my homework on time</td>
<td>.078</td>
<td>.796</td>
<td>-.355</td>
</tr>
<tr>
<td>Get good grades in school</td>
<td>-.066</td>
<td>.748</td>
<td>-.457</td>
</tr>
<tr>
<td>Organize my schoolwork</td>
<td>.439</td>
<td>.711</td>
<td>-.258</td>
</tr>
<tr>
<td>Stay on task in class</td>
<td>.471</td>
<td>.654</td>
<td>-.422</td>
</tr>
<tr>
<td>Pass tests in class</td>
<td>.055</td>
<td>.609</td>
<td>-.564</td>
</tr>
<tr>
<td>Complete projects on time</td>
<td>.389</td>
<td>.585</td>
<td>.612</td>
</tr>
<tr>
<td>Pass SOL writing tests</td>
<td>.220</td>
<td>.347</td>
<td>-.844</td>
</tr>
<tr>
<td>Pass SOL reading tests</td>
<td>.183</td>
<td>.363</td>
<td>-.801</td>
</tr>
<tr>
<td>Write a good essay</td>
<td>.383</td>
<td>.373</td>
<td>-.757</td>
</tr>
<tr>
<td>Write a good research paper</td>
<td>.581</td>
<td>.373</td>
<td>-.685</td>
</tr>
<tr>
<td>Write good paragraphs</td>
<td>.289</td>
<td>.380</td>
<td>-.633</td>
</tr>
</tbody>
</table>
Write good sentences  .193  .407  - .632  .527  .550  

<table>
<thead>
<tr>
<th>Component 4 (λ = 4.4%)</th>
<th>Application</th>
<th>Self-regulation</th>
<th>Writing</th>
<th>Reading</th>
<th>Strategic Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remember what I read in stories</td>
<td>.218</td>
<td>.308</td>
<td>-.455</td>
<td>.782</td>
<td>.484</td>
</tr>
<tr>
<td>Read my textbooks</td>
<td>.257</td>
<td>.384</td>
<td>-.304</td>
<td>.780</td>
<td>.377</td>
</tr>
<tr>
<td>Remember what I read in textbooks</td>
<td>.386</td>
<td>.308</td>
<td>-.409</td>
<td>.775</td>
<td>.526</td>
</tr>
<tr>
<td>Understand what I read in textbooks</td>
<td>.475</td>
<td>.319</td>
<td>-.549</td>
<td>.752</td>
<td>.439</td>
</tr>
<tr>
<td>Read novels or stories</td>
<td>.105</td>
<td>.359</td>
<td>-.376</td>
<td>.741</td>
<td>.279</td>
</tr>
<tr>
<td>Understand what I read in stories</td>
<td>.296</td>
<td>.281</td>
<td>-.626</td>
<td>.702</td>
<td>.401</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 5 (λ = 4.1%)</th>
<th>Application</th>
<th>Self-regulation</th>
<th>Writing</th>
<th>Reading</th>
<th>Strategic Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask questions in class</td>
<td>.172</td>
<td>.268</td>
<td>-.284</td>
<td>.332</td>
<td>.812</td>
</tr>
<tr>
<td>Answer questions in class</td>
<td>.229</td>
<td>.374</td>
<td>-.385</td>
<td>.464</td>
<td>.789</td>
</tr>
<tr>
<td>Volunteer ideas in class</td>
<td>.450</td>
<td>.217</td>
<td>-.452</td>
<td>.399</td>
<td>.745</td>
</tr>
<tr>
<td>Use strategies to compare or contrast ideas</td>
<td>.361</td>
<td>.385</td>
<td>-.359</td>
<td>.589</td>
<td>.656</td>
</tr>
<tr>
<td>Use strategies to study for tests</td>
<td>.399</td>
<td>.579</td>
<td>-.246</td>
<td>.550</td>
<td>.584</td>
</tr>
<tr>
<td>Take good notes during classroom instruction</td>
<td>.466</td>
<td>.502</td>
<td>-.259</td>
<td>.466</td>
<td>.509</td>
</tr>
</tbody>
</table>

Note. Boldface items indicate the highest factor loading per item for 25 out of the 28 items. Three items: compare characters in stories, complete projects on time, and take good notes during classroom instruction were determined to fit better under the second highest loading component and therefore both components are highlighted with boldface type.

Five eigenvectors, or components, were extracted from 28 items explaining 62% of the variance. Variables with factor loading coefficients of |.35| or greater were interpreted as having loaded on the eigenvector (B. Bracken, personal communication, July 11, 2011). The four
original components: reading, self-regulation, strategic learning, and writing were retained with six items in each factor. The new component, application, was comprised of four items and explained 43% of the total variance. Examination of item coefficients within each eigenvector revealed the following dimensions that embody central skills and abilities essential to literacy: application, self-regulation, writing, reading, and strategic learning. Many of the items, however, had secondary and tertiary loadings at $.35$ or above which is typical of instruments with highly-correlated items (B. Bracken, personal communication, April 5, 2012). Twenty-five of twenty-eight items remained under the highest loading coefficient factor. Upon review, it was determined that three items fit best under the second highest component: *compare characters in stories*, loaded under writing ($-.602$) and application ($+.584$); *complete projects on time*, loaded under writing ($-.612$) and self-regulation ($+.585$); and *take good notes during classroom instruction*, loaded under Strategic Learning at ($+.509$) and Self-Regulation at ($+.502$).

Total efficacy was computed using the unweighted means of all 28 items. Subscale factors were computed using the unweighted means of the five components identified in Table 4.1. The items, by component, are listed in Table 4.2.

Table 4.2

*Current Study A LAB Subscale Items*

<table>
<thead>
<tr>
<th>Efficacy Subscale Item</th>
<th>Number of Items</th>
<th>Item Number on Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy in Application</td>
<td>(4) Items</td>
<td>16, 23, 25, 26</td>
</tr>
<tr>
<td>Efficacy in Self-regulation</td>
<td>(6) Items</td>
<td>3, 7, 14, 15, 17, 24</td>
</tr>
<tr>
<td>Efficacy in Writing</td>
<td>(6) Items</td>
<td>6, 13, 20, 21 27, 28</td>
</tr>
<tr>
<td>Efficacy in Reading</td>
<td>(6) Items</td>
<td>4, 5, 11, 12, 18, 19</td>
</tr>
<tr>
<td>Efficacy in Strategic Learning</td>
<td>(6) Items</td>
<td>1, 2, 8, 9, 10, 22</td>
</tr>
</tbody>
</table>
ALAB Descriptive Statistics

The ALAB total scale and subscale means, standard deviations, and Cronbach’s alpha from the pilot study and the current study are displayed in Table 4.3. The lower means in the current study are likely more representative of the means of the true population due to the tendency of a larger sample size to cluster around the mean (Gall, Gall, & Borg, 2007). The alpha coefficient ($r > .80$) across all factors indicates that instrument reliability remains high.

Table 4.3

<table>
<thead>
<tr>
<th></th>
<th>Pilot Study ($n = 271$)</th>
<th>Current Study ($n = 1,110$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Total Efficacy (1,110)</td>
<td>6.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Efficacy for Application (1,110)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Efficacy for Self-regulation (1,110)</td>
<td>7.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Efficacy for Writing (1,110)</td>
<td>7.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Efficacy for Reading (1,110)</td>
<td>6.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Efficacy for Strategic Learning (1,110)</td>
<td>6.4</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Note. Application emerged as a new component in the current study.

Research Questions

The purpose of this study was to examine adolescent students with disabilities perceptions of literacy efficacy and compare their self-perceptions with achievement on a concurrently administered literacy assessment. The following research questions guided data analysis that explored differences between students with and without disabilities literacy efficacy and achievement.
Question 1: To what extent do literacy efficacy mean scores differ between students with disabilities and students without disabilities?

Question 2: To what extent do literacy efficacy mean scores differ between students as a function of classification?

Question 3: To what extent do literacy efficacy mean scores differ between students as a function of (a) gender, (b) race/ethnicity, and (c) grade level?

Question 4: What is the relationship between student scores on the MAP assessment and their scores on the ALAB as a function of membership as a student with or without a disability?

Research Question Analyses

To address Question 1, that is, to what extent do literacy efficacy mean scores differ between students with disabilities (SWD, n = 143) and students without disabilities (SwoD, n = 967), independent samples t-tests were conducted for each facet of literacy efficacy: Total literacy self-efficacy, Application self-efficacy, Self-regulation self-efficacy, Writing self-efficacy, Reading self-efficacy, and Strategic Learning self-efficacy. Students with disabilities scored significantly lower than students without disabilities in Total literacy efficacy, Writing efficacy, and Reading efficacy.

Total literacy self-efficacy. Students with disabilities (M = 6.03, SD = 1.68; t = 2.20, df = 176.751, p < .05) scored significantly lower than students without disabilities (M = 6.36, SD = 1.49) on Total literacy self-efficacy; Levene’s test for equality of variances was significant requiring an adjustment in selecting the appropriate level of significance and degrees of freedom.
**Application self-efficacy.** No significant difference was found between students with disabilities’ \((M = 5.81, SD = 2.05, t = 1.35, df = 1108, p < .05)\) and students without disabilities’ \((M = 6.04, SD = 1.84)\) Application self-efficacy scores.

**Self-regulation self-efficacy.** No significant difference was found between students with disabilities’ \((M = 6.56, SD = 1.78, t = 1.378, df = 1108, p < .05)\) and students without disabilities’ \((M = 6.76, SD = 1.59)\) Self-regulation self-efficacy scores.

**Writing self-efficacy.** Students with disabilities \((M = 6.01, SD = 2.00; t = 2.874, df = 1108, p < .01)\) scored significantly lower than students without disabilities \((M = 6.47, SD = 1.78)\) on Writing self-efficacy.

**Reading self-efficacy.** Students with disabilities \((M = 5.93, SD = 2.06; \text{corrected } t = 2.481, df = 175.035, p < .05)\) scored significantly lower than students without disabilities \((M = 6.38, SD = 1.78)\) on Reading efficacy; Levene’s test for equality of variances was significant requiring an adjustment in selecting the appropriate level of significance and degrees of freedom.

**Strategic learning self-efficacy.** No significant difference was found between students with disabilities’ \((M = 5.77, SD = 1.80, t = 1.622, df = 1108, p < .05)\) and students without disabilities’ \((M = 6.02, SD = 1.72)\) Strategic learning self-efficacy scores.

To address **Question 2**, that is, to what extent do literacy efficacy mean scores differ between students as a function of student classification, a One-way ANOVA was conducted for each facet of literacy efficacy: Total literacy self-efficacy, Application self-efficacy, Self-regulation self-efficacy, Writing self-efficacy, Reading self-efficacy, and Strategic Learning self-efficacy. Student classifications include the following groups of students: English as a second language (ESOL, \(n = 138\)), general education (GE, \(n = 544\)), gifted and talented (GT, \(n = 132\)), English as a second language students with disabilities (ESOL SWD, \(n = 30\)), students with
learning disabilities (SLD not ESOL, \( n = 59 \)), and students with autism, emotional behavioral disorders, or other health impairments (Attention not ESOL, \( n = 29 \)). It is important to note that students classified within English as a second language students with disabilities (ESOL SWD, \( n = 30 \)) are not included among the SLD or Attention categories, although they may be students with either SLD or Attention (Autism, Emotional disorder, or OHI) disabilities. Figure 4.1

Figure 4.1. Student Literacy Perceptions by Program Classification

provides a graphic illustration of student literacy perceptions by program classification. Literacy efficacy means range from 5.7 to 7.0. Students excluded (\( n = 11 \)) from Question 2 analyses include students identified with Speech or Language Impairment (\( n = 4 \)), Hearing Impairment (\( n = 3 \)), Orthopedic Impairment (\( n = 1 \)), Intellectual Disabilities (\( n = 1 \)), and students with disabilities who received services through Section 504 of the Rehabilitation Act of 1973 (\( n = 2 \)) due to the small sample size and non-homogenous characteristics of each disability.
Table 4.4 provides student literacy efficacy means and standard deviations as a function of program classification in the following programs: ESOL, GE, GT, SLD not ESOL, Attention not ESOL, and ESOL SWD. A significant main effect was revealed between groups for Total literacy self-efficacy \( [F = 3.17 (5, 926), p \leq .008] \), Writing self-efficacy \( [F = 5.48 (5, 926), p \leq .001] \), and Reading self-efficacy \( [F = 3.81 (5, 926), p \leq .002] \). Least significant difference (LSD) post hoc analyses were used to follow up significant main effects and are described in the following sections. A significant finding related to ESOL students is also discussed although the finding was not initially a focus of this research.

**Total literacy self-efficacy.** Students with learning disabilities \( (M = 6.01, SD = 1.75; p < .05) \) scored significantly lower than gifted students \( (M = 6.53, SD = 1.56) \) in Total literacy self-efficacy. ESOL students \( (M = 5.95, SD = 1.62) \) also scored significantly lower than gifted students \( (M = 6.53, SD = 1.56; p < .002) \) as well as general education students \( (M = 6.39, SD = 1.46; p < .003) \). No other significant differences were revealed within the Total literacy efficacy component.

**Writing self-efficacy.** Students with learning disabilities \( (M = 6.00, SD = 1.90) \) scored significantly lower than gifted students \( (M = 6.73, SD = 1.81; p < .01) \) as well as general education students \( (M = 6.56, SD = 1.73; p < .05) \) in Writing self-efficacy. ESOL students \( (M = 5.85, SD = 1.87) \) also scored significantly lower than gifted students \( (M = 6.73, SD = 1.81; p \leq .001) \) as well as general education students \( (M = 6.56, SD = 1.73; p \leq .001) \). No other significant differences were revealed within the Writing literacy efficacy component.
Table 4.4

*Student Efficacy as a Function of Program Classification*

<table>
<thead>
<tr>
<th>Program</th>
<th>TLSE</th>
<th>A</th>
<th>SR</th>
<th>W</th>
<th>R</th>
<th>SL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>ESOL (n = 138)</td>
<td>6.0</td>
<td>1.6</td>
<td>5.7</td>
<td>2.1</td>
<td>6.5</td>
<td>1.7</td>
</tr>
<tr>
<td>GE (n = 544)</td>
<td>6.4</td>
<td>1.5</td>
<td>6.1</td>
<td>1.8</td>
<td>6.8</td>
<td>1.6</td>
</tr>
<tr>
<td>GT (n = 132)</td>
<td>6.5</td>
<td>1.6</td>
<td>6.0</td>
<td>2.1</td>
<td>6.9</td>
<td>1.6</td>
</tr>
<tr>
<td>SLD not ESOL (n = 59)</td>
<td>6.0</td>
<td>1.8</td>
<td>6.0</td>
<td>2.0</td>
<td>6.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Attention not ESOL (n = 29)</td>
<td>6.0</td>
<td>1.7</td>
<td>5.7</td>
<td>2.1</td>
<td>6.5</td>
<td>1.9</td>
</tr>
<tr>
<td>ESOL SWD (n = 30)</td>
<td>6.1</td>
<td>1.6</td>
<td>6.0</td>
<td>2.0</td>
<td>6.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>
**Reading self-efficacy.** Students with learning disabilities ($M = 5.84, SD 2.07$) scored lower than gifted students ($M = 6.65, SD = 1.85; p < .005$) as well as general education students ($M = 6.38, SD = 1.73; p < .05$) in Reading self-efficacy. ESOL students ($M = 5.88, SD 1.99$) also scored significantly lower than gifted students ($M = 6.65, SD = 1.85; p < .001$) as well as general education students ($M = 6.38, SD = 1.73; p < .004$) in Reading self-efficacy. No other significant differences were revealed within the Reading literacy efficacy component.

Although not a focus of this study, an interesting finding revealed through post hoc analyses indicated that ESOL students scored significantly lower in *Application self-efficacy* ($M = 5.71, SD = 2.08$) than general education students ($M = 6.10, SD = 1.81; p < .05$); and significantly lower in *Self-regulation self-efficacy* than gifted students ($M = 6.94, SD = 1.63; p < .02$) as well as general education students ($M = 6.77, SD = 1.60; p < .05$).

To address *Question 3*, that is, to what extent do literacy efficacy means differ between students as a function of a) gender; b) race/ethnicity; and c) grade level, one $2 \times 3 \times 3$ Univariate Analysis of Variance (ANOVA) was conducted for each facet of literacy: Total literacy self-efficacy, Application self-efficacy, Self-regulation self-efficacy, Writing self-efficacy, Reading self-efficacy, and Strategic Learning self-efficacy. Main effect and interaction findings are described in the following Total literacy self-efficacy and Subscale self-efficacy sections. Table 4.5 provides student literacy efficacy means and standard deviations as a function of gender, race/ethnicity, and grade level.

**Total literacy self-efficacy.** Total efficacy results indicated there was a significant main effect for grade level [$F = 12.601 (2, 945), p \leq .01$] and race/ethnicity [$F = 4.58 (2, 945), p \leq .01$]. Least significant difference (LSD) post hoc analyses were used to follow up the grade level main
effect and race/ethnicity main effect. Seventh grade students \((M = 5.97, SD = 1.56)\) scored significantly lower in Total literacy efficacy than eighth grade students \((M = 6.32, SD = 1.66)\), and eighth grade students \((M = 6.32, SD = 1.66)\) scored significantly lower in Total literacy efficacy than ninth grade students \((M = 6.96, SD = 1.18)\). Black students \((M = 6.31, SD = 1.58)\) did not differ significantly from Hispanic students \((M = 6.13, SD = 1.52)\) or White students \((M = 6.50, SD = 1.53)\), however, Hispanic students \((M = 6.13, SD = 1.52)\) scored significantly lower than White students \((M = 6.50, SD = 1.53)\) in Total literacy efficacy. A significant two-way interaction was found between grade and gender \([F = 6.85 (2.945), p \leq .001]\), which was followed up with an independent samples t-test. Seventh grade males \((M = 6.12, SD = 1.61)\) did not score significantly different from seventh grade females \((M = 5.97, SD = 1.58)\); \((t = .899, df = 381, p \leq .05)\) in Total literacy efficacy. Eighth grade males \((M = 5.99, SD = 1.65)\) scored significantly less than eighth grade females \((M = 6.59, SD = 1.38)\); \((t = -3.634, corrected df = 327.768, p \leq .001)\). Levene’s test for equality of variances was significant requiring an adjustment in selecting the appropriate level of significance and degrees of freedom. Ninth grade males \((M = 6.84, SD = 1.28)\) did not score significantly different from ninth grade females \((M = 6.60, SD = 1.39)\); \((t = 1.30, df = 209, p \leq .05)\).

**Application self-efficacy.** Application literacy efficacy mean score results indicated there was a significant main effect only for grade level \([F = 12.254 (2, 946), p \leq .001]\). LSD post hoc analyses were used to follow up the grade level main effect: seventh grade students \((M = 5.74, SD = 2.02)\) did not score significantly different from eighth grade students \((M = 5.94, SD = 1.95)\); but scored significantly lower than ninth grade students \((M = 6.57, SD = 1.60)\). Eighth grade students \((M = 5.94, SD = 1.95)\) scored significantly lower in Application literacy efficacy than ninth grade students \((M = 6.57, SD = 1.60)\). A significant two-way interaction was found
between grade and gender \([F = 6.408_{(2, 946)}, p \leq .002]\), which was followed up with an
independent samples \(t\)-test. Seventh grade males \((M = 5.85, SD = 2.08)\) did not score
significantly different from seventh grade females \((M = 5.6, SD = 1.94); (t = 1.206, df = 381, p \leq
.05)\). Eighth grade males \((M = 5.56, SD = 2.10)\) scored significantly lower than eighth grade
females \((M = 6.27, SD = 1.74); (t = -3.405, df = 326.909, p \leq .001); Levene’s test for equality of
variances was significant requiring an adjustment in selecting the appropriate level of
significance and degrees of freedom. Ninth grade males \((M = 6.63, SD = 1.57)\) did not score
significantly different from ninth grade females \((M = 6.55, SD = 1.62); (t = .195, df = 209, p \leq
.05).

**Self-regulation self-efficacy.** Self-regulation literacy efficacy mean score results
indicated there was a significant main effect for race/ethnicity \([F = 6.340_{(2, 946)}, p \leq .002]\). LSD
post hoc analyses were used to follow up the race/ethnicity main effect: Black students \((M =
6.71, SD = 1.78)\) did not score significantly different than White students \((M = 6.91, SD = 1.56)
or from Hispanic students \((M = 6.30, SD = 1.7)\) in Self-regulation literacy efficacy, but Hispanic
students \((M = 6.30, SD = 1.7)\) scored significantly lower in Self-regulation efficacy than White
students \((M = 6.91, SD = 1.56). A significant two-way interaction was found between grade and
gender \([F = 6.979_{(2, 946)}, p \leq .001]\) which was followed up with an independent samples \(t\)-test.
Seventh grade males \((M = 6.67, SD = 1.72)\) did not differ significantly different from seventh
grade females \((M = 6.61, SD = 1.71); (t = .392, df = 381, p \leq .05)\) in Self-regulation efficacy.
Eighth grade males \((M = 6.30, SD = 1.81)\) scored significantly lower than eighth grade females
\((M = 7.03, SD = 1.53); (t = -4.060, corrected df = 329.626, p \leq .001). Levene’s test for equality
of variances was significant requiring an adjustment in selecting the appropriate level of
Table 4.5

**Student Efficacy as a Function of Gender, Race/Ethnicity, and Grade Level**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Race/Ethnicity</th>
<th>Grade Level</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Black</td>
<td>Seventh Grade</td>
<td>6.3</td>
<td>1.3</td>
<td>6.9</td>
<td>1.4</td>
<td>6.3</td>
<td>1.5</td>
<td>6.1</td>
<td>1.7</td>
<td>6.0</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 30)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eighth Grade</td>
<td>6.1</td>
<td>1.8</td>
<td>5.6</td>
<td>2.1</td>
<td>6.4</td>
<td>2.1</td>
<td>6.1</td>
<td>2.0</td>
<td>5.8</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 37)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ninth Grade</td>
<td>6.7</td>
<td>1.4</td>
<td>5.6</td>
<td>1.9</td>
<td>6.9</td>
<td>1.3</td>
<td>6.8</td>
<td>1.9</td>
<td>6.4</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 17)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Hispanic</td>
<td>Seventh Grade</td>
<td>5.9</td>
<td>1.7</td>
<td>5.7</td>
<td>2.1</td>
<td>5.9</td>
<td>2.1</td>
<td>5.8</td>
<td>2.1</td>
<td>5.7</td>
<td>1.7</td>
</tr>
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<td></td>
<td></td>
<td>(n = 102)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Eighth Grade</td>
<td>5.8</td>
<td>1.5</td>
<td>5.4</td>
<td>1.9</td>
<td>5.8</td>
<td>1.9</td>
<td>6.0</td>
<td>1.9</td>
<td>5.6</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 73)</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Ninth Grade</td>
<td>6.5</td>
<td>1.2</td>
<td>6.5</td>
<td>1.5</td>
<td>5.8</td>
<td>1.4</td>
<td>6.5</td>
<td>1.7</td>
<td>6.3</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 36)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>White</td>
<td>Seventh Grade</td>
<td>6.3</td>
<td>1.6</td>
<td>5.9</td>
<td>2.2</td>
<td>6.3</td>
<td>1.8</td>
<td>6.2</td>
<td>2.0</td>
<td>6.2</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 72)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Eighth Grade</td>
<td>6.2</td>
<td>1.7</td>
<td>5.8</td>
<td>2.3</td>
<td>6.4</td>
<td>2.0</td>
<td>6.5</td>
<td>1.8</td>
<td>5.6</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 59)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ninth Grade</td>
<td>7.1</td>
<td>1.2</td>
<td>6.6</td>
<td>1.8</td>
<td>7.3</td>
<td>1.0</td>
<td>7.2</td>
<td>1.6</td>
<td>7.2</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(n = 52)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Total self-efficacy (TSE), Application efficacy (A), Self-regulation efficacy (SR), Writing efficacy (W), Reading efficacy (R), Strategic learning efficacy (SL)*
Table 4.5 continued

**Student Efficacy as a Function of Gender, Race/Ethnicity, and Grade Level**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Race/Ethnicity</th>
<th>Efficacy Factor</th>
<th>TSE</th>
<th>A</th>
<th>SR</th>
<th>W</th>
<th>R</th>
<th>SL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Black</td>
<td>Grade Level</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seventh Grade</td>
<td>5.5</td>
<td>1.8</td>
<td>5.4</td>
<td>1.8</td>
<td>6.0</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eighth Grade</td>
<td>6.5</td>
<td>1.5</td>
<td>6.3</td>
<td>1.7</td>
<td>7.1</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ninth Grade</td>
<td>7.2</td>
<td>1.0</td>
<td>7.1</td>
<td>1.1</td>
<td>7.3</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Hispanic</td>
<td>Grade Level</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seventh Grade</td>
<td>6.1</td>
<td>1.5</td>
<td>5.7</td>
<td>1.9</td>
<td>6.6</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eighth Grade</td>
<td>6.5</td>
<td>1.4</td>
<td>6.2</td>
<td>1.8</td>
<td>7.0</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ninth Grade</td>
<td>6.3</td>
<td>1.3</td>
<td>6.3</td>
<td>1.5</td>
<td>6.5</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>White</td>
<td>Grade Level</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seventh Grade</td>
<td>6.1</td>
<td>1.5</td>
<td>5.5</td>
<td>2.0</td>
<td>6.9</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eighth Grade</td>
<td>6.7</td>
<td>1.3</td>
<td>6.3</td>
<td>1.7</td>
<td>7.1</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ninth Grade</td>
<td>6.7</td>
<td>1.6</td>
<td>6.5</td>
<td>1.8</td>
<td>6.8</td>
<td>1.6</td>
</tr>
</tbody>
</table>

*Note: Total self-efficacy (TSE), Application efficacy (A), Self-regulation efficacy (SR), Writing efficacy (W), Reading efficacy (R), Strategic learning efficacy (SL)*
significance and degrees of freedom. Ninth grade males ($M = 6.96, SD = 1.29$) did not score significantly different from ninth grade females ($M = 6.80, SD = 1.49$); ($t = .867, df = 209, p \leq .05$).

**Writing self-efficacy.** Writing literacy efficacy score mean results indicated there was a significant main effect for grade level [$F = 14.54_{(2, 946)}, p \leq .001$] and race/ethnicity [$F = 5.935_{(2, 946)}, p \leq .01$]. LSD post hoc analyses were used to follow up the grade level and race/ethnicity main effects. Seventh grade students ($M = 6.04, SD = 1.87$) scored significantly lower than eighth grade students ($M = 6.51, SD = 1.85$) and eighth grade students ($M = 6.51, SD = 1.85$) scored significantly lower than ninth grade students ($M = 6.89, SD = 1.56$). Black students ($M = 6.48, SD = 1.74$) did not score significantly different from White students ($M = 6.68, SD = 1.81$). Black students ($M = 6.48, SD = 1.74$) scored significantly higher than Hispanic students ($M = 6.16, SD = 1.84$) and Hispanic students ($M = 6.16, SD = 1.84$) scored significantly lower than White students ($M = 6.68, SD = 1.81$). A significant two-way interaction was found between grade and gender [$F = 5.976_{(2, 946)}, p \leq .01$], which was followed up with an independent samples $t$-test. Seventh grade males ($M = 6.11, SD = 1.89$) did not score significantly different from seventh grade females ($M = 6.97, SD = 1.85$); ($t = .696, df = 381, p \leq .05$). Eighth grade males ($M = 6.13, SD = 2.00$) scored significantly lower than eighth grade females ($M = 6.85, SD = 1.62$); ($t = -3.696$, corrected $df = 323.70, p \leq .001$). Ninth grade males ($M = 7.03, SD = 1.48$) did not score significantly different from ninth grade females ($M = 6.75, SD = 1.62$); ($t = 1.293, df = 209, p \leq .05$).

**Reading self-efficacy.** Reading literacy efficacy mean score results indicated there was a significant main effect for grade level [$F = 12.697_{(2, 946)}, p \leq .001$] and race/ethnicity [$F = 4.178_{(2, 946)}, p \leq .05$]. LSD post hoc analyses were used to follow up the grade level main effect:
seventh grade students \((M = 5.95, SD = 1.94)\) scored significantly lower than eighth grade students \((M = 6.36, SD = 1.78)\) and ninth grade students \((M = 6.76, SD = 1.66)\); and eighth grade students \((M = 6.36, SD = 1.78)\) scored significantly lower than ninth grade students \((M = 6.76, SD = 1.66)\). LSD post hoc analyses were used to follow up the race/ethnicity main effect: Black students \((M = 6.14, SD = 1.92)\) scored significantly lower than White students \((M = 6.53, SD = 1.81)\); Hispanic students \((M = 6.13, SD = 1.83)\) scored significantly lower than White students \((M = 6.53, SD = 1.81)\); and Black student scores \((M = 6.14, SD = 1.92)\) and Hispanic student scores \((M = 6.13, SD = 1.83)\) were not significantly different.

**Strategic learning self-efficacy.** Finally, Strategic Learning literacy efficacy mean score results indicated there was a significant main effect for grade level \([F = 10.834 \ (2, 946), p \leq .001]\). LSD post hoc analyses were used to follow up the grade level main effect: seventh grade students \((M = 5.66, SD = 1.84)\) scored significantly lower than ninth grade students \((M = 6.28, SD = 1.69)\); and eighth grade students \((M = 6.15, SD = 1.67)\) scored significantly lower than ninth grade students \((M = 6.47, SD = 1.60)\). Seventh \((M = 5.66, SD = 1.84)\) and eighth grade \((M = 6.15, SD = 1.67)\) students did not score significantly different. A significant two-way interaction was also found between grade and gender \([F = 5.916 \ (2, 946), p \leq .01]\), which was followed up with an independent samples \(t\)-test. Seventh grade males \((M = 5.90, SD = 1.75)\) did not score significantly different from seventh grade females \((M = 5.66, SD = 1.84)\); \((t = 1.272, df = 381, p \leq .05)\). Eighth grade males \((M = 5.64, SD = 1.79)\) scored significantly lower than eighth grade females \((M = 6.15, SD = 1.66)\); \((t = -2.774, df = 349, p \leq .01)\). Ninth grade males \((M = 6.65, SD = 1.48)\) did not score significantly different from ninth grade females \((M = 6.27, SD = 1.69)\); \((t = 1.769, df = 209, p \leq .05)\).
To address Question 4, that is, what is the relationship between student scores on the MAP assessment and their scores on the ALAB, Pearson correlation analyses were conducted. MAP reading and language scores were compared to ALAB total efficacy and subscale efficacy factors for the total student population (Total), students without disabilities (SWD), and students with disabilities (SwoD). Table 4.6 displays Pearson $r$ values and indicates significance between MAP scores and ALAB scores.

Table 4.6

MAP and ALAB Pearson $r$ Correlation Analyses

<table>
<thead>
<tr>
<th>Student Subgroup</th>
<th>Total Efficacy</th>
<th>Application</th>
<th>Self-regulation</th>
<th>Writing</th>
<th>Reading</th>
<th>Strategic Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAP Reading Total</td>
<td>$r = .18^*$</td>
<td>$r = .11^*$</td>
<td>$r = .14^*$</td>
<td>$r = .19^*$</td>
<td>$r = .21^*$</td>
<td>$r = .10^*$</td>
</tr>
<tr>
<td>SWD</td>
<td>******</td>
<td>******</td>
<td>******</td>
<td>$r = .15^{**}$</td>
<td>******</td>
<td>******</td>
</tr>
<tr>
<td>SwoD</td>
<td>$r = .18^*$</td>
<td>$r = .11^*$</td>
<td>$r = .14^*$</td>
<td>$r = .19^*$</td>
<td>$r = .21^*$</td>
<td>$r = .10^*$</td>
</tr>
<tr>
<td>MAP Language Total</td>
<td>$r = .15^*$</td>
<td>$r = .07^*$</td>
<td>$r = .13^*$</td>
<td>$r = .17^*$</td>
<td>$r = .17^*$</td>
<td>$r = .07^*$</td>
</tr>
<tr>
<td>SWD</td>
<td>******</td>
<td>******</td>
<td>******</td>
<td>******</td>
<td>$r = .21^{**}$</td>
<td>******</td>
</tr>
<tr>
<td>SwoD</td>
<td>$r = .15^*$</td>
<td>$r = .07^*$</td>
<td>$r = .13^*$</td>
<td>$r = .17^*$</td>
<td>$r = .17^*$</td>
<td>$r = .07^*$</td>
</tr>
</tbody>
</table>

*$p \leq .01$

**$p \leq .05$**

Overall, Pearson $r$ correlation analyses for the total student population (Total) reveal significant correlations between Total Efficacy, Application, Self-regulation, Writing, Reading, Strategic Learning and MAP Reading and MAP Language scores ($p \leq .01$). Students without disabilities' (SwoD) Pearson $r$ values mirror those of the total student population ($p \leq .01$). Effect sizes, however, are small ($r^2 \leq .04$).
Pearson $r$ values for students with disabilities reveal significant correlations between MAP Reading and ALAB Writing efficacy ($r = .15, p \leq .05$) and ALAB Reading efficacy ($r = .08, p \leq .05$). Effect sizes are small ($r^2 \leq .03$). Additionally Pearson $r$ values for students with disabilities reveal a significant correlation between MAP Language and ALAB Reading efficacy ($r = .21, p \leq .001$). Again, effect sizes are small ($r^2 \leq .04$). Students with disabilities' Pearson $r$ values did not reveal significant correlations ($p \leq .05$) between MAP reading or MAP language and the other facets of literacy efficacy which promote and sustain students' abilities to read and write. Students with disabilities' perceptions of literacy efficacy for Application, Self-regulation, and Strategic Learning are not significantly correlated with MAP Reading and Language scores.
Chapter 5

Discussion

The purpose of this final chapter is to situate this study in the existing literature on adolescent self-efficacy, literacy, and academic achievement. Improving literacy among adolescents is identified as a need by educators, researchers (Compton et al., 2012), policymakers (NGA, 2010), and employers (Mikulecky, Smith-Burke, & Beatty, 2009). Research suggests that adolescents' sense of literacy self-efficacy is a moderator and predictor of academic achievement (Schunk & Zimmerman, 2007). This study focused on investigating adolescent students with disabilities' literacy efficacy perceptions using a valid and reliable adolescent literacy efficacy instrument, the Adolescent Literacy and Academic Behavior (ALAB) survey. Pearson's \( r \) correlation analyses were conducted to examine the relationship between students' ALAB scores and students' scores on the concurrently administered Measure of Academic Progress (MAP) reading and language assessments in order to explore predictive validity between the two instruments. In the following sections, discourse relating the study findings to the primary, secondary, and tertiary assumptions of this research is provided. Finally, implications for practice, implications for leadership, and implications for future research are offered. The discourse in Chapter 5 will focus on the population of students with disabilities; however, the diverse participant population revealed interesting results that will also be discussed.

Assumptions

The primary assumption of this research was that there are significant differences between students with and without disabilities in regard to literacy efficacy due to the persistent
failure and underachievement of students with disabilities in reading and writing when compared to students without disabilities (Lackaye & Margalit, 2008; NCES, 2010). This assumption is rooted and grounded in Bandura’s Self-efficacy Theory (1977). The Adolescent Literacy and Academic Behavior (ALAB) survey measured student efficacy for reading and writing in concert with student efficacy in areas that support individual student literacy growth, that is, efficacy for application of metacognitive skills that promote deeper learning (Phan, 2011), efficacy for self-regulation (Dinsmore, Alexander, Loughlin, 2008), and efficacy for use of strategic learning (Cantrell & Carter, 2009). This research was exploratory due to the emergent nature of the study of developmental processes and instructional methods in developmental educational research (Dinsmore, Alexander, & Loughlin, 2008; Schunk, 2008). A secondary assumption of this research was that student ALAB scores would correlate significantly with MAP reading and language scores. Previous research suggests that an individual’s sense of efficacy positively correlates with academic achievement (Pajares, 1996; Phan, 2011). A tertiary assumption was that educators would be able to use the results of this study to improve academic outcomes of students with disabilities by being responsive to individual needs using the four sources of efficacy (Farmer et al., 2010; Woolfolk, in Shaunessy, 2004).

**Students With and Without Disabilities Literacy Efficacy Perceptions**

Student literacy efficacy perceptions as reported during the December 2011 administration of the ALAB revealed differences among student subgroups that support existing research and this researcher’s primary assumption. That is, student subgroups that have persistently achieved to a lesser degree than other student subgroups reported lower literacy efficacy. Specifically, students with disabilities reported a lower sense of literacy efficacy than students without disabilities. The sample size and diverse group of participants provided the
opportunity to explore and compare literacy efficacy perceptions between other students with
and without disabilities' subgroups.

Figure 4.1 provides a graphic illustration of the differences between the means among the
following groups: (a) English as a second language students, (b) general education students, (c)
gifted and talented students, (d) students with learning disabilities that are not English as a
second language students, (e) students under the attention category (autism, emotional disorders,
and other health impairment) that are not English as a second language students, and (f) English
as a second language students with disabilities. Overall mean scores ranged between 5.7 and 6.9
on a scale that ranged from 0 to 9.

Total literacy efficacy, writing efficacy, and reading efficacy was significantly lower for
students with disabilities than for students without disabilities. In general, students with
disabilities persistently achieve lower scores on reading and writing assessments and
demonstrate ongoing difficulty in the areas of reading and writing (NCES, 2010), so, it is
expected that students with disabilities would have less confidence in their ability to be
successful in these areas. Statistically significant differences were not noted in the areas of
application, self-regulation, or strategic learning. It is interesting that students with disabilities'
self-efficacy aligned with the concrete tasks of reading and writing; that is, they indicated lower
self-efficacy for reading and writing, which demonstrates alignment with research that indicates
lower performance of literacy academic achievement. However, students were more confident in
the metacognitive areas of literacy that support reading and writing, for example self-regulation
and use of specific strategies that create and build understanding.

This suggests that students with disabilities are accurately assessing their abilities in
regard to reading and writing, but are overestimating their ability to perform metacognitive tasks
that support improved reading and writing ability, that is, application, self-regulation, and strategic learning. Research conducted by Klassen and Lynch (2007) reported that teachers believed students with disabilities frequently overestimated their ability to perform on a given task while students with disabilities did not believe that they overestimated their ability to perform. Further examination of Figure 4.1 reveals that all students reported their confidence in self-regulatory skills at a higher level than any other efficacy area. This finding indicates that teachers and students without disabilities may overestimate students without disabilities' knowledge of and ability to use metacognitive strategies since these students also lack requisite literacy skills that facilitate success in college and the workforce (Mikulecky, Smith-Burke, & Beatty, 2009). These results highlight a learning gap in the adolescent population that can be bridged by practitioners ensuring explicit teaching of, and measuring the use of, students with and without disabilities’ application, self-regulatory, and strategic learning skills. It seems apparent that adolescents do not know that they do not have these essential skills.

**Differences in literacy efficacy as a function of student program classification.** In order to explore possible differences between students with and without disabilities more deeply, a One-way ANOVA was conducted to examine the extent literacy efficacy scores differed as a function of student classification within the following six categories: (a) English as a second language, (b) general education, (c) gifted and talented, (d) English as a second language students with disabilities, (e) students with learning disabilities, and (f) students with autism, emotional behavioral disorders, or other health impairments (Attention). Significant differences were revealed between students with learning disabilities and gifted students in total efficacy, writing efficacy, and reading efficacy. Significant differences between students with learning disabilities and general education students writing efficacy and reading efficacy were also
revealed. Students grouped homogenously within the Attention classification, that is, students with autism, emotional/behavioral disorders, or other health impairments, did not reveal significantly different scores than other student subgroups. These students typically achieve to a lesser degree than students without disabilities, but report similar levels of efficacy as higher achieving students.

Although not a focus of this study, it is important to note a finding revealed through post hoc analyses that indicated English as a second language students scored significantly lower in application self-efficacy than general education students; and significantly lower in self-regulation self-efficacy than gifted students and general education students. The English second language learners with disabilities subgroup did not score significantly different than other subgroups of students. One could propose, then, the English second language learners are presently a pseudo-disability.

**Differences in literacy efficacy as a function of gender, race/ethnicity, and grade level.** Univariate Analyses of Variance (ANOVA) (2 x 3 x 3) were conducted to explore differences in means as a function of (a) gender, (b) race/ethnicity, and (c) grade level across each facet of literacy efficacy, that is, total, application, self-regulation, writing, reading, and strategic learning. These analyses did not factor out students by disability category due to reduced sample size. Grade level differences emerged, differences among race/ethnic groups also emerged; however, only one gender difference was revealed within an interaction with grade level.

**Grade level literacy efficacy perceptions.** Total efficacy, writing efficacy, and reading efficacy scores revealed a unidirectional relationship by grade level from seventh, with the lowest scores, to eighth to ninth. Application and strategic learning efficacy scores were lower
for seventh grade than ninth grade and lower for eighth grade than ninth grade, while seventh and eighth grade scores did not differ. These results are consistent with previous research in that increasing use of strategies that support improved ability to read and write are developmental skills and therefore improve as students mature (Cantrell & Carter, 2009). There were no differences by grade level for self-regulation efficacy. This may be indicative of a lack of instruction in self-regulatory skills. As noted earlier, the sample population all perceived self-regulatory efficacy as higher than any other area of efficacy. Research indicates that self-regulation skills must be explicitly taught and students must be allowed to practice and master these skills and that the ability to self-regulate is critical to learning (Schunk & Zimmerman, 2007).

**Race/ethnicity literacy efficacy perceptions.** Hispanic students scored lower than White students in total literacy efficacy and in the following subscale efficacy components: self-regulation, writing, and reading. Additionally, Hispanic students scored significantly lower than Black students in writing efficacy. Black students scored significantly lower than White students in reading efficacy. There were no significant race/ethnic differences reported in application efficacy or strategic learning efficacy. Again these findings are not surprising since data reveal the Hispanic population and Black population typically score lower in reading and writing than White students. Data revealing specific literacy efficacy perceptions among student subgroups that typically underperform can be used in conjunction with practices that support culturally responsive teaching like self-efficacy theory (Bandura, 2002). Self-efficacy theory suggests four sources by which educators can facilitate growth in self-efficacy and as a result improve academic achievement in culturally responsive ways (Bandura, 2002; Schunk & Zimmerman, 2007). Those sources are (a) providing students the opportunity to: master what they are
learning, (b) see others be successful and learn from others’ mistakes, (c) receive verbal
couragement from teachers and peers, and (d) participate in meaningful, engaging instruction
(Bandura, 2002; Schunk & Zimmerman, 2007).

**Grade level and gender interaction.** A significant interaction was revealed between
grade and gender, which was followed up with independent samples t-tests in order to determine
where the interaction occurred. Eighth grade male scores differed significantly from eighth
grade female scores across all facets of self-efficacy except reading efficacy. No other gender
differences emerged. Previous research on adolescent literacy reveals gender differences in
literacy efficacy particularly in the areas of reading and writing (Lau, 2009; Mucherah & Yoder,
2009). Differences are attributed to higher levels of reading enjoyment and purposes for reading
reported by females (Lau, 2009; Mucherah & Yoder, 2009). The results of this study depart from
previous research in that no significant differences were noted in seventh or ninth grade males
and females. Additionally, no significant difference in reading efficacy was revealed among
eighth grade males and females.

**Pearson r Correlation Analyses Results**

Three Pearson r correlation analyses were conducted in order to examine the potential
differences between students with and without disabilities. The total sample correlation revealed
a significant and positive correlation between the Measure of Academic Progress reading and
language scores with the Adolescent Literacy and Academic Achievement total literacy efficacy
and subscale scores. This finding is consistent with self-efficacy theory and supports the integral
connection between an individual’s sense of efficacy and subsequent level of academic
achievement. Correlation analyses were then conducted on two individual groups: students
without disabilities and students with disabilities. Students without disabilities’ scores
significantly correlated with MAP reading and MAP languages scores, mirroring total sample correlation analysis. Students with disabilities’ MAP and ALAB scores, however, only revealed a significant correlation between MAP reading scores and ALAB writing and reading efficacy scores and between MAP language scores and ALAB reading efficacy scores. This may be indicative of a lack of knowledge of literacy strategies that facilitate improved reading and writing skills and therefore, students with disabilities may overestimate their ability to use these strategies.

**Factor and Reliability Analyses**

Factor analysis conducted on the Adolescent Literacy and Academic Behavior survey, after data were collected for this research, confirmed a strong factor structure and identified a fifth component (Table 4.2). Application, the new component, is comprised of the following items: (a) use the vocabulary from textbooks, (b) use diagrams or pictures to remember what I am learning, (c) use strategies to remember what I am learning, and (d) compare characters in stories. These items require students to evaluate the learning context, synthesize learned literacy skills, and apply those skills and abilities to the academic task. This new component is reflected in the metacognitive portion of this study’s adolescent literacy efficacy definition and therein, supports the construct of literacy efficacy as defined in this research study. As such, the new component adds to the ALAB’s construct validity. Adolescent literacy efficacy is defined as the belief that students hold about their skills and abilities that allow them to be successful in reading, writing, thinking, and communicating about the variety of texts they encounter and which prepare them to be lifelong learners (deFur & Runnells, 2010).

Table 4.3 provides a summary and comparison of the pilot study and present study means, standard deviations, and alpha coefficients. The present study means are lower than the
pilot study for each efficacy component. The sample size and diversity of the present study support these results as more indicative of the adolescent population as a whole due to the tendency of scores to cluster around the mean (Gall, Gall, & Borg, 2007). Reliability analyses also confirmed the Adolescent Literacy and Academic Behavior survey as a reliable instrument. Current study (CS) and pilot study (PS) alpha coefficients are contrasted as follows: CS Total Efficacy $\alpha = .98$, PS Total Efficacy $\alpha = .96$; CS Application Efficacy $\alpha = .82$; CS Self-regulation Efficacy $\alpha = .83$, PS Self-regulation Efficacy $\alpha = .86$; CS Writing Efficacy $\alpha = .88$, PS Writing Efficacy $\alpha = .90$; CS Reading Efficacy $\alpha = .86$, PS Reading Efficacy $\alpha = .92$; and CS Strategic Learning Efficacy $\alpha = .83$, PS Strategic Learning Efficacy $\alpha = .89$. The current study total efficacy alpha coefficient is higher than current study component alpha coefficients which suggests overall literacy efficacy as a holistic construct informed and strengthened by student perceptions of efficacy subscale components.

**Implications for Practice**

The strong correlation between self-efficacy and academic achievement is noted in educational research. This study identified a similar relationship when comparing all students’ perceptions of literacy efficacy and academic achievement scores. However, when students with disabilities’ literacy efficacy perceptions were examined separately, perceptions of reading and writing literacy efficacy were only significantly correlated with MAP reading scores while perceptions of reading literacy efficacy only correlated with MAP writing scores. Previous research suggests that students with disabilities overestimate their ability to successfully complete academic tasks (Klassen & Lynch, 2007).

The current study findings suggest students with disabilities accurately assess their ability in reading and writing but do not assess their ability and efficacy in the component structures that
support improvement in reading and writing. Research supports explicit teaching of strategic learning, self-regulation, use of higher order, metacognitive practices that promote retention of information and deepen understanding (Bolshakova, Johnson, & Czerniak, 2011; Dinsmore, Alexander, Loughlin, 2008). Woolfolk (see Shaughnessy, 2004) suggests that these components are basic needs that must be attended to before teachers will see evidence of student gains in academic achievement. Measuring student literacy efficacy has the potential to be a useful tool for teachers and administrators who are implementing effective, research-based practices to improve adolescent literacy. These practices must include specific strategy instruction that supports growth in reading, writing, and thinking about the texts that students encounter.

The four sources of self-efficacy: mastery demonstration, vicarious experiences, verbal persuasion, and engagement; provide a framework within which teachers can provide culturally responsive and age-appropriate opportunities for all students to improve academic achievement and literacy efficacy (Bandura, 2002; Pajares, 2006; Smetana, Camione-Barr, & Metzger, 2007). A study by Usher and Pajares (2006) suggests differences between racial/ethnic group sources of efficacy differences between male and female student sources of efficacy. Phan (2011) suggests that teachers must also consider differences in students from collectivist societies, like China, and individualist societies, like the United States, as they apply sources for building literacy efficacy that promote and enhance learning. Furthermore, as educators consider differences among student subgroups, they must also reflect upon differences of individuals within each subgroup. Research provides a framework within which educators can work, however, educators are professionals and must assimilate their knowledge of research with knowledge of the individual (Compton et al., 2012).
Implications for Instructional Leadership

One job of the instructional leader is to ensure that research-based practices are being implemented with fidelity in order to maximize opportunities for all students (DiPaola & Hoy, 2008). Another is to ensure that practitioners have the requisite resources to be successful (Fixsen & Blase, 2009). Educators often do not implement “best practice” due to the day-to-day restraints imposed upon them by limited financial and human resources (Compton et al., 2012). Fixsen and Blase (2009) identify effective implementation of research-based practices as the missing link in improving academic outcomes. They also identify the critical need for educators to have ample financial, material, and human resources in place in order to create an environment where successful implementation will occur (Fixsen & Blase, 2009). Instructional leaders are responsible for providing these resources.

Additionally, achievement of a literate society not only demands that individuals have the ability to read and write; but requires that individuals have the abilities and skills that allow them to think and act independently to achieve goals and to create change (Colombo, 2008; Hedley, Antonacci, & Rabinowitz, 1995; Jetton & Dole, 2004; NCTE, 2009; Newman, 2002). The findings of this study suggest that as we develop assessments, create educational environments, and support practitioners, it is important that we clearly identify and target our student population. Instructional leaders should ensure that appropriate instruction and accommodations are provided to all learners, consistent with their individual needs. Dinsmore, Alexander, and Loughlin (2008) suggest leaders and policymakers focus on measuring the processes required to meaningfully understand and apply knowledge to new tasks in new situations, in addition to measuring knowledge acquired. Greater understanding of developmental processes and linking that understanding to instructional methods are emergent
areas in educational developmental research that have implications for future research (Dinsmore, Alexander, & Loughlin, 2008; Schunk, 2008).

**Implications for Future Research**

This research was exploratory in nature due to the ongoing, emergent nature of research involving educational developmental research (Dinsmore, Alexander, & Loughlin, 2008; Schunk, 2008). Deeper exploration to understand the apparent disconnect between students with disabilities’ application, self-regulation, and strategic learning efficacy scores, and results on academic achievement assessments is warranted. Multiple methods research may provide a broader, more comprehensive lens that enhances explanatory and predictive power relating to increased understanding of students with disabilities’ literacy self-efficacy. Additionally, multi-trait methods and structural equation modeling may further explain and elucidate the causal structure associated with adolescent literacy self-efficacy. Longitudinal studies in school environments that focus on improving literacy across the content areas would also promote and improve understanding around adolescent literacy efficacy.

**Conclusion**

In summary, overall differences in self-efficacy between students with and without disabilities were significant in the areas of reading and writing. As the data were explored more deeply using two-way analyses of variance, gender was not found to be a critical factor in student perceptions of efficacy except as an interaction with grade level. Grade level analyses are consistent with previous research in that results from this study support grade level (and age) as indicative of maturity that results in increased use of strategies that enhance learning (Smetana, Camione-Barr, & Metzger, 2007). Race/ethnicity classification analyses did reveal some significant differences in student reports of efficacy in reading, writing, and self-regulation and
suggest implications for culturally responsive teaching. Factor and reliability analysis confirm results from the Adolescent Literacy and Academic Behavior pilot study adding a new component that is consistent with the definition of literacy efficacy foundational to this study. Correlation analysis indicated a significant relationship between the Adolescent Literacy and Academic Behavior self-efficacy survey and the MAP reading and language assessment for the total sample population although effect sizes were miniscule. Students with disabilities' literacy efficacy scores correlated only with the MAP language and reading assessment in the areas of reading and writing efficacy. This study has implications for improving student efficacy and understanding of the areas that support success in literacy, like application, self-regulation, and strategic learning through direct instruction of these processes (Pajares, 2006; Schunk & Zimmerman, 2007).
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Available: [www.census.gov/population/www/socdemo/school.html](http://www.census.gov/population/www/socdemo/school.html)


Yuen, M., Gysbers, N. C., Chan, R. M. C., Lau, P. S. Y., & Shea, P. M. K. (2010). Talent development, work habits, and career exploration of Chinese middle school adolescents:


Appendix A

The Adolescent Literacy and Academic Achievement Self-Efficacy Survey
Dear Student:

We want to look at what students believe about their ability to do a variety of school-related tasks. Finding this out can help teachers teach better. Thank you for your help by doing this survey. Your participation is voluntary. You may stop taking the survey at any point. **Please answer honestly. Your answers are confidential. There are no right or wrong answers.**

The survey has 28 statements that describe school tasks. Use the scale to rate how confident you are that you can do these tasks. The scale ranges from “0” (a belief that you are not sure you can do the task) to “9” (a belief that you are very sure you can do the task). You can choose any number from 0 to 9 to show how confident you are for each school task.

Read these 2 examples to better understand how to use the 0 to 9 scale.

**Example 1:** Abe believes he can get an A on his math tests most of the time, but not always. He circled the 8 on the scale to indicate how confident he feels about being able to meet this expectation.

<table>
<thead>
<tr>
<th>Not sure I</th>
<th>Maybe I</th>
<th>Pretty sure I</th>
<th>Real sure I</th>
</tr>
</thead>
<tbody>
<tr>
<td>can do this</td>
<td>can do this</td>
<td>can do this</td>
<td>can do this</td>
</tr>
</tbody>
</table>

A. *Get A on math tests*  
0 1 2 3 4 5 6 7 [8] 9

**Example 2:** Kim often has difficulty spelling correctly on vocabulary tests. She is not very confident she can spell her vocabulary words correctly. She rated her confidence that she can spell all her vocabulary words as a 1.

<table>
<thead>
<tr>
<th>Not sure I</th>
<th>Maybe I</th>
<th>Pretty sure I</th>
<th>Real sure I</th>
</tr>
</thead>
<tbody>
<tr>
<td>can do this</td>
<td>can do this</td>
<td>can do this</td>
<td>can do this</td>
</tr>
</tbody>
</table>

B. *Spell vocabulary words correctly*  
0 1 2 3 4 5 6 7 8 9

**Remember:** There are no right or wrong answers to your ratings. We are interested in finding out your beliefs about yourself for each of these school-related tasks. **Please answer honestly.** Your answers are confidential and we will not use your name.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Not sure I</th>
<th>Maybe I</th>
<th>Pretty sure I</th>
<th>Real sure I</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ask questions in class</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Use strategies to compare or contrast ideas</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Complete my homework on time</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Read novels or stories</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Read my textbooks</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Write good sentences</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>Get good grades in school</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Answer questions in class</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Take good notes during classroom instruction</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td>Use strategies to study for tests</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>11</td>
<td>Remember what I read in stories</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>12</td>
<td>Remember what I read in textbooks</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>13</td>
<td>Write good paragraphs</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
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<tr>
<td>14</td>
<td>Pass tests in class</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td></td>
<td>Task Description</td>
<td>Scale</td>
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<tr>
<td>15.</td>
<td>Stay on-task in class</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>16.</td>
<td>Use strategies to remember what I am learning</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>17.</td>
<td>Organize my schoolwork</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>18.</td>
<td>Understand what I read in stories</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>19.</td>
<td>Understand what I read in textbooks</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<td>20.</td>
<td>Write a good essay</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>21.</td>
<td>Pass SOL writing tests</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<td>22.</td>
<td>Volunteer ideas in class</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>23.</td>
<td>Use diagrams or pictures to remember what I am learning</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>24.</td>
<td>Complete projects on time</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>25.</td>
<td>Compare characters in stories</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>26.</td>
<td>Use the vocabulary from textbooks</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>27.</td>
<td>Write a good research paper</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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<tr>
<td>28.</td>
<td>Pass SOL reading tests</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
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</table>
AL&AB
Self-Efficacy Survey

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Appendix B

Individuals with Disabilities Education Act Selected Disability Definitions

Retrieved from: http://nichcy.org/disability/categories#ed

1. Autism...

...means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child’s educational performance. Other characteristics often associated with autism are engaging in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term autism does not apply if the child’s educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in #5 below.

A child who shows the characteristics of autism after age 3 could be diagnosed as having autism if the criteria above are satisfied.

5. Emotional Disturbance...

...means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child’s educational performance:

(a) An inability to learn that cannot be explained by intellectual, sensory, or health factors.

(b) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.

(c) Inappropriate types of behavior or feelings under normal circumstances.

(d) A general pervasive mood of unhappiness or depression.

(e) A tendency to develop physical symptoms or fears associated with personal or school problems.

The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance.

10. Other Health Impairment...

...means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that—

(a) is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette syndrome; and

(b) adversely affects a child’s educational performance.

11. Specific Learning Disability...

...means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include learning problems that are primarily the result of visual, hearing, or motor disabilities; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage.
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