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FACTORS AFFECTING THE ACADEMIC SELF-CONCEPT OF K-12 STUDENTS WITH
READING DISABILITIES

A MASTER'S THESIS
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BY
JAMIE KAIHOI

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FACTORS AFFECTING THE ACADEMIC SELF-CONCEPT OF K-12 STUDENTS WITH
READING DISABILITIES

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APPROVED

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Abstract

The way students perceive themselves as learners is referred to as their academic self-concept (ASC). ASC is made up of the thoughts and feelings a student has about their experience in the classroom with learning tasks and research has shown it develops through a variety of comparisons. ASC has the potential to affect learning outcomes, academic achievement, behavior, and mental health. The goal of this literature review was to discover how ASC develops for K-12 students with reading disabilities and the specific factors that influence its formation. The review included a look at the research surrounding ASC in the general population and moved to comparing it with that of students with reading disabilities. The literature pointed to several conclusions: The academic self-concept of K-12 students with reading disabilities emerges as it does for their typically developed peers, however, unlike their typically developing peers, students with reading disabilities also experience challenges specific to their disability that play a significant role. Meaningful support and diagnosis can positively affect ASC while negative classroom experiences are damaging to ASC. Implications for educators working with students with reading disabilities are included.

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Chapter I: Introduction

Introduction

A vast amount of research has gone into studying reading disabilities and the students affected by the challenges that accompany them. IDEA, The Individuals with Disabilities Education Improvement Act (2004), currently regulates the process through which students are identified as having a reading disability but educators have studied and continue to seek out the most effective assessment tools and have categorized the different types of reading disabilities. While there are a number of deficiencies that fall under the category of reading disabilities and there is debate over the use of the term, dyslexia is the most commonly named reading disability. It is estimated that it affects 20% of the population, which means that one in five American students may be dyslexic (Shaywitz et al., 2021). Neuroscientists, such as Stanislas Dehaene (2009) have studied the brain to discover how people learn to read and how the dyslexic brain is different from the typical brain. Many studies have shown that early and intensive intervention is the key to helping prevent and remediate the effects of reading disabilities (Lovett et al., 2017; Shaywitz et al., 2021; Wanzek et al., 2018). Others have done research to discover which specific interventions show evidence of increasing reading abilities. Many states, including the state of Minnesota, have recognized the need for change in the educational system and have instituted laws regarding dyslexia screening and require teacher preparation programs to include instruction in recognizing and remediating reading deficiencies in students (Omnibus K-12 Education Bill, 2019). Educators and lawmakers have made it clear that reading disabilities are an issue of great importance and all of the research to date has improved the lives and

educational experiences of students who experience the challenges associated with learning to read and spell.

Understanding, categorizing, and creating effective systems for remediating reading disabilities are useful places to start but they cannot be where the research ends. While it is important that educators know how to academically support these students and their reading deficiencies in the classroom, more needs to be understood about the inner and emotional lives of people with reading disabilities. Burden and Burdette (2007) referred to this as the “affective dimension of dyslexia” (p. 77). Self-concept takes this affective dimension into account and refers to how a person thinks about themselves, including how they think and feel about who they are. It can be thought about as a global construct, encompassing a perception of self as a whole, and can be separated out into various domains such as physical appearance, behavior, or academics.

Academic self-concept (ASC), also called academic identity or academic self-perception, is a topic of interest in the classroom for many reasons. High ASC promotes positive social behavior and mental health in adolescents and can serve as a mediator for social ostracism and conduct problems (Arslan, 2020). This indicates that during the potentially turbulent adolescent years, the way a student thinks and feels about themselves as a learner in the context of the classroom can calm conduct problems, encourage prosocial behavior, and may be “one of the main drivers of a child’s psychological development and what structures his/her identity as a student” (Ihbour, 2021, p. 538). It has also been suggested that “children with different self-beliefs demonstrate different levels of cognitive, social, and emotional engagement in school” (Bong & Skaalvik, 2003, p.2). If both statements are true then educators must understand

how these self-beliefs are formed to be able to encourage high levels of engagement in the classroom for students with reading disabilities.

Students with reading disabilities, just like the rest of their peers, are people in the process of developing a concept of who they are and where they belong and are managing the thoughts and emotions that surround these questions. One recent study in Morocco gave some insight into the emotional lives of students with reading disabilities. Ibour et al. (2021) conducted a study of 205 Arabic-speaking primary and secondary students in order to discover the links between emotional disorders and dyslexia. Students were administered reading performance tests and self-esteem, depression, and anxiety inventories. Results showed there was a higher tendency toward depressive and anxiety disorders and lower self-esteem among those in the dyslexic group when compared with the control group, which was made up of typically developing students without reading disabilities. Ibour et al. did not attribute the differences to the reading disability itself, rather to the way these students were treated as different from their peers. The important takeaway is that students with reading disabilities may be more at risk than their typical peers for negative emotional outcomes because of their school experiences.

Boyes et al. (2016) indicated that there was ample evidence that reading difficulties were associated with mental health problems and suggested avenues of research that may provide answers to the question of why this was the case. Orozco et al. (2018) found that lower perceived academic performance was a risk factor for suicide attempt among Mexican middle and high school students. This is in line with what Richardson et al. (2005) found in an earlier study of Australian youth. Educators must be concerned with academic engagement and certainly ought to work to see students thrive in the classroom. However, the inner lives and beliefs of students

with reading disabilities affect more than academic achievement. Academic self-perceptions also have an immense impact on the mental health and wellbeing of these students.

Rationale

Is there evidence that having a reading disability affects a student's academic identity? Burden (2008) conducted a review of two decades of research in search of an answer to the question of whether dyslexia is associated with negative self-perception, including academic self-concept (ASC). While the evidence was mixed on certain correlations such as general self-concept and social self-concept, Burden found that the research at the time gave a clear picture that dyslexic students were likely to have lower ASC than their typically developed peers. This led Burden to conclude that much more extensive research was needed to look into the connection between reading disabilities such as dyslexia and their effect on the development of a student's identity.

McArthur et al. (2020) recently set out to determine if an association existed between poor reading and poor self-concept. The hypothesis was that there was no reliable association between the two and that this was why there had been conflicting evidence in the past. In a meta-analysis of research studies between 1977 and 2010, this hypothesis was proven wrong and it was discovered that a statistically significant association between poor reading and poor self-concept did in fact exist. McArthur et al. also discovered a statistically significant association between poor readers and a reading/writing/spelling self-concept. In sum, only 13 studies met the criteria set by McArthur et al., indicating that many more studies must be done to understand the relationship between reading ability and self-concept. McArthur et al. suggested that "future research consider different domains of self-concept" (p. 30) as they found the

strongest correlation between poor reading and self-concept in academic domains. This paper aims to look directly at the academic self-concept domain.

There is much yet to be discovered about what contributes to the academic self-concept of students with reading disabilities. If the way these students think about themselves as learners truly does impact their engagement in school, as suggested by Bong and Skaalvik (2003), then it is a topic worthy of additional discussion and research within the academic community. Adding to this is the understanding that academic self-perceptions can also affect social behavior and mental health, which intensifies the need for such research (Arslan, 2020; Ibour, 2021; Orozco, 2018). To support students with reading disabilities holistically, it is imperative that educators not only understand how to support their academic needs but that they also understand what self-concept looks like, what factors affect its formation, and how it translates into the classroom and personal lives of these students.

Statement of the Question or Topic

The topic of this project and literature review is the self-concept of students with reading disabilities. The guiding research question is: What factors affect the academic self-concept of K-12 students with reading disabilities? Several related questions will be explored in pursuit of an answer to this question. It will be important to consider the following: What is academic self-concept and how does it develop? How are self-concept and academic achievement related? What similarities are there among students with reading disabilities when it comes to self-concept? Ultimately, the aim is to discover implications for educators that will lead to recommendations on how to positively affect the educational and personal lives of students with reading disabilities. An initial prediction is that academic self-concept of students with reading

disabilities will be profoundly affected by the educational experiences unique to their circumstances, requiring educators to support these students in a distinct way.

Definition of Terms

The following are important terms used throughout this paper whose definitions will guide understanding of the topic:

Self-concept: Bong and Skaalvik (2003) defined self-concept as “one’s general perceptions of the self in given domains of functioning” (p.5) including an assessment of the abilities and skills a person has in that domain, which are thought to both explain and predict how the person thinks, feels, and acts. It may also be referred to as general self-concept or global self-concept.

Academic Self-concept: As a domain of self-concept, academic self-concept “reflects an individual’s evaluation of his or her academic abilities across subjects” (Pinxten, 2015, p. 124), is “clearly differentiable from general self-concept and...is more highly correlated with academic achievement and other academic behaviors than is general self-concept” (Marsh, 1990, p. 646). Academic self-concept can be further broken down into specific academic domains such as verbal or math self-concept. It is also referred to as academic self-perception, “perceived scholastic competence” (Frederickson & Jacobs, 2001) or “academic competency perception” (Battistutta et al., 2018).

Reading Disability: For this purposes of this paper, reading disability is used to describe the challenges of students with “significant and severe reading difficulties” (McArthur, et al., 2016, p. 1), which “cannot be the results of inadequate teaching” (Gibby-Leversuch et al., 2019, p. 5596) and may or may not include an official diagnosis. All but two of the studies included in

this paper that address students with reading difficulties (Kasperski et al., 2015; Katzir et al., 2018) required that students were either assessed for reading achievement and scored at least one standard deviation below the mean for their age equivalent normative group, had an official diagnosis of the reading disability dyslexia, or were identified as “having reading difficulties evoking a developmental dyslexia profile” (Ihbour et al., 2021, p. 534).

Dyslexia: A specific reading disability typically diagnosed by a psychologist that affects word reading accuracy and fluency and/or spelling that is sometimes described as “an unexpected difficulty in reading in an individual who has the ability to be a much better reader” (Shaywitz et al. 2021, p. 81). The exact diagnostic criteria for dyslexia vary from place to place. The term dyslexia is used in this literature review to reflect the verbiage of individual study authors and a discussion of the debate surrounding its use is included in Chapter II.

CHAPTER II: LITERATURE REVIEW

Search Methods

The following databases were searched for published studies: ProQuest, ERIC, Academic Search Premier, and PsychINFO. Specific search terms were used to narrow the search in each database. A search of ProQuest included dyslexia and self-concept. The search using ERIC included reading disability and self-concept as well as academic self-concept. Academic Search Premier was searched using the terms dyslexia and self-concept or social identity. The search of PsychINFO included the term academic self-concept. Initially, results were limited to English language studies that took place between the years 2000-2022, however when it was determined that several seminal studies in the area of self-concept took place in the 1980s, results were expanded to include the years 1980-2022. Additional studies were discovered when reviewing the resources of published studies.

What is Academic Self-Concept?

Theories of Development and Contributing Factors

Students at all stages develop perceptions of themselves as learners and evaluate their own successes and failures in the classroom. These “mental representations of one’s abilities in academic domains,” (Pinxten et al., 2015, p.124) are known as one’s academic self-concept (ASC). ASC is a domain of general self-concept that can be further broken down into specific academic domains such as reading, math, or language as students have experiences and thoughts about themselves in each area. Therefore, there are many facets to a student’s ASC and there is a great deal of research on how it develops over time.

Before addressing the formation of ASC, an important distinction should be made; self-concept and self-efficacy are not interchangeable terms. Bong and Skaalvik (2003) addressed this topic in hopes of distinguishing the two for the benefit of students and those who work with them. They said that while self-concept, whether general or domain specific, is an evaluation of the skills and abilities a student possesses, self-efficacy is more concerned with what a student thinks they can do with those skills and abilities. According to Bong and Skaalvik, both self-concept and self-efficacy can predict motivation and performance, although this study did not address the degree to which this is true for each.

This paper will make use of the distinctions that Bong and Skaalvik (2003) put forward for self-concept and self-efficacy. ASC will refer to how students estimate their own abilities in a given academic domain or generally across domains and self-efficacy will refer to students' expectations for what they might be able to accomplish in a particular situation. In their discussion on self-concept, Bong and Skaalvik made it clear that while the distinction between these terms was important, the primary concern was, "how can we help students form accurate yet optimistic self-perceptions and, at the same time, help them avoid their low academic self-perceptions to negatively affect their self-worth?" (p.32). It is imperative to keep in mind that the goal of educational research is to bring about positive outcomes for real students and teachers, not to simply put forward a novel theory or idea.

Researchers generally agree that students form an ASC through a series of comparisons. Wolff et al. (2018) identified social, temporal, and dimensional comparisons as the most prominent types influencing the development of ASC. This means that ASC is formed as students compare their achievement with that of other students, with their own prior achievement

generally, and with their achievement in other school subjects. Through a series of experimental and field studies, Wolff et al. substantiated a number of previous studies and found that social comparisons were the most impactful comparison when it came to ASC. They found more specifically that upward comparison with higher achieving students resulted in lower ASC while downward comparison with lower achieving students resulted in higher ASC. And while results indicated that temporal and dimensional comparisons had an effect on ASC, it was diminished when compared to the effects of social comparison.

The two most common models for the development of ASC are the big-fish-little-pond model (BFLP model) and the internal/external frame of reference model (I/E model). The BFLP model, first proposed by Marsh (1984), is based on social comparison. Marsh's frame of reference model demonstrated that high academic achievement led to high ASC, that ASC was similar across schools even with differences in socioeconomic status and overall student ability, and that ASC is best predicted by knowing both student ability and school type. Marsh (1984) concluded that "having a higher academic ability leads to a better academic self-concept, but being in a more able school leads to a poorer academic self-concept" (p. 174). Now referred to as the BFLP model, it also predicts what Wolff et al. (2018) found regarding upward and downward comparisons with peers.

Marsh (1986) also provided significant research in the development of the I/E model. This model refers to how ASC is affected when students use both their own academic skills and external references such as teacher appraisal or comparison with peers to determine how they think about themselves as learners. It may also include comparisons of ability in one domain to ability in another. Marsh explained that "high Math self-concept will be more likely when math

skills are good (the external comparison) and when math skills are better than verbal skills (the internal comparison)” (p. 134). The difference between math and verbal skills is what pushes math ASC higher and a student with high verbal skills will therefore be more likely to have a lower math ASC.

Many researchers have added to the study of the internal/external frame of reference and big-fish-little-pond models over the years. The idea of the importance of the social comparisons was further studied by Gest et al. (2005), who looked at the influence of peer academic reputation on ASC, general self-worth, and teacher-rated academic effort and skills over a one-year period. The study involved 400 American students in grades 3, 4, and 5. Teachers rated student academic performance while students rated their own and that of their classmates. Gest et al. found that peer academic reputation, which may in fact be an inaccurate representation of an individual student’s achievement, is nonetheless associated with ASC, serving as a significant other in its formation. Parents and teachers are also considered significant others in the development of a student’s ASC.

More recently, Pinxten et al. (2015) took a fresh look at these two models and wanted to know what would happen if they combined the models, looking at math and verbal domains. Pinxten et al. put their focus on young elementary students, hoping to discover if fourth graders use the same social comparisons as high school students when developing domain-specific ASC. When combining the I/E and BFLP Models, Pinxten et al. showed that while math achievement positively affected math ASC, it negatively affected verbal ASC. Students who were particularly strong in one domain were likely to underestimate their ability in other domains. In other words,

students who performed well in math did not consider themselves to be achieving as well in the verbal domain, just as Marsh (1986) predicted.

Class-average achievement also played a role in student ASC according to Pinxten et al. (2014). Higher class-average math achievement meant lower individual math ASC. These results showed that the predictions of both the I/E Model and BFLP Model held when combined. As a result of the findings, Pinxten et al. suggested that “social comparisons already play an important role in how younger students view themselves in the academic domain” (p. 130). Knowing that even young students use others’ achievement to evaluate their own performance makes a difference in how teachers approach the task of understanding and improving ASC.

A third model for the development of ASC suggested by Marsh (1990) is the reciprocal effects model (REM). In his 1990 study, Marsh improved upon earlier research methods to determine the relationship between ASC and academic achievement. Marsh found that prior ASC had a significant effect on ensuing grades for students. And although this specific study did not present evidence that prior grades affected ASC, Marsh noted that “theory and common sense dictate that prior academic accomplishments must, at least in part, determine academic self-concept,” (p. 654). He therefore concluded that self-concept and academic achievement are reciprocally related, thus introducing REM as a way to understand academic self-concept.

In a recent study, Marsh et al. (2018) created an integrated model for ASC that brought together I/E, BFLP, and REM. This study took place over the course of six years and looked at the relationships among test scores, grades, school context, and math self-concept. The German students involved in the study were tracked from Year 4, the last year of primary school, through Year 9. Of note, after Year 4, German students are placed in programs based on achievement,

which may have some bearing on the results of the study, especially considering the BFLP effect. Marsh et al. reported that the I/E effects on students over the course of the six years was consistent: math grades positively affected subsequent math ASC and German grades negatively affected subsequent math ASC. Likewise, they found consistent validation for REM and enduring negative effects of the BFLP theory.

While many studies have considered a snapshot in time, the integrated model from Marsh et al. (2018) provided important insights into ASC over time. Frost and Otten (2016) conducted a similar study over a shorter period of time. The study of 112 12-13-year old Norwegian students revealed trends in how ASC may change over time. Using the *Myself as a Learner Scale* (MALS), Frost and Otten found that over time, higher achieving students tended to evaluate themselves more positively while lower achieving students tended to evaluate themselves more negatively. This study was not able to discern reasons for this trend, but the authors wondered if it was due to school culture. Their warning to educators was to be aware of the consequences of creating a classroom culture that “promotes competition and high expectations without focus on individual support,” (Frost & Otten, 2016, p. 270) as it may be detrimental to students who cannot succeed in meeting these goals. This is highly relevant to the question of how students with reading disabilities develop ASC.

As indicated by this brief review, there is no shortage of research regarding the development of ASC in general student populations and yet even the most prolific authors such as Marsh (1984; 1986; 1990) consistently concluded that further research was still necessary. There will continue to be developments in this field but an understanding of the most common ASC development theories to date provides a framework for discovering the factors affecting the

ASC of students with reading disabilities. The I/E model shows how students use internal and external comparisons in several academic domains to determine how they think about their own performance in each of the domains. The BFLP model predicts that ASC is dependent on class-average or school-average achievement. And REM implies that the relationship between ASC and academic achievement is reciprocal.

Relationship to Academic Achievement

The question of how ASC and academic achievement are related is a top priority of self-concept study. What is the causal ordering of ASC and academic achievement? In search of a formula for increasing academic achievement among students, researchers have conducted empirical studies and poured over other people's data to answer this question. The three models used to identify the relationship between ASC and achievement are self-enhancement, skill-development, and Marsh's (1990) REM. The self-enhancement model says that ASC determines academic achievement. The skill-development model says that achievement determines ASC. Marsh (1990) first suggested the reciprocal relationship (REM) between ASC and achievement. His research, focused on students in grades 10-12, showed that a high-achieving student will have high ASC and that a student with high ASC will have correspondingly high academic achievement. Likewise, a low-achieving student was more likely to have low ASC and a student with low ASC was likely to have lower academic achievement.

Hansen and Henderson (2019) conducted a more recent study of English secondary school students in search of an answer to the causal relationship between ASC and achievement. Their primary question was "is having a greater belief in your own academic ability associated with an improvement in the grades you achieve at 16?" (p. 657). Hansen and Henderson used the

General Certificate of Secondary Education (GCSE) to measure academic achievement. These exams are used in England, Wales, and Northern Ireland and often determine future career and academic opportunities. Results of this study showed that prior academic achievement predicts ASC and that high ASC predicts higher GCSE achievement. Even on both sides of the prior ability distribution, both high- and low-achieving student data indicated that high ASC is equated with higher achievement. Hansen and Henderson admitted that their study could not explain the reason for the association between ASC and achievement, only that there is one, just as suggested by Marsh (1990).

Interested in this question of causality, Ehm et al. (2019) looked at previously collected data on German students from Grade 1 to Grade 4. They wanted to see what happened when different analytical methods were used to look at the same data. Traditional methods confirmed REM in elementary students. Other analytical methods disagreed with the findings of Marsh (1990) and showed that only achievement affected ASC or that ASC only affected achievement, which indicated correlation but not causality. The challenge with employing different analytical models is that “it is difficult to clearly select one of the different models presented in this study as superior to the others” (Ehm et al., 2019, p. 2347). The key findings here are that different methodological approaches lead to different results and that enhancing ASC may not be the answer to achievement for elementary students.

Questions then arise about the differences between ASC in elementary and secondary students. Does ASC have a different effect on younger student achievement or achievement on ASC? Is the relationship always linear? Keller et al. (2021) studied the data from three large-scale assessments to look into the relationship between ASC and achievement in

elementary and secondary students across 13 countries. This study focused specifically on the mathematics and verbal domains.

The findings showed that the relationship between math achievement and math ASC in secondary school was weaker for lower achieving students and Keller et al. (2021) suggested this may be because such students are prone to employing self-protective strategies, including rating their ASC higher. Inversely, for elementary school students, results showed that verbal ASC and verbal achievement were less strongly related for higher-achieving students. Here Keller et al. suggested that this relationship may be due to the fact that younger students have experienced less comparative feedback. Since different assessments were used for the secondary students (mathematics) and elementary students (verbal), it was difficult to discern if differences in the ASC-achievement relationship were related to the domain or if it had more to do with developmental changes over time. What is clear is that based on the data, Keller et al. (2021) discovered that a general linear trend cannot be assumed across all grades.

A recent meta-analysis conducted by Wu et al. (2021) dug deeper into the concept of nonlinear relationships between ASC and achievement over years of development. Taking data from 68 longitudinal studies, the authors expected to find further evidence for REM from childhood to adolescence, which would prove the reciprocal relationship between ASC and achievement. While the meta-analysis did in fact support REM and showed that achievement and ASC mutually affected each other over time, it also showed that the effect of achievement on ASC was stronger in childhood and evened out during adolescence. Wu et al. (2021) pointed out that different achievement measurement tools changed the magnitude of the relationship as well. The results built on the findings of Keller et al. (2021) and demonstrated that while achievement

and ASC cannot be disconnected from one another at any stage of development, neither can the relationship be solely described as linear.

Optimal academic achievement is one of the main goals of education and as such, it has been at the heart of the study of ASC over decades. Based on the reviewed literature, it is clear that a reciprocal relationship exists between ASC and achievement, even if the influence fluctuates in magnitude over time. An understanding of the literature regarding the relationship between ASC and achievement for students at different stages of development is integral to understanding the ASC of students with reading disabilities. It gives a framework from which to start and into which students with reading disabilities will either fit or from which they will diverge. This foundational framework will be a help in understanding the factors that are most influential in the formation of ASC for students with reading disabilities.

How is Academic Self-Concept Assessed and Measured?

The studies discussed in this paper include participants from Australia, China, Germany, Greece, Israel, Luxembourg, Norway, Sweden, the United Kingdom, and the United States. There is additional diversity when meta-analysis studies are considered. There is an accordingly diverse pool of tools used to assess ASC in student populations. Despite this, there are some commonalities. Many researchers include Likert-type questionnaires in the assessment of ASC, as the scales are created to measure thoughts, feelings, perceptions, and values. Questions in a survey of this type include questions or statements and require participants to rate the degree to which they agree. For instance, students may see a statement such as “schoolwork is easy for me” (Bong & Skaalvik, 2003, p. 7), “I find it easy to understand new school material”

(Battistutta et al., 2018, p. 174), or I “almost always figure out the answers” (Gest et al., 2005, p. 339) and would choose a response from strongly agree to strongly disagree.

Some researchers created questionnaires but many chose to adapt or use parts of existing scales by other authors to suit their particular needs. Battistutta et al. (2018), for example, used a number of different German scales that had been created to measure feelings of ASC.

Frederickson and Jacobs (2001) used the Harter Self-Perception Profile for Children. McArthur et al. (2016) used the Culture Fair Self Esteem Inventory (CFSEI-3). Frost and Ottem (2016) used the well-known Myself As A Learner Scale (MALS). Katzir et al. (2018) used the Reading Self-Concept Scale. Huang et al. (2021) used the Piers-Harris Children’s Self Concept Scale (PHCSS).

A number of studies included interviews with students that used both closed- and open-ended questions when gathering qualitative data. Glazzard (2010) asked students questions such as “When you were learning to read, were you aware that other pupils were reading better than you were?” and “How did it make you feel when you were struggling with reading and/or spelling and your peers were not?” (p. 64). Burden and Burdette (2007) asked students “If you were to imagine dyslexia as some kind of ‘thing’ or picture in your mind, how would you describe it?” (p. 79). Researchers must then code these responses by interpreting, organizing, and categorizing them in order to make sense of the qualitative data.

When it comes to assessment of ASC, there are as many tools and techniques as there are researchers and they are chosen based on the kind of data the study aims to collect. Many of the studies that considered ASC in the general K-12 population were larger and while some included qualitative data, were primarily focused on quantitative data collection. The studies of students

with reading disabilities tended to be smaller and were more likely to yield qualitative data. While such variation in country of origin, language, assessment, and data collection procedures has the potential to cause confusion in terms of correlating studies, it also provides a robust body of information from which to draw conclusions, discover implications, and pose new questions.

Reading Disabilities

Definition and Assessment

The goal of this paper is to establish what common factors affect the academic self-concept (ASC) of K-12 students with reading disabilities. The term reading disability is used by the researcher in order to include literature that studied students with a range of reading challenges. Language around the distinctions of these reading disabilities is varied. Lindeblad et al. (2016) referred to their student participants as having “reading difficulties,” (p. 449), “deficiencies in reading,” (p. 450), and as “reading-impaired” (p. 454). McArthur (2016) used the simple term “poor readers” (p. 1) to describe students who had scored one standard deviation below the mean for either phonological decoding or visual word recognition.

The majority of the studies presented here included the term dyslexia to describe the reading difficulties of their participants. In their description of students with dyslexia, Frederickson and Jacobs (2001) spoke of “severe and persistent reading difficulties” (p. 401) that particularly included those at the word level. Some studies included information regarding the assessment criteria for dyslexia. Battistutta et al. (2018) and Polychroni et al. (2006) revealed that their participants had been diagnosed with dyslexia by means of the IQ-achievement discrepancy model of assessment. This model, based on the idea that dyslexia is an “unexpected difficulty in reading in an individual who has the ability to be a much better reader” (Shaywitz et

al., 2021, p. 80), is commonly used to assess disabilities in other academic areas as well, although it is falling out of favor in some circles. Some studies referred to their participants as having been diagnosed with dyslexia but did not discuss the term itself.

There is a great deal of debate over the term dyslexia and the assessment procedures required to diagnose it. In fact, it seems that even nearly twenty years after it was written, the statement “Attempting to provide a definition of dyslexia that is accurate, reliable, and agreed upon by everyone is, of course, impossible” (Humphrey & Mullins, 2002, p. 196) still holds true. Researchers Shaywitz et al. (2021) put forth a strong, unified voice in the argument that there are reliable diagnostic criteria for dyslexia and in support of the research that indicated it can even be distinguished in brain imaging. On the other end of the debate are researchers Gibbs and Elliott (2020) who argued that “neither genetics nor brain imaging has been able to assist in distinguishing the so-called dyslexic from the non-dyslexic poor reader” (p. 489) and contended against the use of the diagnostic label. The back-and-forth continued with Shaywitz et al. (2021) stating that private schools for dyslexic students are the best form of intervention and that the response to intervention (RTI) approach has been proven ineffective while Gibbs and Elliott (2020) advocated for its use in addressing the needs of all struggling readers. What can be agreed upon from both sides is that there are many struggling readers out there who need an educational system that can support them.

It is important to acknowledge the differing opinions that surround the dyslexia debate because much of the literature included in this review uses the term. Some studies referred to dyslexia (Frederickson & Jacobs, 2001; Glazzard, 2010; Knight, 2021), others spoke more generally about reading disabilities or difficulties (Lindeblad et al, 2016; MacArthur et al., 2016).

Both are included in this literature review and the researcher will refer to the language used in each particular study without entering the debates regarding terms or diagnostic criteria. It should be noted that for all studies, students were determined to have a reading disability in their first language: Chinese, English, French, German, Greek, Hebrew, or Swedish.

Academic Self-Concept for Students with Reading Disabilities

Academic self-concept (ASC) has been heavily researched and a solid and continuously evolving foundation has been developed for a theoretical understanding of how students think about themselves as learners. Thus far, this discussion has had a general education focus, with studies providing a picture of the typical learner and how they develop ASC. These theories and supporting research create a framework for understanding the atypical learner as well. While there are many categories of atypical learners, going forward, this paper will look specifically at students with reading disabilities, such as dyslexia. The educational experience of a dyslexic student will differ greatly from their typically developing peers and it is the aim of this paper to discover what it is that affects the ASC of these students. And while any educator can recognize that every student has a unique experience of and perspective on their education, the goal is to find out if there are common factors and experiences among students with reading disabilities in elementary and secondary school. Trends and commonalities will clarify implications for educators and create a path for further beneficial research.

In a quest to discover more about the affective lives of students with dyslexia, Burden and Burdette (2007) visited a private boarding school for dyslexic adolescent boys. It is important to note that at the time of the study, the school admitted only students of average intelligence who had personally elected to attend and who had no history of challenging

behavior. This study included semi-structured interviews and a questionnaire aimed at learning about the way the students thought and felt about developing their individual dyslexic identities.

The results of Burden and Burdette's (2007) study ended up focusing on one open-ended question that asked students to describe dyslexia as a thing or imaginative picture. The answers to this question were personal and varied, but the majority of responses included a picture of some kind of barrier or obstacle that interfered with learning. Descriptions of this barrier such as "a wall with paths going around it," "a maze with doors that you've got to unlock, so you have to keep persisting," "a blob of something sticky...you can get rid of little bits," and "like when toddlers are crawling and then start to walk" (p. 79) showed that this group of students saw dyslexia as something surmountable. This aligned with Lindeblad et al. (2016) whose later study showed that the vast majority of dyslexic participants felt confident that they could manage their schoolwork. A small group of Burden and Burdette's participants who described dyslexia as a barrier instead envisioned it as something insurmountable such as a wall with no way around, a maze that has no entrance, or a bully always "pushing you around, not letting you do things" (2007, p. 80).

While they did not investigate causality, Burden and Burdette (2007) imagined that perhaps dyslexic students move from confusion to understanding and despair to positivity regarding their potential as learners as they adjust to their disability. They described the majority of students involved in the study as having strongly positive self-efficacy and internal locus of control despite widespread conceptual confusion and experience of emotional distress associated with dyslexia. This means that despite viewing dyslexia as a confusing, emotionally charged barrier, most of these students believed their own effort could bring about positive outcomes.

And since the boys attended a highly exclusive boarding school, Burden and Burdette wondered if dyslexic students attending mainstream schools would respond with similarly positive imaginative images. An understanding of the Big Fish Little Pond method (BFLP) proposed by Marsh (1984) would suggest that school and classroom demographics play a significant role in a student's academic self-perception and thus a mainstream setting would be likely to provide different results as they would include comparisons between dyslexic and typically developing students.

Frederickson and Jacobs (2001) discussed the seemingly inconsistent results of studies over the years regarding the ASC of students in special education. One of their considerations was BFLP, which they explained by saying that “the problems experienced by children with learning difficulties are made more apparent when they are placed with children who do not have any learning problems” (p. 403). In contrast to Burden and Burdette (2007), Frederickson and Jacobs conducted a study of elementary students in the mainstream setting. Half of the students in the study had dyslexia and half did not have a learning disability. Students completed the Harter Self-Perception Profile questionnaire and were then asked why they answered the way they did on questions specifically related to academic competence. Frederickson and Jacobs were looking for trends regarding ASC as well as controllability attributions or the extent to which students felt they could influence their academic success or failure.

Results from Frederickson and Jacobs' (2001) study demonstrated that students with dyslexia had significantly lower ASC than the students without learning disabilities. The study also revealed that when interviewed, the dyslexic students were significantly more likely to make uncontrollable attributions, meaning they identified someone or something other than themselves

as the agents of change in their academic experience and performance. Similarly, the dyslexic participants in Humphrey and Mullins' (2002) study were significantly more likely to attribute success to teacher quality than personal ability or effort. These results are quite contrary to those of Burden and Burdette (2007), who found that most dyslexic students viewed dyslexia as a surmountable object that they could do something about and over which they had some control. The question then arises: What factors affect the ASC of students with dyslexia? An in-depth look at the literature around this question is what follows.

Big Fish Little Pond (BFLP)

It has been well established that the surrounding students and school affect the ASC of an individual student (Marsh, 1986; Marsh et al., 2018; Pinxten et al., 2015; Wolff et al., 2018). It is not surprising then that this would hold true for students with reading disabilities. Humphrey (2002) wrote about some of the findings of the research conducted for his doctoral degree that compared dyslexic students in mainstream classes and those in separate special education classrooms. He said that all of his research had led him to the conclusion that, in line with BFLP theory, students in specialized programs with dyslexic peers developed more positive ASC than those who remained in mainstream classrooms. Even with this discovery, Humphrey's suggestion departed from that of Shaywitz et al. (2021) and pushed for educators to work on improving the general education experience for students with reading disabilities rather than separating them from non-disabled peers.

Huang et al. (2021), in hopes of reducing high-risk behavior and poor mental health outcomes for students with dyslexia, studied the self-concept of Chinese primary school students and the parenting styles of their parents. Half of the 100 students had dyslexia while the other

half did not have a learning disability. Huang et al. (2021) found that students with dyslexia had significantly lower ASC than their non-disabled peers, supporting their hypothesis. They also found differences between urban and rural students: rural students with dyslexia had higher ASC than their urban peers. It was suggested this was a result of lower academic requirements and expectations of teachers and parents. Students in urban areas experience high levels of competition, high pressure examinations, and therefore higher parental expectations, which lead to lower ASC. While each of these factors can be considered individually, together they supported the theory that the BFLP effect influences the ASC of students with reading disabilities just as it has been shown to do with their typically developed peers.

Internal/External Comparison (I/E)

The internal/external frame of reference (I/E) model developed in part by Marsh (1986), predicted that in the general population, students will use comparisons of their own achievement and input from external sources when they develop ASC. Having been studied and substantiated since its introduction, it is no surprise that the I/E model showed up in the search for answers regarding the ASC of students with reading disabilities. Lithari's (2019) research spoke to the I/E model with respect to dyslexic students and how it affected ASC. Lithari sought to bring the voices of secondary students with dyslexia forward and to understand how the identities of these students were affected by their educational experiences. The study included 20 English participants: students, young adults, and adults with dyslexia who all reflected on their experience as secondary students, parents of students with dyslexia, and an educational professional. Open-ended questions were used to interview participants and thematic analysis was used to interpret the results.

Lithari (2019) discovered many similarities in the stories of her participants, including the theme of confusion when it came to ASC. The students in this study spoke openly about the challenges of navigating school with a reading disability. Some students reported having a hard time keeping up and understanding lessons generally while others described experiencing success in some subjects while suffering through others. Out of this research, Lithari (2019) developed the idea of fractured academic identity as a way to describe the experience of the variable achievement of dyslexic students. While most students experience this variability to some degree, students with dyslexia experience it much more because by definition, they are of average intelligence but have severe reading difficulties, creating a wider gap between reading/language and other subject areas.

What Lithari (2019) found was that this fractured academic identity left dyslexic students unsure of where they belonged within the classroom community. One participant described this confusion in secondary school by saying that “one minute they seemed to be expecting me to be intelligent and ok and the next minute they seem to think that I was really stupid and didn’t know how to do things” (p. 284). While a student may have had high ASC in science and very low reading ASC, the combination left their overall ASC fractured. Studies of the I/E model and its effects on students in the general population did not address this relationship between ASC in different domains as positively or negatively affecting overall ASC. Instead, they only showed that high ASC in one domain would likely predict lower ASC in another domain (Pinxten, 2015).

Reading Skills and Achievement

Kasperski et al. (2016) explored the relationship between rapid automatic naming (RAN) and reading rate on reading ASC in 138 Hebrew speaking students in second and third grade. A

RAN test assesses how quickly a student is able to name a series of familiar objects aloud such as letters or numbers. RAN ability represents processing speed and reading rate. Kasperski et al. found that reading rate, which included RAN, predicted reading ASC in the student participants. After assessing reading rate, they determined that slower readers have significantly lower reading ASC than faster readers. Reading fluency is an area typically affected by a reading disability so this study sheds light on reading ASC for students with reading disabilities. Kasperski et al. suggested that reading rate training for slow readers would increase their reading ASC and should be an area of focus for classroom interventions.

In a related study of 115 Israeli Hebrew-speaking second graders, Katzir et al. (2018) sought to learn more about the relationship between reading skills and reading affect. Reading affect was described as a construct of both reading ASC and reading anxiety. They also wanted to discover how reading rate and word reading accuracy influence reading affect. Relative to other studies of ASC, Katzir et al. used a large number of assessments to test their hypotheses. Students were assessed using the Digit Span subtest of the Wechsler Intelligence Scale for Children-Revised (WISC-R), a phonemic fluency test, a rapid automatized naming test and word identification task both from the Alef Ad Taf test, the competence subscale from the Reading Self-Concept Scale, and a questionnaire from the Abbreviated Math Anxiety Scale (AMAS) that was adapted to measure reading anxiety.

Findings from Katzir et al. (2018) indicated that reading anxiety was moderately and negatively correlated with reading ASC, meaning that students with a lower perception of their ability in reading were more likely to have increased reading anxiety. Results also showed that children's reading ASC is likely to be based on their experiences with reading rate and accuracy.

In other words, a students' reading rate influences how they feel about themselves as a reader, which in turn influences levels of anxiety about reading. While Katzir et al. (2018) worked with students in the general population, the findings apply to students with reading disabilities in the same way that the study by Kasperski et al. (2016) did. Students with reading disabilities such as dyslexia struggle to keep pace with their typically developing peers in reading rate and accuracy, thus the findings of this study predicted that their perceptions of themselves as students, and specifically as readers, will be negatively affected by these challenges.

In a much earlier study, Humphrey and Mullins (2002) cited the ASC achievement relationship as rationale for their study into the relationship between dyslexia, ASC, and academic success attribution. They put together a pool of participants that included students from the general population, dyslexic students in the mainstream setting, and dyslexic students educated in specialized settings where 90% of their school day was with their dyslexic peers. The 119 study participants were between the ages of eight and fifteen and ASC and attributions were measured through a series of questionnaires.

Results from Humphrey and Mullins's (2002) study shed light on how students with dyslexia think about themselves as learners. Dyslexic students in both groups associated reading ability with intelligence to a significantly higher degree than students in the general population. Based on these findings, students with dyslexia are likely to consider themselves as unintelligent as they are generally poor readers. Humphrey and Mullins concluded then that unless students with dyslexia receive effective remediating interventions, their ASC may always be tainted by the perception that they are not smart.

McArthur et al. (2016), having noted that evidence pointed to poor readers being at risk for low ASC, wanted to discover what kind of poor readers were most susceptible. The term poor readers can refer to students with a wide range of impairments and includes those with accompanying deficiencies, so their aim was to parse out the group to get a better understanding of what it is about poor readers that makes them vulnerable to lower ASC. McArthur et al. (2016) recruited 77 English speaking Australian children aged 9-12 years who scored at least one standard deviation below the age-expected mean on tests of reading ability. Participants were also assessed for self-concept (general, academic, home, and social), spoken language, attention, and hyperactivity.

Results showed that poor readers were at higher risk for low ASC based on the age equivalent norms set by the Culture Fair Self Esteem Inventory, which is in line with what other research has shown. When McArthur et al. (2016) divided their participants into groups based on accompanying deficits, it was found that students with poor reading alone were not at risk. Poor readers who also had either spoken language or attention deficits had impaired ASC. McArthur et al. suggested that these findings were a potential explanation for the mixed outcomes in previous studies trying to determine whether poor reading affected ASC. They concluded that ASC was more reliably associated with multiple deficits, rather than with reading difficulties alone, and specifically with spoken language and attention deficits. Their hypothesis was that these differences may be because poor readers' "parents and friends view their specific reading impairment as a unique exception to their child's overall academic, general, home, or social abilities" (p. 17) and therefore negative feedback is minimized, preserving their self-concept.

Students with multiple impairments, they supposed, were likely to receive more negative feedback as their deficiencies were more pervasive.

Academic Achievement

Marsh (1990) introduced the concept of the reciprocal effects (REM) between ASC and academic achievement and his theory has been substantiated by others over the years seeking out answers to the nature of the relationship between the two. Does this hold true for students with reading disabilities? Polychroni et al. (2006) ended up with a hypothesis around this question after their research aimed at exploring the motivation for reading among students with dyslexia. The study took place in Greece and involved 32 fifth and sixth grade students with dyslexia and a comparable control group of 210 of their nondisabled peers. The dyslexic students all had an official diagnosis based on IQ ability discrepancy, were in mainstream classrooms, and received individual support for their disability outside of school. The control group was divided into three groups based on teacher ratings of several measures of reading and spelling achievement. Both groups of students were then assessed for ASC, reading attitudes, and approaches to learning. The study focused on different domains of ASC and global, non-academic self-concept was not assessed.

Polychroni et al. (2006) reported the dyslexic students had lower reading, handwriting, math, and general ASC than the high and average/low performance groups. Additionally, they found significant differences between the reading, spelling, and general ASC of the dyslexic and high achieving group. Results also revealed that reading was less valued by dyslexic students in terms of being useful for personal development, enjoyment, and furthering opportunities for future success. This appeared to at least in part contradict the idea that students with dyslexia

link reading with intelligence (Humphrey & Mullins, 2002), which would make it an important factor in personal development and future success. The most important finding of the Polychroni et al. (2006) study was that differences in ASC were significantly diminished when students with dyslexia were only compared to the low and average achieving students. This is what led to the hypothesis that perhaps it was not dyslexia itself that made the difference, but low achievement generally. This linked ASC and achievement just as it is theorized to be linked in the general population although it was not stated specifically as a reciprocal relationship. This study would indicate that achievement is a factor in ASC development for students with dyslexia but that it may not necessarily be unique to this group.

It has been suggested that students with dyslexia are more likely to attribute their academic success to teacher quality, therefore their ASC is less likely to be influenced by their own academic achievement (Humphrey & Mullins, 2002). Individual successes then do not provide the same internal motivational boost experienced by typically developing peers because these students do not see it as having been a product of their own ability, but rather the result of a good teacher's effort to help them. This attribution does not lead to higher academic achievement in the same way that success attributed to personal effort does. This is a departure from REM, which suggests that academic achievement and ASC are reciprocally related in the general student population.

Meaningful Support

The effect of meaningful, positive support showed up in a number of qualitative studies of the academic experiences of students with reading disabilities. Lithari (2019, 2021) conducted research and published different aspects of the study's findings in two separate papers. In her

2019 work, Lithari pointed out the crucial role that teachers played in the lives of dyslexic secondary students. This study highlighted several stories of students who recalled being unexpectedly and positively built up by teachers who encouraged them and praised their achievement in specific subject areas. These interactions proved to increase the students' ASC in those areas and in some cases even led to students pursuing school tracks they may not have otherwise attempted.

Several years later, Lithari (2021) identified a number of other themes among the participants. The first theme that emerged focused on dyslexic secondary students as “reluctant learners” (p. 4) who did not want to go to school, sought to avoid challenging subjects, and had difficult classroom experiences. Another theme identified these students as “stressed learners” (p.7), some of whom hated school while others had positive experiences. The youngest participants tended to be the most positive about school. The final theme focused on dyslexic secondary students as “distressed learners” (p. 9) who found it difficult to demonstrate their knowledge, felt they had to work harder than other students, and sought out ways to escape their challenges. Not all students interviewed had significant negative experiences in secondary school as a result of their disability, but many of them did. Many found themselves in a cycle in which they lacked significant support, leading to a failure to attain cultural norms for academic standards, and which ultimately led to lower ASC and what Lithari (2019) referred to as fractured academic identity. The crux of this study was that dyslexic students had not received the meaningful support necessary for them to achieve academic success, which understandably led to low opinions of themselves as learners.

Lindeblad et al. (2016) conducted a study of 67 Swedish children and adolescents, ages 10-16 years old, with severe reading disabilities. Students were chosen for participation in the study by teachers who had identified them as having reading or writing disabilities and 21 had a diagnosis of dyslexia. All participants were screened for word and nonword reading and to qualify, had to be assessed as being at least one standard deviation below the mean for their age in these areas. For their study, Lindeblad et al. (2016) administered the Beck Youth Inventory (BYI), which is used to measure symptoms of depression and anxiety. The authors were unaware of another study to have used the BYI to assess a group of students with reading disabilities but used the tool because results could be compared to the norms set by the assessment. Lindeblad et al. (2016) also administered a questionnaire to students that they had written with questions related to self-efficacy.

The results of the BYI indicated that in measures of self-image and depression, the sample group was similar to the norm group. In the area of anxiety, the results showed that the participants did not have higher scores than the norm group. Lindeblad et al. (2016) reported that according to the self-efficacy questionnaire, 96% of the participants liked school, 75% said that reading was an easy activity, and 89% felt confident in their ability to manage schoolwork. These results surprisingly showed no indication of negative self-image, depression, anxiety, or low self-efficacy at the group level, which differed from previous research findings. Lindeblad et al. (2016) posited several possible understandings for this outcome including an increased knowledge of dyslexia in Sweden and technological advances that supported students in need of special education. They noted that school reforms in Sweden in recent years focused on creating equitable school experiences and concluded that “supportive attitudes and effective teaching

methods have a positive impact on the self-image of children with reading disabilities” (Lindeblad et al., 2016, p. 465).

The importance of meaningful support showed up tangentially in several other studies as well. All of Glazzard’s (2010) dyslexic participants identified their parents as supportive and integral in getting a diagnosis for them. He noted that parental support was key for students with dyslexia but that its effects were mostly negated by the negative experiences students had in the classroom and with peers regarding their disability. Some students told stories of teachers who had been effective and supportive by making accommodations to their schoolwork, understanding their individual needs, and developing strategies to help them. Students in this study were asked what suggestions they had for change and several recommended teacher training in the area of dyslexia to increase overall awareness of the disability, indicating their desire for more supportive classrooms. The Gibby-Leversuch (2019) study strongly suggested that “it is particularly helpful for [children and young people] when parental, cultural, and school attitudes toward [literacy difficulties and/or dyslexia] are understanding and help to cultivate a sense of personal responsibility, high expectations, and self-worth” (p. 5608). McArthur et al. (2019) hypothesized that since poor readers without additional deficits did not appear to be at risk for low ASC, it could be because such students had been spared negative feedback from parents and friends. While getting less negative feedback is not exactly the same as receiving more meaningful support, it is likely that a student who receives less negative feedback may feel more supported by significant people in their lives than a student who is bombarded by negative feedback from those same people.

Negative Classroom Experiences with Teachers and Peers

Many studies on ASC referred to the classroom experiences of students with reading disabilities and negative interactions with teachers and peers were common. Humphrey (2002) found that of the dyslexic students he interviewed, nearly all of them had exceptionally negative experiences at school before receiving a dyslexia diagnosis. “Most worryingly, many of these experiences involved their class teachers calling them stupid, lazy, or slow” (p. 35). Lithari (2019) reported many dyslexic student participants had experienced similar situations with teachers or school officials. For one student, disparaging personal comments from her headmistress actually increased her motivation to prove this woman wrong, thus propelling her to attempt higher achievement. Most students however did not have the internal drive to rise to challenge the negative feedback. While not the most significant factor affecting ASC, Glazzard (2010) found that many of the students with dyslexia had negative classroom experiences with teachers who humiliated or berated them or refused to accommodate or acknowledge their disability. Unfortunately, these experiences, when combined with negative peer experiences, seemed to negate the effects of supportive parenting in promoting positive ASC.

Apart from such experiences with teachers, many studies indicated the ASC of students with reading disabilities was shaped by negative interactions with peers. About half of Glazzard’s (2010) study participants had experienced verbal abuse or bullying by peers. Lithari (2019) found that it was not unusual for students with dyslexia to have negative experiences with peers who did not understand them or their disability. Some students expressed that during school they were often worried that peers would laugh at them in the classroom, even if it had not happened to them before (Lithari, 2021). This is an example of what Lithari (2021) called a

stressed learner who, although they did not actually receive negative feedback from peers, were burdened by the fear that it would happen.

As a student's ASC is "shaped by feedback from significant others in the environment" (Gest et al., 2005, p. 342), it is clear that teacher and peer input of this kind will negatively affect the way students with reading disabilities think about themselves as learners. It is not surprising that studies that included students in self-contained classrooms or special schools did not mention negative experiences with teachers or peers as significant factors in the development of ASC. These students were surrounded by dyslexic peers and teachers with training in the support of students with reading disabilities, making misunderstandings of the traditional classroom environment less likely to occur.

Receiving a Diagnosis

Glazzard (2010) explored self-esteem as an aspect of self-concept among students with dyslexia. He wanted to discover what factors shape the self-concept of these students and studied nine 14- and 15-year-old English mainstream school students. Each of the participants had a previous diagnosis of dyslexia and, Glazzard (2010) noted, were from one of two different schools in a low-income area. Glazzard (2010) conducted semi-structured interviews with the participants. The questionnaire included introductory questions, questions regarding comparisons with other pupils and self-esteem, peer relations, pupils' experiences of teachers, and questions related to parents.

A number of themes emerged during Glazzard's (2010) interviews with students including feelings of disappointment and isolation, and teacher, peer, and parental influence. They concluded that the most significant factor however in academic self-concept and self-esteem was

the diagnosis of the reading disability. The label of dyslexia helped the students to understand who they were as learners, made sense of their struggles, and gave them confidence, knowing that they had a “specific difficulty rather than a general learning difficulty” (Glazzard, 2010, p.67). In other words, students no longer equated their struggles with stupidity, which changed the way they perceived themselves. A student who thinks they are stupid will by default have low ASC.

Battistutta et al. (2018) conducted a related study aimed at discovering the impact of the time of diagnosis on students with dyslexia in Luxembourg. Like Glazzard’s (2010), this study had a small sample size, which included twenty-eight students between the ages of 13-17. Each of the students had been diagnosed with dyslexia in either primary or secondary school using the IQ-achievement discrepancy model. It must be noted that Battistutta et al. (2018) chose not to make distinctions between self-concept and self-efficacy in their study but focused instead on a more general perceived competence of students. Students were presented with questionnaires that included scales measuring perceived academic, social, and general competence. They were also asked the following open-ended questions in an interview: “How would you describe dyslexia?” and “Are your teachers or classmates aware of your disorder?” (Battistutta et al., 2018, p. 174).

Battistutta et al. (2018) thought of perceived academic competence as a construct of academic self-efficacy and ASC and results were therefore a measurement of a combination of the two. Students were considered to have received an early diagnosis of dyslexia if it had taken place during primary school and late diagnosed if it took place during secondary school. The average age at diagnosis for the early group was eight years old and the late group 15 years old.

Results showed that among the study's participants, adolescents who had received an early diagnosis had higher perceived academic competence at the time of the study than those who had received a later diagnosis. Battistutta et al. were surprised to find that the time of diagnosis affected not only perceived academic competence, but student perceptions of their ability to handle nonacademic, everyday situations as well. Another noteworthy finding was that almost all of the early-diagnosed students said that they had explained dyslexia to peers and teachers and had willingly accepted help. The majority of the students in the late-diagnosed group preferred not to even tell teachers or peers about their reading disorder.

Results of the study conducted by Battistutta et al. (2018) were significant even though the study was small in scale. The time of diagnosis proved to affect students in a number of important ways. A diagnosis that did not occur until secondary school was correlated with lower ASC, lower estimations of general competence, and less inclination to confide in teachers and seek out help. Students whose teachers do not know about their reading disability will not receive much-needed accommodations or support in the classroom and are therefore more likely to experience academic challenges related to the disability. And as academic achievement and ASC have been shown to be reciprocally related (Marsh, 1990), when students "continue to struggle without appropriate support, then their ASC is likely to stay the same or even decrease" (Burden, 2008, p. 191), making it likely that they will get caught in the cycle of poor achievement and ASC.

In his brief overview of the research regarding the relationship between dyslexia and self-perception from the 1990s to the early 2000s, Robert Burden (2008) brought up the time of diagnosis factor. He noted that several studies indicated that students who did not receive a

diagnosis until later spent their early school years doubting their intellectual abilities because their difficulties were inexplicable. At the same time, Burden recognized that there was evidence that many students were ambivalent about their diagnosis, not even able to recall when it occurred. This may in itself be indicative that early diagnosis often leads to different outcomes, namely, acceptance of the disability.

Humphrey (2002) spoke about the experiences dyslexic students had with teachers prior to being diagnosed with dyslexia. It was not uncommon for students to have had teachers who misinterpreted their dyslexia-related struggles as laziness or stupidity. Without a proper diagnosis, Burden (2008) found that students doubted their intelligence. What Humphrey found was less subtle. Students had not developed poor ASC based on internal or peer comparisons, they had actually been told that they were idle and lacked the smarts to engage in the academic classroom. Humphrey (2002) did not go on to explain differences in the classroom after diagnosis for his participants, but based on Glazzard's (2010) findings, it is likely that a diagnosis empowered students who could then attribute their struggles to something other than their being unintelligent or lazy. Neither Humphrey (2002) nor Glazzard (2010) discussed how a diagnosis changed the teacher's perception of students with dyslexia or their interactions with these students.

Lithari's (2019) research yielded similar results. Several participants reported being evaluated and diagnosed in early childhood, but they were not told about their diagnosis until much later. This resulted in a "perceived lack of intelligence, which disappeared after a dyslexia diagnosis, rendering the diagnosis a crucial part of identity development" (p. 287). None of the participants in this study expressed embarrassment over their diagnosis. Instead it brought

understanding, increased ASC, and led to much-needed support in school. Lindeblad et al. (2016) suggested that an early diagnosis could be helpful for the development of ASC as students with a diagnosis have the opportunity to adjust and accommodate their expectations for academic results. Gibby-Leversuch et al. (2019) came to a similar conclusion and noted that identification led to recognition and targeted support for students with dyslexia.

In contrast to the previously mentioned studies, Knight (2021) suggested that the dyslexic label had significant and negative effects on students. Knight used data from the Millennium Cohort Study (MCS), a longitudinal study of children in the United Kingdom who were born between 2000-2001. Knight looked to compare students at age 11 and 14 identified with dyslexia and those with shared characteristics of dyslexia but who did not have the label. Controlling for variables including reading and math ability, gender, social economic class, income, and country, Knight matched study participants to discover how a diagnosis of dyslexia affected ASC and thoughts about future academic pursuits.

Knight (2021) found that being dyslexic had a significant influence on reading ASC, math ASC, and student, parent, and teacher aspirations for the students' going to university. Dyslexic students had significantly lower reading ASC and math ASC compared to similar students not labeled as dyslexic. Students, parents, and teachers of students with dyslexia were all less likely to believe they would attend university. Knight attributed all of these findings to the dyslexic label. She expressed surprise that those with dyslexia would have lower math ASC, stating that math skills are not directly associated with dyslexia. It should be noted however that other research has found that the executive function deficits in those with dyslexia have an impact on math ability (Kay & Yeo, 2003; Meiri et al., 2019; Simmons & Singleton, 2008). So

while Knight suggested that the label itself contributes to lower reading and math ASC, she also conceded that it is difficult to attribute these findings to the labeling effect alone. Knight, along with other researchers such as Gibby-Leversuch et al. (2019) suggested exercising caution in the use of the dyslexic label, recognizing that individual students may internalize the label in different ways and noting that there were still many questions regarding the implications of a label.

CHAPTER III: DISCUSSION AND CONCLUSION

Summary of Literature

In the search for factors that affect the academic self-concept (ASC) of students with reading disabilities, a solid foundation of research regarding ASC in the general population was established. It is widely accepted that students develop perceptions of themselves as learners through an assortment and combination of comparisons (Gest, 2005; Pinxten, 2015; Wolff et al., 2018). The three most common theories regarding ASC are the big-fish-little-pond model (BLFP), internal/external comparison model (I/E), and reciprocal effects model (REM). All three models have been substantiated over time and are currently considered the standard in the study of academic self-concept even in the midst of ongoing research. According to the BFLP model, students will have a higher ASC when they are surrounded by lower achieving students and a lower ASC when surrounded by higher achieving students (Marsh, 1984). The I/E model predicts that students will have a higher domain specific ASC when their achievement in that domain is high and when it is higher than another domain (Marsh, 1986). The REM model indicates that there is a reciprocal relationship between ASC and achievement (Marsh, 1990).

The question of how ASC and achievement are related is essential to the conversation regarding student self-perceptions. If ASC and achievement are not connected, then ASC becomes simply an interesting piece of information about the lives of students. If, however, these self-perceptions affect how students engage cognitively, socially, and emotionally in the classroom (Bong & Skaalvik, 2003), then it is of utmost importance that educators understand the factors involved in the formation of ASC. Studies showed that positive ASC increased over time among high-achieving students and negative ASC was increasingly negative over time for

lower achieving students (Frost & Otten, 2016). High ASC was equated with higher achievement on high-stakes tests (Hansen & Henderson, 2019) and was dependent on student ability and school type (Marsh, 1984). Keller et al. (2021) and Wu et al. (2021) found that while ASC and achievement are inextricably related, the trend is not strictly linear but the influence of one on the other waxes and wanes during development. ASC was shown to be influenced by social comparisons for young students (Gest et al., 2005; Pinxten et al., 2014), middle grade students (Marsh, 1984), and even university students (Wolff et al., 2018). The resounding conclusion was clear: ASC is built through comparisons and the assertions of the BFLP, I/E, and REM methods hold true for students over time.

Upon searching the existing literature regarding the ASC of students with reading disabilities, it was revealed that these students followed the trends of their typically developed peers. Some of the studies considered general academic self-concept (ASC) (Battistutta et al., 2018; MacArthur et al., 2016), while others looked at more specific domains of ASC such as reading self-concept (Kasperski et al., 2016). Comparison remained the focus for much of the research with the following factors playing a part in the ASC of students with reading disabilities: BFLP and I/E model effects, reading skills and achievement, and overall academic achievement. Dyslexic students who were surrounded by similarly able peers showed higher ASC than those in more competitive or high achieving classrooms or schools (Huang, 2021; Humphrey 2002). Reading rate and accuracy were shown to affect ASC, with slower and less accurate readers experiencing lower reading ASC (Kasperski, 2016; Katzir, 2018). Several studies concluded that low ASC was not necessarily directly connected to the reading difficulties themselves, but with having multiple deficits (McArthur et al., 2016) or low achievement

generally (Humphrey & Mullins, 2002). All in all, when it came to comparison, students with reading disabilities were negatively affected by the challenges they experienced because of their deficiencies in reading and accompanying low achievement.

There were also factors that influenced the ASC of students with reading disabilities that were distinct from those that showed up in studies whose participants did not have disabilities. Comparison was not the focus of the findings that emerged regarding the importance of meaningful support, the detrimental effects of negative feedback from teachers and peers, or the significance of receiving a diagnosis. Students who were built up by teachers had increased ASC (Lithari, 2019) and supportive school systems that included knowledgeable teachers had a positive impact on the self-perceptions of students with reading disabilities (Lindeblad et al., 2016). Parental support was similarly impactful (Glazzard, 2010). On the other hand, negative classroom experiences with teachers and peers had inimical effects on the ASC of students with reading disabilities. Unfortunately, many study participants reported being mistreated by their teachers or peers (Glazzard, 2010; Humphrey, 2002; Lithari, 2019; Lithari, 2021) and the feedback from these “significant others” (Gest et al., 2005, p. 342) engendered poor ASC.

The final and perhaps most significant factor that affects the ASC of students with reading disabilities is a diagnosis. This topic came up directly in seven of the included studies, which is significant when considering how little research has been done overall regarding the ASC of students with reading disabilities. Students diagnosed with a reading disability were able to understand themselves as learners (Lindeblad et al., 2016) and realized that their struggles were specific and not global (Glazzard, 2010), which in turn brought about more positive ASC. Reflecting on their early years before diagnosis, many students doubted their intelligence

(Burden, 2008; Lithari, 2019) or were berated by teachers who misconstrued their disability for laziness (Humphrey, 2002), which negatively impacted ASC. Those who were not diagnosed until secondary school showed lower ASC than those who received a diagnosis in primary school (Battistutta et al., 2018; Burden, 2008). An early diagnosis was integral in allowing students to adjust to their disability, which meant they could reframe their perceptions of themselves as learners (Lindeblad et al., 2016) and receive much-needed academic support (Gibby-Leversuch, 2019), which both ultimately resulted in higher ASC. The one contrasting voice in the literature pointed to the fact that being labeled as dyslexic was correlated with lower reading and math ASC and diminished expectations for higher education when participants were compared to similarly achieving peers who had not been diagnosed (Knight, 2021). While admitting these findings may not be wholly due to labels, understandably, this author suggested diagnosis should be approached with caution. Knight's results, while contradictory and worthy of further inquiry, cannot repudiate the voices of participants in other studies who spoke of their own personal and positive experiences with diagnosis. Together, regardless of study outcomes, the literature confirmed diagnosis as a factor that significantly affects the ASC of students with reading disabilities.

Professional Application

A review of the current literature revealed that comparison plays a major role in the way academic self-concept develops for students with reading disabilities (Gest, 2005; Pinxten, 2015; Wolff et al., 2018). These students are highly sensitive to peer comparison in particular and because they experience deficiencies in the classroom, are likely to have low ASC as long as they are comparing their ability to that of other more able students. Educators must be aware

of how students are being compared with one another in the public arena of the classroom.

Limiting the number of external comparisons that take place is one way educators can support positive ASC. Internal comparisons can still include the standard letter grade system but would exclude grading on a bell curve or the use of comparative practices that publicly indicate standing within the class. The use of self-referenced standards allows students to compare themselves with their own previous achievement instead of the achievement of their peers. Curriculum based measurement (CBM) is an example of an assessment technique that is both entirely individualized and provides data on student progress. CBM graphs allow students to see how they are performing relative to their own achievement as they work toward mastery.

Educators can also support positive ASC development through the promotion of individuality in the classroom by celebrating different kinds of successes. Students with reading disabilities suffer challenges with literacy, which in the early years of education is a primary focus. For some students this can translate into feeling that they are “rubbish at that and everything” (Lithari, 2019, p. 288). Teachers who provide opportunities for students to demonstrate competence in a variety of subject areas through a variety of means will promote positive self-perceptions in the classroom as students gain confidence in their abilities in areas of strength.

A final suggestion is based on the finding that meaningful support (Glazzard, 2010; Lindeblad et al., 2016; Lithari, 2019) and diagnosis (Burden, 2008; Glazzard, 2010; Lithari, 2021) were significant factors in the development of ASC for students with reading disabilities. In terms of meaningful support, both parents and educators must be knowledgeable about reading disabilities including dyslexia and maintain high expectations for these students to

champion them in the classroom and beyond. Some states in the United States have enacted laws reflecting this as they require teacher education in the area of reading disabilities and screening for early detection of students who are at risk. Individual teachers must take care to follow protocols for early identification of reading disabilities and be cautious how struggling students are treated in the classroom. Being in a classroom with a teacher who has no training in supporting such students can lead to “a daily confrontation with failure” (Ibhour at al., 2021, p. 539). Many participants in the literature experienced the devastating effects of teachers who mistook their undiagnosed disability for laziness, which proved detrimental to their ASC. A significant number of students experienced diagnosis as an affirming turning point in their education, which boosted their academic self-concept and educators have an opportunity to serve in a supportive role in this process.

Limitations of the Research

This research project had both discretionary and involuntary limitations. In the process of sifting through relevant studies, the researcher excluded studies that only looked at self-efficacy and did not include self-concept. As discussed in this paper, the terms self-concept and self-efficacy are related but not interchangeable. Several studies that measured self-efficacy and self-concept as a composite were included. Studies that addressed the experiences of students with learning disabilities or more generally, those receiving special education services, but were not controlled for the type of disability were excluded. It was impossible to use these generalized categories to answer the research question, which focused on reading disabilities. Studies that included the perceptions of adults or college-age students

with dyslexia were not included unless the participants were reflecting on their K-12 schooling experience.

Involuntary limitations came in the form of limited research specifically targeting the experiences of students with reading disabilities. Some earlier studies were excluded due to the fact that they were more than 30 years old and it was determined that the research was out of date. Exceptions included seminal studies in the area of academic self-concept such as those conducted by Marsh (1984; 1986; 1990). It was noteworthy that there were no studies regarding the academic self-concept of students with reading disabilities that originated in the United States that fit the search criteria of this project. It was surprising that the voices and experiences of students from this country were not found in the literature.

Implications for Future Research

There is always an opportunity to expand understanding on a topic with additional research. In the case of the academic self-concept of students with reading disabilities, this is not simply a matter of looking from a different angle or using an alternative methodological approach, although these would add to the literature. The main issue is that there has been relatively little research into this specific topic overall. A review of the relevant literature showed that studies have taken place in a number of European countries, Israel, China, and Australia. The glaring gap in the literature comes from the lack of studies involving American students with reading disabilities. As a developed country with a robust special education system, data originating from the United States would add significantly to this topic.

McArthur et al. (2016) found that poor readers who did not have additional deficits in either spoken language or attention were not at risk for low academic self-concept, suggesting

that it is not reading deficits themselves that affect ASC but the combination of impairments. The purpose of this project was to separate students with reading disabilities from the general population in order to discover what affects the development of their identity as learners and McArthur et al. (2016) brought up an important consideration. What is now clear is that there may be critical distinctions within the heterogeneity of this group that must be made to answer the question about ASC and reading problems. Do some coexisting conditions affect ASC more significantly than others? Which poor readers are most at risk for developing negative self-perceptions in the classroom?

A final suggestion for future research in this area is for studies that look at interventions for students with reading disabilities. It has been suggested that increasing reading rate and accuracy for these students would positively affect their ASC (Kasperski et al., 2016; Katzir et al., 2018). Which reading interventions provide the biggest boost to ASC for students with reading disabilities? Are there non-academic interventions that increase ASC for these students?

Conclusion

Academic self-concept is the perception of one's abilities in the classroom, an academic identity constructed through experiences with learning, and is associated with achievement (Ehm et al., 2019; Hansen & Henderson, 2019). The academic self-concept of K-12 students with reading disabilities emerges as it does for their typically developed peers: through comparison. Comparisons with peers (Huang et al., 2021; Marsh, 1984; Wolff et al., 2018), with past academic success and failure (Lithari, 2019; Katzir et al., 2018), and with achievement in different subject areas (Lithari, 2019) all play a part in how students think about themselves as

learners. Unlike the general population, however, students with reading disabilities also have unique experiences that shape the formation of their academic self-concept. Meaningful support (Gibby-Leversuch 2019; Glazzard, 2010; Lindeblad et al., 2016; Lithari, 2021) and receiving a disability diagnosis (Battistutta et al., 2018; Burden, 2008; Humphrey, 2002; Lithari, 2019) can positively affect ASC while negative classroom experiences with insensitive teachers and peers have detrimental effects (Glazzard, 2010; Humphrey, 2002; Lindeblad et al., 2016; Lithari, 2019; Lithari 2021) . Educators can support the development of positive academic self-concept for students with reading disabilities by creating inclusive classrooms that celebrate a variety of successes and limit external comparisons by focusing on self-referenced standards, which allow students to view achievement as a measure of personal growth.

References

- Arslan, G. (2021). Social ostracism in school context: Academic self-concept, prosocial behaviour, and adolescents' conduct problems. *The Educational and Developmental Psychologist*, 38(1), 24-35. 10.1080/20590776.2020.1834830
- Battistutta, L., Comissaire, E., & Steffgen, G. (2018). Impact of the time of diagnosis on the perceived competence of adolescents with dyslexia. *Learning Disability Quarterly*, 41(3), 170-178. 10.1177/0731948718762124
- Bong, M., & Skaalvik, E. M. (2003). Academic self-concept and self-efficacy: How different are they really? *Educational Psychology Review*, 15(1), 1-40.
<http://dx.doi.org/10.1023/A:1021302408382>
- Boyes, M. E., Leitao, S., Claessen, M., Badcock, N. A., & Nayton, M. (2016). Why are reading difficulties associated with mental health problems? *Dyslexia*, 22(3), 263-266.
<http://dx.doi.org/10.1002/dys.1531>
- Burden, R. (2008). Is dyslexia necessarily associated with negative feelings of self-worth? A review and implications for future research. *Dyslexia*, 14(3), 188-196.
<http://dx.doi.org/10.1002/dys.371>
- Burden, R., & Burdett, J. (2007). What's in a name? Students with dyslexia: Their use of metaphor in making sense of their disability. *British Journal of Special Education*, 34(2), 77-82. <http://dx.doi.org/10.1111/j.1467-8578.2007.00459.x>
- Dehaene. (2009). *Reading in the brain: The science and evolution of a human invention*. Viking.
- Ehm, J., Hasselhorn, M., & Schmiedek, F. (2019). Analyzing the developmental relation of academic self-concept and achievement in elementary school children: Alternative

- models point to different results. *Developmental Psychology*, 55(11), 2336-2351.
2336-2351. 10.1037/dev0000796
- Frederickson, N., & Jacobs, S. (2001). Controllability attributions for academic performance and the perceived scholastic competence, global self-worth and achievement of children with dyslexia. *School Psychology International*, 22(4), 401-416.
- Frost, J., & Ottem, E. (2018). The value of assessing pupils' academic self-concept. *Scandinavian Journal of Educational Research*, 62(2), 264-271.
10.1080/00313831.2016.1212397
- Gest, S. D., Domitrovich, C. E., & Welsh, J. A. (2005). Peer academic reputation in elementary school: Associations with changes in self-concept and academic skills. *Journal of Educational Psychology*, 97(3), 337-346. 10.1037/0022-0663.97.3.337
- Gibbs, S. J., & Elliott, J. G. (2020). The dyslexia debate: Life without the label. *Oxford Review of Education*, 46(4), 487-500. 10.1080/03054985.2020.1747419
- Gibby-Leversuch, R., Hartwell, B. K., & Wright, S. (2019). Dyslexia, literacy difficulties and the self-perceptions of children and young people: A systematic review. *Current Psychology*, 40(11), 5595-5612. 10.1007/s12144-019-00444-1
- Glazzard, J. (2010). The impact of dyslexia on pupils' self-esteem. *Support for Learning*, 25(2), 63-69. <http://dx.doi.org/10.1111/j.1467-9604.2010.01442.x>
- Hansen, K., & Henderson, M. (2019). Does academic self-concept drive academic achievement? *Oxford Review of Education*, 45(5), 657-672. 10.1080/03054985.2019.1594748
- Huang, A., Sun, M., Zhang, X., Lin, Y., Lin, X., Wu, K., & Huang, Y. (2021). Self-concept in primary school student with dyslexia: The relationship to parental rearing styles.

- International Journal of Environmental Research and Public Health*, 18(18), 9718.
10.3390/ijerph18189718
- Humphrey, N. (2002). Teacher and pupil ratings of self-esteem in developmental dyslexia. *British Journal of Special Education*, 29(1), 29-36.
- Humphrey, N., & Mullins, P. M. (2002). Personal constructs and attribution for academic success and failure in dyslexia. *British Journal of Special Education*, 29(4), 196-203.
- Individuals with Disabilities Education Improvement Act of 2004 (IDEA), 20 U.S.C. §§ 1400. (2004)
- Ihbour, S., Anarghou, H., Boulhana, A., Najimi, M., & Chigr, F. (2021). Mental health among students with neurodevelopment disorders: Case of dyslexic children and adolescents. *Dementia & Neuropsychologia*, 15(4), 533-540. 10.1590/1980-57642021dn15-040014
- Kasperski, R., Shany, M. & Katzir, T. (2016). The role of RAN and reading rate in predicting reading self-concept. *Reading and Writing*, 29, 117–136.
<https://doi.org/10.1007/s11145-015-9582-z>
- Katzir, T., Kim, Y. G., & Dotan, S. (2018). Reading self-concept and reading anxiety in second grade children: The roles of word reading, emergent literacy skills, working memory and gender. *Frontiers in Psychology; Front Psychol*, 9, 1180.
10.3389/fpsyg.2018.01180
- Kay, J., & Yeo, D. (2003). *Dealing with dyslexia in mathematics learning*. (pp. 31-90). David Fulton Publishers. 10.4324/9780203459478-8
- Keller, L., Preckel, F., & Brunner, M. (2021). Nonlinear relations between achievement and academic self-concepts in elementary and secondary school: An integrative data analysis

across 13 countries. *Journal of Educational Psychology*, 113(3), 585-604.

10.1037/edu0000533

Knight, C. (2021). The impact of the dyslexia label on academic outlook and aspirations: An analysis using propensity score matching. *British Journal of Educational Psychology; Br J Educ Psychol*, e12408.

Lindeblad, E., Svensson, I., & Gustafson, S. (2016). Self-concepts and psychological well-being assessed by Beck Youth Inventory among pupils with reading difficulties. *Reading Psychology*, 37(3), 449-469. <http://dx.doi.org/10.1080/02702711.2015.1060092>

Lithari, E. (2019). Fractured academic identities: dyslexia, secondary education, self-esteem and school experiences. *International Journal of Inclusive Education*, 23(3), 280-296. <http://dx.doi.org/10.1080/13603116.2018.1433242>

Lithari, E. (2021) Academic identity development: School experiences and the dyslexic learner. *International Journal of Inclusive Education*. <https://doi.org/10.1080/13603116.2021.1879947>

Lovett, M. W., Frijters, J. C., Wolf, M., Steinbach, K. A., Sevcik, R. A., & Morris, R. D. (2017). Early intervention for children at risk for reading disabilities: The impact of grade at intervention and individual differences on intervention outcomes. *Journal of Educational Psychology*, 109(7), 889-914. <http://dx.doi.org/10.1037/edu0000181>

Marsh, H. W. (1984). Self-concept: The application of a frame of reference model to explain paradoxical results. *The Australian Journal of Education*, 28(2), 165-181.
10.1177/000494418402800207

Marsh, H. W. (1986). Verbal and math self-concepts: An internal external frame of reference

model. *American Educational Research Journal*, 23(1), 129-149.

10.3102/00028312023001129

Marsh, H. W. (1990). Causal ordering of academic self-concept and academic achievement:

A multiwave, longitudinal panel analysis. *Journal of Educational Psychology*, 82(4), 646-656. 10.1037/0022-0663.82.4.646

Marsh, H. W., Pekrun, R., Murayama, K., Arens, A. K., Parker, P. D., Guo, J., & Dicke, T.

(2018). An integrated model of academic self-concept development: Academic self-concept, grades, test scores, and tracking over 6 years. *Developmental Psychology*, 54(2), 263-280. 10.1037/dev0000393

McArthur, G., Castles, A., Kohnen, S., & Banales, E. (2016). Low self-concept in poor readers:

Prevalence, heterogeneity, and risk. *PeerJ*, 2016(11), e2669. 10.7717/peerj.2669

McArthur, G.M., Filardi, N., Francis D.A., Boyes, M.E., & Badcock, N.A. (2020). Self-concept

in poor readers: A systematic review and meta-analysis. *PeerJ* 8:e8772.

<http://doi.org/10.7717/peerj.8772>

Meiri, R., Levinson, O., & Horowitz-Kraus, T. (2019). Altered association between executive

functions and reading and math fluency tasks in children with reading difficulties compared with typical readers. *Dyslexia (Chichester, England); Dyslexia*, 25(3), 267-283.

10.1002/dys.1624

Omnibus K-12 Education Bill, Minnesota House for the 91st Legislature, § 1st Sp. Sess (2019).

Orozco, R., Benjet, C., Borges, G., Moneta Arce, M. F., Fregoso Ito, D., Fleiz, C., & Villatoro, J.

A. (2018). Association between attempted suicide and academic performance indicators among middle and high school students in Mexico: Results from a national survey. *Child*

- and Adolescent Psychiatry and Mental Health*, 12(1), 1-10. 10.1186/s13034-018-0215-6
- Pinxten, M., Wouters, S., Preckel, F., Niepel, C., De Fraine, B., & Verschueren, K. (2015). The formation of academic self-concept in elementary education: A unifying model for external and internal comparisons. *Contemporary Educational Psychology*, 41, 124-132. 10.1016/j.cedpsych.2014.12.003
- Polychroni, F., Koukoura, K., & Anagnostou, I. (2006). Academic self-concept, reading attitudes and approaches to learning of children with dyslexia: Do they differ from their peers? *European Journal of Special Needs Education*, 21(4), 415-430.
- Shaywitz, S. E., Shaywitz, J. E., & Shaywitz, B. A. (2021). Dyslexia in the 21st century. *Current Opinion in Psychiatry*, 34(2), p.80-86. 10.1097/YCO.0000000000000670
- Simmons, F. R., & Singleton, C. (2008). Do weak phonological representations impact on arithmetic development? A review of research into arithmetic and dyslexia. *Dyslexia*, 14(2), 77-94. 10.1002/dys.341
- Wanzek, J., Stevens, E. A., Williams, K. J., Scammacca, N., Vaughn, S., & Sargent, K. (2018). Current evidence on the effects of intensive early reading interventions. *Journal of Learning Disabilities*, 51(6), 612-624. <http://dx.doi.org/10.1177/0022219418775110>
- Wolff, F., Helm, F., Zimmermann, F., Nagy, G., & Möller, J. (2018). On the effects of social, temporal, and dimensional comparisons on academic self-concept. *Journal of Educational Psychology*, 110(7), 1005-1025. 10.1037/edu0000248
- Wu, H., Guo, Y., Yang, Y., Zhao, L., & Guo, C. (2021). A meta-analysis of the longitudinal relationship between academic self-concept and academic achievement. *Educational Psychology Review*, 33(4), 1749-1778. 10.1007/s10648-021-09600-1