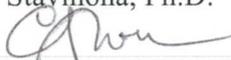


EXTENDED TIME AS A TESTING ACCOMMODATION FOR STUDENTS WITH  
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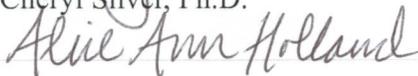
APPROVED BY SUPERVISORY COMMITTEE



Peter Stayinoha, Ph.D.



Cheryl Silver, Ph.D.



Alice Ann Holland, Ph.D.

## DEDICATION

I would like to thank the members of my Graduate Committee. For their unwavering love, patience, encouragement, and support, I would also like to thank my husband, Luke, our son, Shepard, my father, Andrew Kaufman, and my mother, Michele Kaufman, who recently lost her three-year battle with ALS. Mom, this is for you.

EXTENDED TIME AS A TESTING ACCOMMODATION FOR STUDENTS WITH  
DISABILITIES

by

CAROLINE R. JENNINGS

THESIS

Presented to the Faculty of the School of Health Professions

The University of Texas Southwestern Medical Center

Dallas, Texas

In Partial Fulfillment of the Requirements

For the Degree of

MASTER OF REHABILITATION COUNSELING

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by

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### Abstract

The most commonly requested, and most frequently granted, testing accommodation is extended time. However, the literature concerning the utility, fairness, and students' perceptions of extended time as a testing accommodation for students with disabilities is lacking and inconclusive. Existing research has focused on K-12, as well as college and graduate level, students with the majority of students diagnosed with learning disabilities. Some data suggest a benefit of extended time for students with disabilities; however, the majority of data suggest a benefit to all students regardless of disability status. As requests for extended time increase, there is growing concern regarding the fairness of extended time as a testing accommodation. Additionally, students' perceptions and feelings regarding extended time as a testing accommodation vary greatly. In addition to a summary of these relevant issues, areas for future research are presented to inform clinical practice and ensure that educators, policy makers, and practitioners are meeting the rehabilitative and academic needs of students with disabilities.

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LIST OF ABBREVIATIONS

LD – learning disabilities

ADHD – Attention Deficit Hyperactivity Disorder

ADA – Americans with Disabilities Act of 1990

IDEA – Individuals with Disabilities Educational Act of 1997 and 2004

NDRT – Nelson-Denny Reading Test

## CHAPTER ONE

## Statement of the Problem

Education policy and recent school reform including the Individuals with Disabilities Educational Act (IDEA) of 1997 and 2004, the No Child Left Behind Act of 2001, Section 504 of the 1973 Rehabilitation Act, and the 1990 Americans with Disabilities Act (ADA) stipulate that all individuals, including those with disabilities, must receive equal opportunity in academic settings (Cawthon, Ho, Patel, Potvin, & Trundt, 2009; Chiu & Pearson, 1999; Cohen, Gregg, & Deng, 2005; Cox, Herner, Demczyk, & Nieberding, 2006; Elliott, Kratochwill, & McKevitt, 2001; Fuchs et al., 2000a; Fuchs, Fuchs, Eaton, Hamlett, & Karns, 2000b; Kettler, 2012; Lang, Elliott, Bolt, & Kratochwill, 2008; Lovett, 2010; Ofiesh, Mather, & Russell, 2005). It is important to note that IDEA and the No Child Left Behind Act apply to K-12 students only. At this level, services are determined by performance on curriculum-based assessments, as well as goals established by the Individualized Education Plan (Ofiesh, Hughes, & Scott, 2004). While Section 504 of the Rehabilitation Act and the ADA also apply to students in these grade levels, these regulations extend to college and graduate students (Ofiesh et al., 2004). Other authors tend not to make a clear differentiation between K-12 and postsecondary settings (Huesman & Frisbie, 2000; Lovett, 2010); however, Kurth and Mellard (2006) note that there is a shift in responsibility for identifying disability and requesting accommodation services. In the K-12 setting this responsibility falls on the school, whereas in the postsecondary setting, the student assumes responsibility for requesting and advocating for accommodations due to disability (Kurth & Mellard, 2006).

The provision of equal academic opportunity in federal legislation includes national and state standardized assessment procedures. Standardized testing is designed to assess student

achievement, increase school accountability in adherence to state standards, and inform the allocation of educational resources and funding. Additional purposes of standardized testing include grade promotion and teacher salary determination (Bolt & Thurlow, 2004; Fuchs et al., 2000a, 2000b; Fuchs, Fuchs, & Capizzi, 2005; Kettler, 2012; Lang et al., 2008). College or graduate school entrance exams such as the SAT, ACT, GRE, LSAT, or MCAT, as well as professional licensing exams are used for promotion, graduation, and career attainment. It has been argued that these higher stakes assessments are essential to academic advancement, career placement, and earning potential over the life-span (Cohen et al., 2005; Gregg & Nelson, 2010). Testing accommodations affecting such assessments are a highly contested issue, with some researchers arguing that accommodations are often sought and obtained by high achieving, affluent individuals without disabilities, potentially providing these students an unfair testing advantage (Lovett, 2010).

It is difficult to determine whether test results under accommodated conditions accurately represent students' abilities and skills (Cawthon et al., 2009; Elliott et al., 2001; Fuchs et al., 2000a). Additionally, there is little research concerning the effects and consequences of accommodations on the student, on test validity, and on comparability of performance to non-disabled peers (Elliott, McKevitt, & Kettler, 2002). This is largely due to the fact that researchers historically have studied single accommodations or standard accommodation packages (for example, some combination of extra time, assistance with directions, or read-aloud), as opposed to conducting experimental studies concerning the utility of accommodations based on individual student needs. More specifically, given that the IDEA stipulates accommodation decisions be made on a case-by-case basis, research concerning the effect of individualized accommodations, rather than isolated or standard packages would be useful (Elliott et al., 2001). Moreover, what

literature does exist is varied and inconclusive, with some data suggesting that accommodations provide a benefit to students with disabilities and other research suggesting that if anything, accommodations provide a benefit to all students, regardless of disability status (Sireci, Scarpati, & Li, 2005). Furthermore, studies vary greatly with regard to the population evaluated, types of tests used, and degrees of reliability and validity (Huesman & Frisbie, 2000). As a result, researchers, teachers, and clinicians are often left wondering how fair and helpful accommodations such as extended time really are (Cawthon et al., 2009; Elliott et al., 2001; Sireci et al., 2005).

For some students, the need for and effects of accommodations are clear. For example, for students with vision impairment, the use of Braille on testing would offset the vision impairment without affecting the test content (assuming that the test does not aim to measure visual ability). However, in other situations, the appropriateness of testing accommodations is less clear (Elliott et al., 2002; Fuchs et al., 2005). As a result, researchers are eager to understand the value of testing accommodations, the effects of accommodations on students' test scores, the validity of scores in light of accommodation, the fairness of accommodations, and the consequences of testing accommodations on the students receiving them, including self- and public perception (Lang et al., 2008).

To best inform clinical practice and ensure that educators and policy makers are meeting the rehabilitative and academic needs of students with disabilities, it is necessary to further investigate the utility of such accommodations, including the effects that accommodations have on both test results and the students themselves. While there are many testing accommodations available to students with disabilities (Huesman & Frisbie, 2000), the most common is extended time to complete the test (Chiu & Pearson, 1999; Fuchs et al., 2005; Kettler, 2012;

Lewandowski, Lovett, Parolin, Gordon, & Coddling, 2007; Lewandowski, Lovett, & Rogers, 2008; Lewandowski, Cohen, & Lovett, 2013; Ofiesh et al., 2004, 2005; Ungerleider & Maslow, 2001). Additionally, the majority of empirical research that does exist has focused on extended time specifically (Sireci et al., 2005).

This paper will address the following questions. First, what is the utility of extended time as a testing accommodation for students with disabilities? The majority of research appears to focus on students with learning disabilities (LD) and Attention-Deficit/Hyperactivity Disorder (ADHD) so while these disabilities are referenced heavily throughout, the pathology of the disability is not the focus of the paper. Second, how fair is the process of achieving, and provision of, extended time? Third, what are students' perceptions of extended time as a testing accommodation? Existing literature has failed to address these three questions simultaneously. Therefore, the purpose of this paper is to synthesize existing literature in an effort to present all relevant information concurrently.

## CHAPTER TWO

## Review of the Literature

The Americans with Disabilities Act of 1990 (ADA) defines disability as a physical or mental impairment that substantially limits one or more major life activities of an individual; a record of such impairment; or being regarded as having such impairment (ADA, 1990; Kettler, 2012; Lerner, 2004; Ranseen & Parks, 2005). While the ADA does not specify whether or not academic testing is a major life activity, learning certainly is, and there have been numerous court cases advocating for the use of reasonable accommodations in situations where impairments impede learning (Kettler, 2012; Lovett, 2010).

Prior to those legislative successes, students with disabilities, including but not limited to specific LD and ADHD, were often excluded from large-scale achievement testing (Bolt & Thurlow, 2004; Elliott et al., 2002). Field tests conducted by the National Assessment of Educational Progress during the years 1995-1996 indicated that only 45-75% of students with disabilities participated in statewide testing (Fuchs et al., 2000a, 2000b). However, most students with disabilities should be able to participate in statewide testing with the appropriate supports and accommodations (Fuchs et al., 2000a). The inclusion of students with disabilities in large-scale assessment procedures should result in a more accurate representation of all students' achievement levels regardless of the presence of a disability (Huesman, & Frisbie, 2000).

With standardized achievement testing becoming more common than ever as a method for tracking student achievement and accountability of education systems, as well as for competitive educational and vocational advancement, it is imperative that all testing procedures are conducted in an equitable format to facilitate comparison of results (Cawthon et al., 2009). Certain aspects of a disability may interfere with testing performance. Thus, testing

accommodations, or changes to test administration processes that differ from the conditions under which the tests were standardized, are often implemented in an effort to facilitate fair and equal opportunities for individuals with disabilities (Cox et al., 2006; Fuchs et al., 2005; Lewandowski et al., 2008). Moreover, accommodations are intended to increase the comparability of test measures across students by removing sources of measurement error created by disabilities (Elliott et al., 2001; Fuchs et al., 2000a, 2005; Lang et al., 2008).

It is important to differentiate between accommodation and modification. A modification alters the test content itself and has a direct impact on the validity of test results (Elliott et al., 2001, 2002; Elliott, Kratochwill, McKevitt, & Malecki, 2009; Kettler, 2012; Sireci et al., 2005). More specifically, modifications are alterations in content that commonly change the construct or target skill being measured. Modifications tend to increase the performance of all students, therefore limiting the comparability of resulting test scores to test scores that are not modified (Elliott et al., 2001; Kettler, 2012). In comparison, accommodations should not alter the test content, and resulting test scores should be comparable to scores from unaccommodated test results (Elliott et al., 2001).

Accommodations in a learning or testing situation, regardless of grade level, may include extended time, the use of assistive technology, or alterations to the presentation of test material, response format, or setting (Elliott et al., 2001, 2002; Lang et al., 2008). Federal legislation, including both the IDEA and ADA, mandates that reasonable accommodations be made in order to facilitate the participation of students with disabilities on state and district wide large- scale accountability testing, assuming that such accommodations do not place an undue cost or burden on testing organizations or schools (Elliott et al., 2002; Ranseen & Parks, 2005).

Educators in the primary and secondary settings are often primarily responsible for implementing testing accommodations for qualified students. Individuals with disabilities in grades K-12 may be eligible for Individual Education Plans (IEPs), which aim to address each student's abilities and disabilities by providing accommodations on a case-by-case basis (Elliott et al., 2001; Kettler, 2012; Lang et al., 2008). Some accommodations may benefit one student and not another. The literature does not suggest one accommodation that will benefit all students with disabilities (Fuchs et al., 2005).

It is important that the appropriate amount of accommodations are implemented, as too little accommodation may prevent students with disabilities from demonstrating their competence, while overly permissive accommodation may inflate scores and misrepresent students' abilities. The purpose of providing accommodations is to ensure valid—but not necessarily optimal—test results that are accurate representations of a student's skill level by removing the barrier to test performance specifically stemming from the disability (Fuchs et al., 2000a; Lang et al., 2008).

In an effort to address the appropriate use of testing accommodations and interpretation of resulting test scores, some researchers suggest that accommodations should be categorized on a three-tier structure based on the degree to which the accommodation is expected to alter student performance in a way that affects test score interpretation (Cox et al., 2006; CTB/McGraw-Hill, 2004; Kettler, 2012). It is important to note that not all researchers or practitioners agree on this classification system. The purpose of this classification system is to provide a framework of testing accommodation that may be useful when evaluating reported test scores and determining policy (CTB/McGraw-Hill, 2004).

Category 1 accommodations (e.g., large print, alternative setting) are not expected to influence test content or student performance in a way that would affect the standard interpretation of resulting test scores. These accommodations are clearly not related to the construct or skill being measured and often refer to changes in testing location. Therefore, Category 1 accommodations do not need to be reported when evaluating scores. In comparison, Category 2 accommodations (e.g., computer presentation, extra breaks, extended time) may alter test performance in a way that could affect resulting test scores and score interpretation. Depending on the scope of the test, these accommodations may interfere with the construct being measured. As a result, Category 2 accommodations should be considered when reporting test results and according to this classification system test performance should be considered in light of accommodations used. Finally, Category 3 accommodations (e.g., paraphrasing, the use of a calculator on a mathematics test) are often strongly related to the skill or ability being tested. As such, they are likely to impact what the test purports to measure and have an effect on the interpretation of resulting test scores. Given the aforementioned comparative definitions of accommodations and modifications, Category 3 accommodations, or test alterations, should therefore be interpreted as modifications and not accommodations (CTB/McGraw-Hill, 2004; Elliott et al., 2002; Kettler, 2012). While relatively vague, these suggested guidelines are designed to help educators provide students with appropriate accommodations, as well as enhance the validity of resulting test scores (CTB/McGraw-Hill, 2004; Kettler, 2012).

According to McGraw-Hill (CTB/McGraw-Hill, 2004), extended time is categorized as a Category 2 accommodation (Kettler, 2012). Between 1998 and 2003, requests for extended time on the Scholastic Aptitude Test (SAT) increased by about 26% (Bridgeman, Trapani, & Curley,

2003). This increase has also been observed across graduate and licensure exams, including the GRE, GMAT, LSAT, and MCAT (Gregg & Nelson, 2010).

### **Process of Securing Accommodation**

IDEA mandates the inclusion of students with disabilities in large-scale assessments (IDEA, 2004; Kettler, 2012). However, it is up to the individual state to interpret, regulate, and implement testing accommodation procedures. This discrepancy has led to differences across states in the implementation of, and number of students utilizing, testing accommodations. Some states are relatively permissive in granting testing accommodations. In fact, certain states including Oregon, Washington, and Rhode Island allow some unrestricted accommodations on tests to all students, while others maintain strict guidelines regarding access to accommodations. The majority of states have policies that fall somewhere in between (Cox et al., 2006; Kettler, 2012; Lang et al., 2008). As an example of how states differ in granting accommodations, consider the accommodation of having a test read aloud. Three states allow this accommodation without any restriction, that is, any student requesting the read-aloud accommodation, regardless of disability status, may access this accommodation. In comparison, five states do not allow it under any circumstance. Most states, however, allow the read-aloud accommodation in some form when certain criteria have been met (Kettler, 2012). Data suggest that in states with more permissive, or unrestricted, accommodation policies, there is a 30% higher participation rate for students with disabilities on the regular versions of state reading and math tests at the elementary level than in states with more restrictive policies (Cox et al., 2006).

The granting of accommodations is an imperfect procedure. Individuals with a specific disability are often assumed to have the same limitations as other students with the same disability. However, not all individuals exhibit disabilities in the same way, and this is

particularly true among individuals diagnosed with ADHD and LD. ADHD and LD are two of the most frequently occurring disabilities in the special education classroom. Additionally, they are two of the most common conditions associated with extended time (Lovett, 2010). ADHD and LD exist on a continuum in terms of the impact of the conditions on student performance. At times, differences in application of diagnostic criteria, as well as diagnostic tools, practices and procedures may occur, resulting in discrepancies in the way accommodations are granted (Lovett, 2010).

The provision of accommodations at either the K-12 or postsecondary level depends on the outcome of a formalized process to determine individual need and establish disability. At the K-12 level this process of review and approval is mandated by the IDEA (Lang et al., 2008). Provisions for accommodations are included in the student's IEP. At the postsecondary level, accommodations are provided for according to the 504 Plan and the ADA (Ofiesh et al., 2004). Both processes are discussed in more detail below.

As mandated by the IDEA amendments of 1997 (Lang et al., 2008), accommodations at the K-12 level are determined based on the individual's particular needs which are identified by an individualized evaluation (Elliott et al., 2002; Lang et al., 2008; Ofiesh et al., 2004). IEP teams within the school system, commonly comprised of teachers, special services staff, and school administrators (Lovett, 2010), are usually responsible for identifying and ensuring implementation of, based on curriculum- and performance-based assessments, appropriate accommodations for individual students with disabilities under the guidelines of IDEA (Elliott et al., 2002; Ofiesh et al., 2004). When determining the appropriateness of accommodations in a student's IEP, it is important that the opinions of the IEP team are supplemented with objective testing data concerning identification of disability status to avoid potential biases (Lovett, 2010).

In order to request testing accommodations at the postsecondary level, an individual must provide evidence supporting the presence of a disabling condition (Ranseen & Parks, 2005). A disability is said to present a functional impairment when it interferes with the skills targeted by an assessment (Kettler, 2012; Lerner, 2004). For example, a student requesting extended time as an accommodation for a diagnosis of LD or ADHD must typically provide documentation of impairments in academic skills and/or symptoms that could reasonably impact academic and test-taking performance (Ranseen & Parks, 2005). Simply having a clinical diagnosis of LD or ADHD is not enough to grant accommodation. For example, an individual with a diagnosis of LD or ADHD who has a history of academic success may be unsuccessful in requesting extended time as an accommodation (Ranseen & Parks, 2005). It is important to note that students sometimes perceive disability documentation requirements as a hindrance to accessing accommodations (Bolt, Decker, Lloyd, & Morlock, 2011). All of these factors may contribute to inconsistent access to accommodations including extended time for testing among students with similar levels of disability.

Once a postsecondary student has provided the required documentation of a disability, typically an ADA coordinator or disability service provider will determine if the request for accommodation is reasonable and appropriate (Ofiesh et al., 2004). At the college, graduate and professional school levels, students are granted accommodations based on the nature of the disability as determined by clinical evaluation and diagnosis and the resulting functional limitation this places on the student (Ofiesh et al., 2004). This process of granting accommodation is markedly different from the process in the K-12 educational system (Ofiesh et al., 2004).

### **Validity of Test Scores**

When considering the validity of testing accommodations, and the efficacy of extended time as a testing accommodation in particular, it is important to address the ideas of differential boost, interaction hypothesis, and Maximum Potential Thesis. All three speak to the notion that under accommodated testing conditions, students with disabilities should ideally increase their performance. Conversely, students without disabilities should not see a similar increase in score. In the event that accommodations also increase the performance of students without disabilities, the validity of comparisons among resulting test scores is called into question (Lang et al., 2008). All three ideas are discussed more specifically below, beginning with differential boost, the idea most frequently referenced in the literature.

#### **Differential Boost.**

Differential boost (Cawthon et al., 2009; Colker, 2008; Fuchs et al., 2000a, 2005; Kettler, 2012; Lang et al., 2008; Lewandowski et al., 2007) is the extent to which a testing accommodation increases the performance of students with disabilities more than the performance of students without disabilities (Fuchs et al., 2000a; Lang et al., 2008). Accommodated testing conditions should provide a differential boost to students with disabilities. In other words, students with disabilities should demonstrate a greater score gain under accommodated conditions than students without disabilities.

For some disabilities, identifying accommodations that ensure a differential boost is harder than for others (Fuchs et al., 2000a, 2000b). Differential boost is particularly challenging to ensure for students with LD, a generally heterogeneous group which constitutes more than 50% of the entire special education population (Fuchs et al., 2000a, 2000b, 2005; Lewandowski et al., 2013; Runyan, 1991). Students with LD most often struggle with reading or math deficits,

academic skills which many tests aim to measure. Moreover, given the inherent heterogeneity of students with LD, it is impossible to establish a singular testing accommodation that will provide a differential boost for each individual student in each testing scenario (Fuchs et al., 2000a, 2000b). Additionally, it would be an overgeneralization to assume that all individuals with LD require testing accommodations in order to achieve academic success (Huesman & Frisbie, 2000).

### **Interaction Hypothesis.**

The interaction hypothesis (Sireci et al., 2005) suggests that only students with disabilities will demonstrate higher test scores when using testing accommodations in comparison to test scores obtained under standard conditions. Conversely, students without disabilities should not exhibit higher test scores under accommodated conditions. A fair accommodation should result in an interaction between student group (students with disabilities or students without) and test administration conditions (accommodated or standard processes) (Cawthon et al., 2009; Sireci et al., 2005). This is a similar concept to Differential Boost in that students without disabilities should receive little, or no, academic benefit from accommodated testing conditions relative to students with disabilities. The goal of a testing accommodation is to provide equal access for a student with a disability in order that he/she may adequately demonstrate his/her skill level without the impact of his/her disability (Colker, 2008). In other words, the accommodation should compensate for an essential aspect of the disability (Colker, 2008; Fuchs et al., 2000a; Lang et al., 2008)

### **Maximum Potential Thesis.**

An early hypothesis behind the ideas of differential boost and interaction hypothesis was the Maximum Potential Thesis (MPT) (Zuriff, 2000). The MPT, relevant only to extended time

conditions, not other accommodations, speculated that students without LD were already performing at their maximum level under timed conditions (Runyan, 1991); therefore, providing extended time as an accommodation did little to boost their scores (Cawthon et al., 2009; Runyan, 1991; Sireci et al., 2005; Zuriff, 2000). In comparison, students with LD were unable to perform at their maximum level under timed conditions, therefore showing considerable improvement when allotted extra time (Runyan, 1991). This hypothesis was never comprehensively tested, but was offered as a plausible explanation for data in support of the differential boost for students with disabilities.

### **Extended Time as an Accommodation**

Extended time is one of the most commonly requested, and granted, testing accommodations. However the research regarding its efficacy and application is inconsistent, and at times, lacking. Before reviewing the existing literature, it is helpful to first understand the premise behind timed tests, as well as possible rationales for requesting extended time conditions. Additionally, it will be useful to review under which testing conditions extended time might be an appropriate accommodation, as well as address just how much time might actually be beneficial to students requesting accommodated conditions.

While some experts argue that testing should focus on knowledge, as opposed to how quickly an individual is able to demonstrate that knowledge, the fact of the matter is that the majority of standardized tests are given under timed conditions (Ungerleider & Maslow, 2001). Often, examinations are given under timed conditions simply as a practical matter, and consideration is not given to the fact that humans process and demonstrate certain skills at different rates for various reasons (Gregg & Nelson, 2010; Ungerleider & Maslow, 2001). Tests vary on a continuum based upon two factors. Pure speed tests are characterized by very low task

difficulty and severe time limits, with scores often determined by the number of items attempted and the accuracy of responses. The strict time limit often makes it impossible for a student regardless of ability to complete the test. In comparison, pure power tests are essentially un-timed assessments. They are often characterized by greater task difficulty relative to speed tests, and speed in responding has no effect on resulting test scores (Helmbold & Rammsayer, 2006; Lovett, 2010; Runyan, 1991).

The number of students requesting extended time as an accommodation has increased dramatically, with data from a comparison of requests of 2001 and 2000 suggesting an increase of 162% in a one-year time period (Ofiesh et al., 2005). The majority of students who request extra time do so in order to compensate for slow reading speed, comprehension weaknesses, written language deficits, processing-speed deficiencies, and sustained attention difficulties (Huesman & Frisbie, 2000; Ranseen & Parks, 2005).

It is vital that the purpose of the test is considered when determining whether or not extended time is an appropriate accommodation. For example, if the purpose of a test is to determine the extent to which an individual is able to respond or perform under timed conditions (e.g., a speed test), then granting extended time as an accommodation would be inappropriate, as it could potentially change the very construct being measured (Gregg & Nelson, 2010; Ranseen & Parks, 2005). In contrast, if the construct being measured is not speed, yet the exam is still given under timed conditions, the provision of extended time may lead to skewed test results. More specifically, if students without disabilities are unable to complete the test under timed conditions, yet only students with disabilities receive extended time, then the results may not be an accurate representation of the students' abilities across the group regardless of disability status. This may be due to the fact that students with disabilities had access to more questions

than students without disabilities therefore impacting the comparability of resulting test scores. It is therefore important to consider whether, under specific task circumstances, extended time conditions would benefit all students or whether extended time might ameliorate the negative impact of a disability which is the intended purpose of an accommodation (Lovett, 2010).

Research is unclear as to the amount of extra time needed by students with LD. Given the processing-speed difficulties and cognitive efficiency/fluency deficits common among students with LD and/or ADHD, it is possible that extended time accommodations might compensate for their slower speed of information processing and other attention-related difficulties (Cohen et al., 2005; Colker, 2008; Huesman & Frisbie, 2000; Lewandowski et al., 2007, 2007, 2013; Ofiesh et al., 2004). Operationalized, extended time typically ranges from time and a half, double time, to an unlimited amount of time on the assessment (Cawthon et al., 2009; Lichtenburg, 2004). However, evidence suggests that the amount of time needed varies greatly from student to student (perhaps due to severity of disability) and that no arbitrary, standard rule would be generally applicable or appropriate (Alster, 1997; Bolt et al., 2011; Huesman & Frisbie, 2000; Runyan, 1991).

Moreover, there is currently no scientific basis or standardized method for determining the amount of extra time each student will receive. Rather, decisions are made on a case-by-case basis relying largely on clinical judgment by practitioners and educators (Lewandowski et al., 2013). That said, the amount of time a student receives is critical when determining the fairness of extended time as a testing accommodation. Too much time might provide the student with an unfair testing advantage (Lichtenburg, 2004). For example, data suggest that when compared to the performance of students without LD given standard time, students with LD given double time had access to 26% more test content and demonstrated 20% more correct answers. This

large advantage suggests that extended time, specifically double time, may actually provide students with LD with an unfair testing advantage in that it may go beyond providing equal opportunity (Lewandowski et al., 2013). Conversely, the provision of too little might not provide adequate compensation to offset the impact of the disability (Lichtenburg, 2004).

Researchers note that performance on certain tests, particularly those that include measures of cognitive speed—including, but not limited to, the Wechsler Adult Intelligence Scale-III (WAIS-III; 1997), the Nelson Denny Reading Test (NDRT; Nelson, Brown, & Denny, 1960) and the Reading Fluency and Academic Fluency cluster tests on the Woodcock-Johnson Tests of Achievement, Third Edition (WJ-III; Woodcock, McGrew, & Mather, 2001) — is helpful in determining a recommendation for the use of extended time (Ofiesh et al., 2005). These tests may be particularly useful given that they are all timed activities with normative data which allows researchers to document the presence of a speed deficit for an individual student relative to the general population.

### **Utility of Extended Time as an Accommodation**

Given that extended time is one of the most commonly granted testing accommodations, particularly among high school or college students diagnosed with LD or ADHD (Bolt et al., 2011; Fuchs et al., 2000a; Lewandowski et al., 2007; Runyan, 1991; Sireci et al., 2005), it is imperative that researchers evaluate its effectiveness and whether or not it provides a differential boost for students with disabilities. However, the literature regarding extended time as a testing accommodation does not adequately address questions regarding the efficacy of extended time (Bolt & Thurlow, 2004; Cawthon et al., 2009; Colker, 2008; Gregg & Nelson, 2010; Kettler, 2012; Lovett, 2010). The majority of research that does exist is conflicting (Sireci et al., 2005). For example, a review of eight studies, including both K-12 and postsecondary students,

indicated that while some studies show empirical support for the interaction hypothesis with regard to extended time, others do not, leaving researchers unable to draw conclusive opinions (Sireci et al., 2005). Although five of those eight studies at least partially supported the interaction hypothesis in that students with disabilities demonstrated greater gains than students without disabilities under accommodated testing conditions, results from the remaining three studies are less conclusive. In two of those three remaining studies, both students with and without disabilities demonstrated gains, and in the last study, neither group demonstrated gains (Sireci et al., 2005).

Existing research regarding the utility of extended time is varied with regard to specific populations and tests used (Huesman & Frisbie, 2000; Lewandowski et al., 2007, 2013). Moreover, little research focuses on extended time specifically but rather analyzes the effects of testing accommodation packages as a whole. This is likely due to the fact that individuals receiving accommodations rarely receive just one accommodation, but rather multiple accommodations at a time (Cohen et al., 2005). While some research indicates that testing accommodation packages have a positive effect on resulting assessment scores (Elliott et al., 2001; Lang et al., 2008), it is impossible to generalize these results to extended time specifically. It is worth noting, however, that some of the research suggests an increase in test scores under accommodated conditions among students without disabilities (Elliott et al., 2001). That said, as discussed below, a few studies analyzing the effects of extended time on test results do exist.

Students with LD constitute the largest population of students being granted extended time as an accommodation (Fuchs et al., 2005; Lewandowski et al., 2008, 2013). Early studies (Runyan, 1991) suggested that students with LD do benefit from extended time when compared with students without LD. Using the Nelson-Denny Reading Test (NDRT), Runyan examined 16

college students with LD and 15 students without LD. Under standard time conditions, non-LD students outperformed students with LD, but under un-timed conditions, students with LD performed as well as students without LD (Runyan, 1991). When given extra time, students without LD did not perform significantly better than they had under standard time conditions. In fact, all but two of the normally achieving students were able to complete the test in the standard 20 minute time frame. In comparison, the extra time allowed students with LD to respond to all of the questions, thereby resulting in a significant increase in performance under extended time conditions (Runyan, 1991). Runyan attributes this differential boost to the Maximum Potential Thesis, hypothesizing that normally achieving students are already performing at their maximum level under standard time conditions and will therefore see no increase in their performance under extended time conditions (Runyan, 1991).

It is important to note that a follow-up analysis (Zuriff, 2000) of this study suggests a confound in the research design. Any student, regardless of disability status, who completed the test under standard conditions was unable to increase his/her scores under extended time conditions. More specifically, this flaw, referred to as a ceiling effect, may prevent students without disabilities from improving their scores under extended time conditions, therefore calling into question the validity of results (Lewandowski et. al., 2007; Sireci et al., 2005; Zuriff, 2000).

A more recent study of 84 college undergraduates, ranging in age from 18-25 (Ofiesh et. al., 2005), supports results from the Runyan (1991) study. Evidence indicates that students with LD who were given extended time exhibited greater score gains (an average of 16.14 points) on certain speeded reading tests, including the NDRT, than students without LD. While students without LD also demonstrated an increase (an average of 3.59 points) in score performance, the score point difference of 12.55 between the groups suggests a significantly greater score gain for

students with LD (Ofiesh et. al., 2005). These findings appear to support the notion of differential boost and interaction hypothesis. It is important to note that the NDRT is given under such strict timed conditions (on average allowing 30 seconds or less per question in a comprehension reading test and nine seconds per question in a vocabulary test) that both students with and without LD may stand to benefit substantially from extended time (Chiu & Pearson, 1999).

However, the majority of more recent literature appears to contradict these theories. For example, in a study of fourth and fifth grade students, 181 with LD and 184 without (Fuchs et al., 2000a), students with LD did not benefit more than students without LD when provided extended time in a reading comprehension testing scenario. More specifically, both groups demonstrated improvement and similar effect sizes; however, students without LD demonstrated greater improvement than students with LD (Fuchs et al., 2000a). It is important to note, however, that while group patterns from this study indicate that extended time does not provide a differential boost for students with disabilities as a group, some individual students will profit differentially from extended time, while others will fail to profit at all. This speaks to the need for student individualized test accommodation decisions, particularly among students with a disability in which the underlying deficits are particularly heterogeneous (Fuchs et al., 2000a). Moreover, the condition of extended time was not provided individually, but rather alongside other testing accommodations, including large print. It is difficult to extrapolate the effect that providing extended time as part of a package of accommodations had on the results.

These results are similar to findings from a study of 97 eighth graders (Elliott & Marquart, 2004), 23 diagnosed with LD, 23 rated by their teachers as “ at risk” for educational difficulties in the area of mathematics, and 51 performing at or above average levels. Students

took equivalent forms of a standardized mathematics test under two different testing conditions, once with standard time of 20 minutes and once with extended time of 40 minutes. Although scores achieved under extended time conditions were higher than scores achieved under standard time conditions for all groups, students with disabilities did not show statistically greater benefit than students without disabilities. More specifically, while students with disabilities demonstrated a gain, on average, of .57 points under extended time conditions, students without disabilities demonstrated a similar on average gain of .43 points. Additionally, students with disabilities scored, on average, at least 3.4 points lower than students without disabilities under both testing conditions. Given that both groups demonstrated similar score gains, and that the difference of .14 in score improvement between the groups was not statistically different, data does not support the interaction effect. (Elliott & Marquart, 2004). However, it is important to note a confound. Data suggests that students had sufficient time to complete the test under standard time conditions and did not show significant score gain under extended time conditions. Additionally, extended time was evaluated as an isolated accommodation which is unrealistic given that the majority of students receive more than one testing accommodation at a time. Results should therefore be interpreted with caution as factors other than extended time likely contribute to an increase in students' test scores (Elliott & Marquart, 2004).

In a similar study of 373 fourth and fifth grade students (Fuchs et al., 2000b), approximately half with LD and half without, assessed using three brief math tests, students without LD benefited more from the extended time accommodations than did the students with LD. Moreover, the effects were statistically significant. These researchers hypothesized that students without LD are actually more competent in the area of mathematics than students with

LD, so it was therefore no surprise that they profited more from extended time on conventional assessments (Fuchs et al., 2000b).

These findings of a lack of differential boost for students with LD under extended time conditions are further substantiated by results from a similar study of 48 eighth grade students (Feldman, Kim, & Elliott, 2011) who took the reading and language arts subtests of the TerraNova Achievement Test (CTB/McGraw-Hill, 1997) under both standard and accommodated testing conditions. Testing accommodations included extended time conditions, but it is unclear how much extended time students received. Both students with LD and students without LD appeared to benefit from receiving these testing accommodations. More specifically, students with disabilities performed worse than students without disabilities under both testing conditions; however, both groups showed significant improvement when provided with extended time conditions. Given that testing accommodations equally benefited both students with and without disabilities, resulting data suggest no interaction between disability status and accommodated condition. It is important to note that this study involved a relatively small sample of students and considered various testing accommodations, not just extended time. As such, results may not be representative of a larger population or extended time conditions specifically (Feldman et al., 2011).

The aforementioned studies (Elliott & Marquart, 2004; Feldman et al., 2011; Fuchs et al., 2000a, 2000b) seem to suggest that extended time may provide a benefit for all students given that both students with and without LD demonstrate significant gains when given extended time (Fuchs et al., 2000a; Gregg & Nelson, 2010). Researchers therefore speculate that extended time does not specifically compensate for a deficit inherent to LD but rather is beneficial for all students. They argue that when the accommodation does not provide specific benefit only to the

intended recipients, there is potential for less valid comparisons among scores. By providing an accommodation that would benefit all students to only one group of students (e.g. students with disabilities), the net effect is potential inflation of test scores for the group to which accommodation was granted (Fuchs et al., 2000a; Lewandowski et al., 2013).

A study of 65 fifth to seventh grade students with and without ADHD (Lewandowski et al., 2007) tested in mathematics fluency and processing speed using the Woodcock-Johnson Tests of Achievement, Third Edition (WJ-III; Woodcock, McGrew, & Mather, 2001) and Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV; Wechsler, 2003) presented similar findings. More specifically, students with ADHD did not demonstrate significant gains in comparison to students without ADHD when provided extended time (Lewandowski et al., 2007). Groups were compared on items attempted and items answered correctly, with the non-disabled group outperforming the students with ADHD with significantly higher scores on each metric tested. However, when percentage correct was the dependent variable, extended time appeared to benefit both groups equally (Lewandowski et al., 2007). It is important to note that the sample studied was relatively small and it is difficult to predict whether results would generalize to a larger population, as well as other subject areas. Additionally, most study participants in the ADHD group used medication and it is impossible to account for the effects of medication in the study in terms of impact on test performance (Lewandowski et al., 2007).

In an effort to extend these results to students with LD, researchers evaluated 64 students in grades 10 through 12 (Lewandowski et al., 2008), 32 of whom had received a LD classification. Students completed the NDRT. In fact, results from this study further substantiate the claim that while students with LD do appear to benefit from extended time accommodations, so do individuals without LD. In fact, students without LD appear to benefit more than students

with LD in that they demonstrated greater score gains when provided extended time (Lewandowski et al., 2008). Moreover, when given extended time, students with LD were able to attempt the same number of questions as students without LD, but their performance did not rise to the level of performance of the students without LD at either time condition (Lewandowski et al., 2008). That said, the sample studied was relatively small and researchers were unable to maintain standardized administration procedures. As a result, researchers were unable to compare results to test norms.

Researchers may conclude from these studies of school-age students that students with disabilities do not exhibit greater score gains than students without disabilities under extended time conditions. In fact, when researchers are able to control for “ceiling effects,” extended time generally appears to benefit both groups of students, regardless of disability status (Elliott & Marquart, 2004; Fuchs et. al., 2000a; Lewandowski et al., 2007; Lovett, 2010). Therefore these studies do not provide support for a differential boost among school-age students with ADHD and LD (Elliott & Marquart, 2004; Fuchs et. al., 2000a; Lewandowski et al., 2007).

These findings appear to hold true regardless of age. In a study of 107 college students (Lewandowski et al., 2013), 26 of whom reported a diagnosis of LD, assessed using the NDRT, evidence suggests that students without LD actually benefited more from extended time than students with LD on both items attempted and items answered correctly. Instead of providing specific benefit to students with LD, these findings suggest that extended time actually provided a differential boost for non-learning disabled students. More specifically, as the amount of extended time increased, the gap in performance between students with and without LD increased in favor of students without LD (Lewandowski et al., 2013). It is important to note that the study participants were drawn from two private, competitive colleges. Despite their disability

status, these students would have had to demonstrate a history of academic success in order to be admitted into the school. Therefore, they may not be representative of the larger LD population.

### **Summary of Studies on Utility.**

While the majority of research does not support a differential boost for students with disabilities under extended time conditions (e.g., Sireci et al., 2005; Zuriff, 2000), additional evidence leaves professionals with far more questions than answers (Gregg & Nelson, 2010). It appears that extended time provides only a nominal score increase for students with disabilities. While data suggest that students with LD do benefit from extra time, evidence indicates that students without LD also benefit from extended time conditions, and the comparative advantage to learning disabled populations is actually quite modest (Chiu & Pearson, 1999). Therefore the majority of evidence does not support a differential boost for students with disabilities. The primary conclusions drawn from a comparison of these studies is that typically achieving students continue to outperform students with LD regardless of extended time conditions (Gregg & Nelson, 2010).

In sum, the literature is both lacking and inconclusive, leaving clinicians unsure as to the utility of extended time as a testing accommodation. The majority of research does not suggest that extended time provides a differential boost for students with LD, but rather tends to provide an increase in score for all students regardless of disability status. Clinicians are therefore left wondering whether or not to provide extended time as a testing accommodation and if so, under what circumstances it would be appropriate and most effective.

### **Fairness of Extended Time as an Accommodation**

As more and more individuals seek testing accommodations, growing concern is being expressed by teachers and fellow students regarding the fairness of such accommodations

(Alster, 1997). Indeed, some researchers argue that the provision of extended time may actually provide students with an unfair testing advantage (e.g., Fuchs et al., 2005; Lewandowski et al., 2013). Consistent with disability law, the purpose of extended time is to level the playing field, not provide unfair advantage, for individuals with disabilities. However, data suggests that all students, regardless of disability status, stand to benefit from extra time (Sireci et al., 2005). In some instances (Fuchs et al., 2000a; Lewandowski et al., 2008; Lewandowski et al., 2013), the benefit to students without disabilities is greater than to students with disabilities. Therefore, the provision of extended time to one group of students, but not another, when both groups stand to benefit, may be inherently unfair. Students with disabilities may be provided more access to test content, resulting in more correct answers, than their typically achieving peers (Lewandowski et al., 2013). Therefore, the validity of resulting test scores is called into question and may be an inaccurate representation of test scores across the general student population. This is particularly concerning among students taking high-stakes college entrance exams such as the SAT and ACT, upon which future academic success and college admission often partially depend (Cohen et al., 2005; Gregg & Nelson, 2010; Ungerleider & Maslow, 2001). On a test where so much is at stake, any provision of testing accommodation, as well as a possible increase in resulting score, must be strictly scrutinized.

When considering the appropriateness of extended time in the college entrance examination process, it is important to note that it has been argued that some of these tests present inherent discriminatory standards (Ungerleider & Maslow, 2001). For example, public assumption is that the SAT is an accurate assessment of a student's mastery of concepts and skills which likely impact future educational success (Ungerleider & Maslow, 2001). However, it cannot be taken for granted that all students, regardless of academic background, have had equal

opportunity to learn the concepts and skills tested (Ungerleider & Maslow, 2001) as this is not always the case. Not all students have had equal academic opportunity or the same SAT preparedness. For example, students without the same level of SAT preparedness, with LD, physical disabilities, anxiety or other emotional problems, as well as from impoverished educational backgrounds may be at a disadvantage when taking the SAT. Resulting scores from these populations may be impacted by conditions related to factors other than academic competence (Ungerleider & Maslow, 2001).

The most commonly requested accommodation on the SAT is extended time (Lichtenburg, 2004; Ungerleider & Maslow, 2004). The number of students requesting extended time for the SAT between 1993 and 1999 nearly doubled (Lerner, 2004; Ungerleider & Maslow, 2001). Additionally, between 1992-1997 the number of students taking the SAT with accommodations increased by 14% each year (Lichtenburg, 2004). Based on data collected by the College Board, 80-90% of students requesting accommodations on the SAT have been diagnosed with LD. Over two-thirds of those accommodation requests are for extended time specifically (Lerner, 2004; Lichtenburg, 2004; Ungerleider & Maslow, 2001). Similarly, the number of students taking the ACT with accommodations nearly tripled from 1989 to 1996 (Lichtenburg, 2004).

One of the issues commonly associated with the fairness of extended time as an accommodation is the concern of over-diagnosis of disability, particularly among economically advantaged, Caucasian individuals, by some physicians and psychologists (Lerner, 2004; Ungerleider & Maslow, 2001). Disability rates, including the prevalence of LD, among children in affluent households, in particular those at greater than 400% of the poverty level, saw an increase of 28% between 2001-2011 (Houtrow, Larson, Olson, Newacheck, & Halfon, 2014).

This rate is more than double the rate of increase evidenced among children in households below the poverty line (Houtrow et al., 2014). Some researchers argue that students who receive extended time on standardized tests are much more likely to come from affluent families (Lichtenburg, 2004). It may be that affluent families often have greater access to diagnostic and treatment services. As mentioned previously, proof of a disability, often obtained through a costly and detailed diagnostic evaluation, is a beneficial, and sometimes essential, part of the accommodation process (Ranseen & Parks, 2005).

Efforts to curtail over-diagnosis through the implementation of more stringent diagnostic criteria might negatively affect individuals of lower socioeconomic status, as these individuals may be unable to afford expensive evaluation necessary for required diagnosis and documentation. In fact, evidence suggests that the demographics of students requesting and receiving accommodations on the SAT are skewed toward higher socioeconomic status (Lichtenburg, 2004; Ranseen & Parks, 2005). Additionally, researchers hypothesize that a change in policy which stipulates that the College Board no longer flag scores of students receiving accommodations may result in an increase of requests for extended time on standardized tests, particularly among students from affluent families and schools (Lerner, 2004; Lichtenburg, 2004). For example, evidence suggests that while only 1.9% of students nationwide receive extended time accommodations (Camara, Copeland, & Rothschild, 1998), students from elite private schools are three to five times more likely than others to receive extended time accommodations (Camara, et al., 1998; Lerner, 2004; Lichtenburg, 2004). This may be a result of parents of students in low-income school systems, as well as teachers and administrators in lower SES school systems, being less knowledgeable, and less aggressive in seeking out special education services than their more affluent counterparts (Lichtenburg, 2004).

A final issue associated with the topic of fairness, is the notion that some students may exaggerate or feign symptoms of a disability for secondary gain. Students may feign symptoms, or have low motivation to show signs of testing improvement, in order to maintain previously prescribed accommodated testing conditions, including extended time. There has been a dramatic increase in the number of students presenting to clinicians with symptoms of disabilities, including LD and ADHD. Many of these students have no prior diagnosis of a disability and may be unable to corroborate symptoms with a history of academic impairment (Harrison, Edwards, & Parker, 2008; Harrison, Edwards, Armstrong, & Parker, 2009; Sollman, Ranseen, & Berry, 2010). Clinicians are left to determine whether the student has a functional impairment commensurate with a diagnosis of a disability, or whether the student is simply feigning functional symptoms. Research suggests that when considering only self-report data, test data or observed test behaviors, clinicians may have a difficult time discerning between students with a diagnosable disability and those feigning symptoms.

As evidenced above, the literature is incomplete as to whether or not extended time is applied fairly and equally across student populations (Lerner, 2004). The granting of extended time to one group of students, but not another, when all students appear to benefit from accommodated conditions seems inherently unfair. Additionally, it is impossible to determine whether there is an over-diagnosis of disability resulting in the provision of accommodations among wealthy students, or whether there is an under-diagnosis of disability among poorer students who have less access to special education supports and resources (Lerner, 2004). Clinicians are also faced with the difficult task of discriminating between students with legitimate disabilities and those feigning symptoms for secondary gain (Harrison et al., 2008;

Harrison et al., 2009; Sollman et al., 2010). As such, these are areas that clearly need further investigation.

### **Students' Perceptions of Accommodations**

The goal of providing testing accommodations is to obtain a more accurate estimate of students' skills by eliminating complicating factors associated with disability. While testing accommodations often reduce students' test anxiety and discomfort, students' opinions and perceptions about both themselves and their testing accommodations vary greatly, from feelings of increased confidence to feelings of inferiority (Feldman et al., 2011; Lang et al., 2005; Lovett & Leja, 2013). Students' feelings can potentially influence the practice of implementing accommodations within the school system, as well as the validity of a test. For example, if an individual perceives an accommodation to be unhelpful, he or she may not use the accommodation, creating a discrepancy between the IEP and its implementation, as well as the validity of resulting test scores. For example, if a blind student chooses not to use the Braille accommodation, the validity of the resulting test scores would certainly be called into question.

Federal special education regulations suggest that students, particularly in postsecondary settings, should be involved in decisions regarding the provision and implementation of testing accommodations. In particular, their perceptions and preferences of available accommodations should be considered. In fact, the farther students progress in their education, the more they will be required to advocate for their own accommodations. Encouraging self-determination with regard to testing and ensuring that students are knowledgeable and proactive about available testing accommodations will be useful as students advance in their academic and eventual employment careers (Lovett & Leja, 2013).

It is commonly assumed that students with disabilities may be less motivated to work hard on tests than students without disabilities. This notion is based on the hypothesis that past testing difficulties and failures negatively impact a student's academic motivation, perseverance, persistence, interest, and effort (Feldman et al., 2011). That said, very little research has been done in this area, and such hypotheses are based largely on speculation.

For example, in a study of eighth grade students (Feldman et al., 2011), 24 students with LD and 24 students without, the students with disabilities had a poorer self-concept and lower self-esteem in comparison to students without disabilities. Students were tested with a language arts achievement test, as well as pre- and post-test questionnaires designed to measure test-related emotions including stress and anxiety, test-related self-efficacy and motivation, and positive regard for the test (Feldman et al., 2011). Both students with and without disabilities demonstrated an increase in self-confidence, as well as a decrease in anxiety, when provided with testing accommodations (Feldman et al., 2011; Lovett & Leja, 2013). However, only students with disabilities showed an increase in testing motivation when provided with accommodations. Therefore, it is possible that improvements in motivation and confidence may positively impact resulting test scores among students with disabilities (Feldman et al., 2011). It is important to note that this study was one of the first of its kind as very little experimental research has been done concerning the effects of testing accommodations on students' attitudes and emotional reactions. The sample of students studied was relatively small and results regarding self-efficacy, motivation, anxiety and positive regard were wholly dependent on student self-report. As such, results should be interpreted with caution.

However, in a study of 152 fourth-graders, 65 of whom were diagnosed with a variety of disabilities, and 142 eighth-graders, 62 of whom had a variety of disabilities, results suggest that

both students with and without disabilities showed an increase in motivation when provided accommodations (Lang, Kumke, Ray, Cowell, Elliott, & Kratochwill, 2005). Students were tested using the TerraNova Multiple Assessment Battery. More specifically, 46% of students with disabilities and 43.4% of students without disabilities noted that they felt more comfortable when provided with testing accommodations. With regard to testing difficulty, 62% of students with disabilities and 50% of students without disabilities noted that the tests seemed easier when the teacher provided accommodations. With regard to a general preference for testing accommodations, 46% of students with disability and 39% of students without disability indicated a preference for accommodations. Researchers therefore hypothesize that students with disability may have a general preference for, and find utility in, testing accommodations in comparison to students without disabilities. These statistics appear to hold true across the two grade levels studied (Lang et al., 2005), but the sample studied was limited both geographically and ethnically. Clearly much more research would be necessary to draw broad conclusions regarding student perception of accommodations.

Results from additional studies suggest comparable conclusions, particularly with regard to students' self-efficacy. In a study of 97 eighth grade students, tested using a standardized mathematics test, (Elliott & Marquart, 2004), 78% of students with LD, 87% of students characterized as at-risk for mathematical difficulties, and 75% of students without LD indicated feeling more relaxed when provided with extended time than they did under standard testing conditions. In contrast, 52% of students with LD, 35% of students at-risk for LD, and 41% of students without disabilities indicated feeling more motivated under accommodated testing conditions than they did under standard testing conditions. Researchers found that while a number of students report feeling more motivated under accommodated testing conditions, a

large number of students did not. In fact, some students reported negative feelings as discussed below (Elliott & Marquart, 2004).

In a study of 55 college students with reading- and writing- related disabilities tested using a survey designed to evaluate the benefit of testing accommodations, extended time in particular was reported by students to be one of the most helpful testing accommodations (Bolt et al., 2011). In a similar study of 108 students from technical and community colleges, 87.5% of those students receiving extended time as an accommodation perceived it to be effective (Kurth & Mellard, 2006). It is important to note, however, that a more rigorous research design method allowing for the random selection of college sites and the students within those sites would enhance the study of perception effects of accommodations at multiple levels (Kurth & Mellard, 2006). Given the age of the participants, the lack of detailed information known about the disabilities of those studied, and the fact that the first study relied entirely on volunteer participants, it is unclear whether or not the samples studied by these two investigations are representative of a larger sample of students with disabilities (Bolt et al., 2011; Kurth & Mellard, 2006).

In general, it appears that regardless of grade level, many students both with and without disabilities perceive testing accommodations, particularly extended time, to be helpful (Lovett & Leja, 2013). Regardless of disability status, accommodations appear to increase students' comfort and self-efficacy, lower frustration levels, and make the tests seem easier (Elliott & Marquart, 2004; Lovett & Leja, 2013). To the extent that accommodations aim to reduce barriers to performance resulting from disabilities, it is to be expected that accommodations would make testing experiences more positive. It is important to note that this increase in positivity on the part of the student regardless of disability status is similar to the resulting effects of

accommodations on actual test scores in that both students with and without disabilities are benefitted (Lovett & Leja, 2013).

Conversely, some students noted negative perceptions of testing accommodations. In the study of 48 eighth grade students mentioned above, more than half of the students assessed indicated that they would be embarrassed to receive help from a teacher during a test and demonstrated concern that their peers might perceive them as less intelligent (Feldman et al., 2011). Additionally, evidence suggests that when provided with testing accommodations, in particular extended time, students with ADHD are particularly concerned about how others might perceive them (Lovett & Leja, 2013; Taylor & Houghton, 2008). In semi-structured interviews of 15 students with ADHD ranging in age from 9 to 17 years, these students reported fearing that extended time as a testing accommodation might lead to peer perceptions of unfairness resulting in negative peer interactions (Taylor & Houghton, 2008). The small number of students interviewed, however, suggests that results may not necessarily be generalized to the larger population.

While many people have argued that testing accommodations are fair, particularly for students with LD (Lang et al., 2008), it appears that students who receive testing accommodations may in fact be discriminated against. More specifically, in a study involving 69 undergraduates (Egan & Giuliano, 2009), who were presented with a hypothetical scenario involving students receiving accommodations, those students who utilized accommodations were perceived to be less intelligent and less respected than those who did not. These findings suggest that perceived unfairness associated with testing accommodations may result in negative evaluations of students with LD by their peers. It is particularly important to note that when the hypothetical student was said to have outperformed the study participant, negative perceptions

and feelings of unfairness increased dramatically (Egan & Giuliano, 2009). It appears that students may be placed in a no-win situation if they choose to use, rather than decline, testing accommodations in that the accommodations may provide a testing benefit but may negatively impact their social standing among their peers. It is unclear whether students are perceived negatively for utilizing, and benefiting from, testing accommodations or whether they are perceived positively for declining accommodations. Regardless, these data appear to substantiate fears about requesting accommodations (Egan & Giuliano, 2009), such as those of perceived unfairness by peers expressed by students with ADHD mentioned previously. It is important to note that such fears may discourage students from using accommodations available to them, resulting in lower test performance. Therefore, this discrepancy suggests the need for additional research regarding students' perceptions of testing accommodations. In particular, data collected from larger, and more diverse, student populations, as well as research concerning the effects of testing accommodations on a student's social environment would be helpful in gaining additional insight into the psychology of testing accommodations. It is important to note that this study was conducted in a classroom using a paper-and-pencil format. Therefore its ecological validity is limited and it will be helpful to explore real world peer interactions and perceptions.

### **Summary of Literature Review**

The most frequently administered testing accommodation across all grade levels is extended time (Chiu & Pearson, 1999; Fuchs et al., 2005; Kettler, 2012; Lewandowski et al., 2007; Lewandowski et al., 2008; Lewandowski et al., 2013; Ofiesh et al., 2004, 2005; Ungerleider & Maslow, 2001). However, existing literature presents conflicting evidence concerning the utility of extended time (Bolt & Thurlow, 2004; Cawthon et al., 2009; Colker, 2008; Elliott et al., 2002; Fuchs et al., 2005; Gregg & Nelson, 2010; Kettler, 2012; Lovett, 2010;

Sireci et al., 2005 ). Researchers have yet to reach a consensus regarding the effects of extended time on students, the validity of resulting test scores, and the fairness of providing extended time as an accommodation (Elliott et al., 2002; Lang et al., 2008; Sireci et al., 2005).

The majority of research appears to suggest that extended time provides a benefit to students both with and without disabilities (Chiu & Pearson, 1999; Elliot & Marquart, 2004; Feldman et al., 2011; Fuchs et al., 2000a, 2000b). Data suggest that students from affluent backgrounds are more likely to receive a diagnosis of disability than students from lower socioeconomic households (Houtrow et al., 2014; Lerner, 2004; Lichtenburg, 2004; Ungerleider & Maslow, 2001). This disparity raises concerns regarding the process for establishing accommodations. More specifically, it raises concerns about the application and access, including socioeconomic and sociocultural issues, of extended time as a testing accommodation. Despite these concerns, it appears that regardless of disability status, many students find extended time to be helpful and generally positive in testing situations (Lang et al., 2008; Lovett & Leja, 2013). However, some students with disabilities express concern that their normally achieving peers may perceive them negatively should they make use of extended time provisions (Feldman et al., 2011; Lovett & Leja, 2013; Taylor & Houghton, 2008). In fact some evidence (Egan & Giuliano, 2009) suggests that testing accommodations can have negative social consequences when utilized. In other words, students with LD who choose to use testing accommodations are at times perceived negatively by their peers. So while testing accommodations may provide an academic benefit at times, they may also negatively impact the student's social environment. As a result some students may choose to decline testing accommodations in order to enhance their social standing (Egan & Giuliano, 2009). Moreover, additional opinions suggest that providing testing accommodations only to students with LD is

inherently unfair. Some states, including Washington, Oregon, and Rhode Island as previously mentioned, have decided to allow testing accommodations to all students regardless of disability. Given the conflicting evidence as to the utility of extended time as a testing accommodation, as well as associated feelings and perceptions, it is vital that additional research be conducted to determine its true efficacy and appropriateness in the academic setting.

## CHAPTER THREE

### Discussion

The purpose of this paper is to provide a synthesis of existing literature concerning the utility, fairness, and students' perceptions of extended time as a testing accommodation for students with disabilities. Research to date has not adequately addressed these issues. To ensure that clinicians are best meeting the academic and rehabilitative needs of students with disabilities, as well as to help clinicians determine the appropriateness of extended time as a testing accommodation, it is useful to consider these issues individually, but ultimately decision-making should involve consideration of all of these factors concurrently. In this section, each of these broad topics is discussed in terms of the implications for clinical practice. The section concludes with a broad discussion of the implications of extended time for the structure and administration of high stakes testing.

#### **Utility of Extended Time as an Accommodation**

Research suggests that there is no single accommodation that will benefit all students with disabilities. This is due to the heterogeneous nature of the population of students with disabilities. Disabilities exist on a continuum from very mild to very severe and may include functional deficits in a variety of performance domains, so it is likely impossible to determine a testing scenario that would meet the needs of all disabled students (Fuchs et al., 2000a, 2000b, 2005). That said, extended time is one of the most commonly requested and granted testing accommodations among K-12, college, and graduate students with disabilities such as LD and ADHD (Bolt et al., 2011; Fuchs et al., 2000a; Lewandowski et al., 2007; Runyan, 1991; Sireci et al., 2005).

Given its potential influence on resulting test scores, extended time is considered by researchers to be both impactful and controversial. Researchers have expressed concern that extended time may impact the validity of measurement of target skills and knowledge, because extending that accommodation to one group but not another may render measurement results incomparable if extended time benefits all students regardless of disability status (Kettler, 2012). However, existing literature is lacking and inconclusive, and clinicians are often left with more questions than answers. In order to determine whether or not extended time provides a true benefit to students with disabilities, researchers have focused on the concepts of differential boost and the interaction hypothesis. Differential boost suggests that students with disabilities should obtain an increase in their score greater than that of students without disabilities under fair accommodated conditions. The interaction hypothesis (Sireci et al., 2005) suggests that only students with disabilities should obtain an increase in their test score under fair accommodated conditions. Thus, these are very similar concepts, both suggesting that under appropriate accommodated conditions, students with disabilities should receive benefit from an accommodation while non-disabled students should receive comparatively little or no benefit from an accommodation. One idea behind these theories is the Maximum Potential Thesis (Cawthon et al., 2009; Runyan, 1991; Sireci et al., 2005; Zuriff, 2000) which stipulates that students without disabilities are already performing at their maximum potential and should therefore see minimal, if any, increase in testing performance if provided with an accommodation. The utility of extended time, or whether or not extended time provides a benefit to students with disabilities relative to their non-disabled counterparts, is a relevant and important factor for clinicians to consider.

While some studies (Ofiesh et al., 2005; Runyan, 1991) suggest that extended time provides students with disabilities a differential boost in comparison to their normally achieving peers, the majority of research indicates otherwise (Elliott & Marquart, 2004; Feldman et al., 2011; Fuchs et al., 2000a, 2000b). While the topic has not been exhaustively researched in terms of test-taker characteristics or various testing conditions, research to date (Elliott & Marquart, 2004, Fuchs et al., 2000a, 2000b; Sireci et al., 2005; Zuriff, 2000) largely shows a lack of support for the differential boost and interaction hypothesis with regard to extended time, as this particular accommodation appears to provide a benefit for all students regardless of disability (Feldman et al., 2011; Fuchs et al., 2000a; Gregg & Nelson, 2010). These findings appear to hold true across disability (Lewandowski et al., 2007; 2008) and age (Lewandowski et al., 2013). Moreover, data tend to suggest that the score increase for students with disabilities is a nominal one (Chiu & Pearson, 1999).

If the majority of students appear to benefit from extended time limits, yet the accommodation is extended to only students with disabilities, the validity of comparing resulting test scores is called into question (Sireci et al., 2005). Until more comprehensive studies have been conducted across a variety of testing accommodations in every possible testing scenario, the appropriate use of extended time will continue to rely on the clinical judgment of practitioners well-trained in assessment procedures and score interpretation (Kettler, 2012). When determining whether or not extended time is an appropriate testing accommodation, clinicians should consider the characteristics of both the test and the individual student in question (Kettler, 2012). In order to ensure that the resulting test scores are valid and comparable to those of other students, the provision of extended time should not change the construct being measured. It is vital, when recommending extended time, that the purpose of the test be one other than a

measure of processing speed or fluency (Kettler, 2012). If the construct being measured is speed, then extended time would be an inappropriate accommodation to recommend. However, if the emphasized construct being measured is one other than speed, then extended time might be an appropriate accommodation. Once it is determined whether extended time is an appropriate condition for a particular test, clinicians must then determine whether or not to recommend extended time for a particular student.

Extended time is not appropriate for every individual, nor is it appropriate in every testing case (Kettler, 2012; Stretch & Osborne, 2005). It is important to recognize that extended time does not eliminate the presence of a disability but rather is intended to compensate for specific deficits that may impede a student from performing to his or her capability without the interference of the disabling condition. In order to come up with a rationale for the recommendation of extended time, clinicians must scrutinize existing evaluation data, including collateral information demonstrating academic performance without accommodation, in order to determine whether or not the student demonstrates a functional impairment that will prevent him/her from exhibiting his/her knowledge or skill if there are time limits. In particular, clinicians should consider whether the functional impairment is one of cognitive processing speed or cognitive fluency (Kettler, 2012), deficits common among students with LD and ADHD (Cohen et al., 2005; Colker, 2008; Huesman & Frisbie, 2000; Kettler, 2012; Lewandowski et al., 2007, 2008, 2013; Ofiesh et al., 2004). Some researchers (Kettler, 2012) believe that the best practice is to use extra time as an accommodation in order to overcome these particular impairments. The identified deficit should also be in line with the student's documented academic history. For example, a student with a diagnosis of a disability may have a documented history of academic and testing success without accommodation. In this scenario, the student

appears able to compensate adequately for his or her clinical condition in a manner that diminishes or eliminates functional impairment such that he or she does not necessarily require extended time. Clinicians also should make efforts to ensure that a student is not feigning symptoms of impairment in order to take advantage of extended time conditions. Clinicians may wish to utilize well-validated neuropsychological tests, like the Symptom Validity Test (SVT) (Sollman, et al., 2010) to help discern whether student is feigning symptoms of a disability for secondary gain. Scores from the Feigning Index on the SVT may be particularly useful in helping to determine lack of effort and identify malingering students from those with diagnosable disabilities. A comparison of results from a self-report scale, for example the Conners' Adult ADHD Rating Scale (CAARS) and a standardized test, for example, the Woodcock Johnson Psychoeducational Battery-III (WJPB-III) may also be useful in separating malingering post-secondary students from normally achieving students and from students with ADHD (Harrison et al., 2008). However, clinicians will want to ensure that the self-report scale contains a validity index designed to identify individuals who consistently exaggerate or malingering symptoms for the possibility of secondary gain. Self-report scales on their own appear to be susceptible to malingering (Sollman et al., 2010). The congruence of clinical data and a history of academic challenges, both in support of a diagnosis of disability and identified deficit, provide at least face validity for the recommendation of extended time.

### **Fairness of Extended Time as an Accommodation**

As more and more students request extended time as a testing accommodation (Lerner, 2004; Ungerleider & Maslow, 2001), there is growing concern about the fairness of both the process for obtaining extra time as a testing accommodation and the fairness of granting one group extra time on tests while not extending the accommodation to other groups. Research in

term of fairness has tended to focus on the SAT (Cohen et al., 2005; Gregg & Nelson, 2010; Ungerleider & Maslow, 2001), results of which may impact college admission decisions). Due to the competitive nature of the SAT in terms of students potentially competing for finite admissions slots and SAT scores potentially impacting the quality of their applications, fairly granting accommodations to test takers is relevant for clinicians to consider because recommending accommodations for one student may inadvertently impact the status of another student.

The intended purpose of providing extended time is to provide equal access to the test through elimination of testing conditions that may be peripheral to the construct being measured but which may pose a challenge for a student with a disability. The intent of extended time is neither to provide an unfair testing advantage for students with disabilities nor to optimize performance. As noted above, research to date suggests that all students, regardless of disability status, stand to benefit from extended time conditions (Sireci et al., 2005). Therefore, the provision of extended time to one group, students with disabilities, but not another, students without disabilities, may be inherently unfair. Moreover, resulting test scores are likely an inaccurate representation of students' abilities relative to the rest of the student population (Fuchs et al., 2000a; Lewandowski et al., 2013; Lovett, 2010). Students with disabilities who receive extended time may have more time to access test content, resulting in more correct answers (Lewandowski et al., 2013). Therefore, the provision of extended time only to students with disabilities might in fact go beyond providing equal opportunity and instead provide certain students an unfair testing advantage.

A second issue associated with fairness is the process for the granting of extended time. More specifically, researchers have expressed concern regarding the potential over-diagnosis of

disability and disproportionate access to accommodations among students from advantaged economic backgrounds. Some data indicate that individuals from affluent backgrounds are more likely to receive a diagnosis of a disability and therefore will be more likely to obtain testing accommodations (Lichtenburg, 2004; Ranseen & Parks, 2005). It may be hypothesized that students (and their families) at an economic advantage are more knowledgeable about, and have better access to, diagnostic services and academic supports. Some authors (Lichtenburg, 2004; Ranseen & Parks, 2005) have expressed concern about the implications this may have for students from less advantaged backgrounds in terms of less access to accommodated testing conditions and associated advantages. Before drawing any conclusions, however, other plausible explanations for this difference in diagnosis and access patterns among affluent and less economically advantaged groups must be explored. For instance, low-income women have less access and perceive more barriers to prenatal care than women from more advantaged backgrounds (Stout, 1997). It is therefore possible that affluent mothers are better able to carry to term high-risk pregnancies that might have otherwise terminated before birth. These surviving children may be at greater risk for subtle neurocognitive issues that are then later identified as a disability, as their families may be more educated and proactive about securing necessary academic supports and services. Data supports a significant relationship between lower socioeconomic status and adverse birth outcomes, including preterm delivery, low birth weight, and small size for gestational age (Blumenshine, Egarter, Barclay, Cubbin, & Braveman, 2010; Kramer, Seguin, Lydon, & Goulet, 2000; Parker, Schoendorf, & Kiely, 1994). While children from all economic strata who experience severe disabilities may be identified, those with mild disabilities may be more likely to be identified if they are from more affluent families as compared to children with mild disabilities from lower economic strata. A second explanation

might be that affluent families have greater academic and career expectations for their children. In the event that their child struggles academically, they may more likely to seek diagnoses, treatments, and supports. Whatever the cause, it will be helpful to reconsider the current processes by which testing accommodations are provided, since current research documents unequal patterns of granting accommodations across socioeconomic strata.

When a clinician is determining whether or not to recommend extended time for a particular student, it is important that he or she scrutinize the clinical data such as standardized test results and academic records and carefully consider the implications of making the recommendation for extended time both for the client as well as for the population of students to whom the client is compared. Given that the majority of research (Elliott & Marquart, 2004; Feldman et al., 2011; Fuchs et al., 2000a, 2000b) suggests that all students stand to benefit from extended time, yet only some students receive the accommodation, there is the potential for professionals to inadvertently contribute to unfair circumstances that place some competing students at a disadvantage. This highlights the importance of the clinician carefully considering evaluation data and the relevant history for the individual student. Additionally, students from advantaged socioeconomic backgrounds may be more likely to have greater access to diagnostic and clinical services, resulting in a diagnosis of disability (Lichtenburg, 2004). These concerns further reinforce the responsibility of the clinician to make an educated and careful decision when deciding whether or not to make a recommendation for extended time. In other words, while clinicians do not grant extended time as an accommodation, they play an important gatekeeper role by making, or not making, the recommendation for the accommodation. Clinicians must always keep in mind that a recommendation for an accommodation is a statement that a particular student has a disability. This is not to say that a clinician should not

make a recommendation for extended time, but the clinician should be able to substantiate the diagnosis, and subsequent recommendation, through clinical data and a history of academic deficits, particularly due to the implications the recommendation may have for other students, particularly in situations where the student may be competing with others for something that is not open to all students, such as limited admissions openings.

### **Students' Perceptions of Accommodations**

Testing accommodations should provide a more accurate estimate of students' abilities and skills by eliminating complicating factors associated with disability. These factors include students' perceptions and feelings about the use of accommodations, as well as the effect the accommodation has on a student's self-perception, and the impact the accommodation has on others' perceptions of the student utilizing the accommodation.

Evidence suggests that both K-12 and college level students' feelings and perceptions of testing accommodations vary greatly and may influence the actual utility of extended time conditions (Feldman et al., 2011; Lang et al., 2005; Lovett & Leja, 2013). Some data suggest that the majority of students, regardless of disability status, perceive testing accommodations, particularly extended time, to be helpful (Bolt et al., 2011; Kurth & Mellard, 2006; Lovett & Leja, 2013). Additionally, many students—regardless of disability status—find tests given under accommodated conditions to be easier (Lang et al., 2005). Some students report increased feelings of motivation, confidence, and self-efficacy, as well as decreased feelings of anxiety and stress when provided with extended time (Bolt et al., 2011; Elliott & Marquart, 2004; Feldman et al., 2011; Lang et al., 2005; Lovett & Leja, 2013). For the most part, these positive emotional side effects of extended time appear to hold true across grade level (Bolt et al., 2011; Elliott & Marquart, 2004; Lovett & Leja, 2013). However, other students report negative perceptions of

testing accommodations. In particular, some students believe that receiving testing accommodations might lead to negative peer perceptions and interactions (Taylor & Houghton, 2008). These fears appear to be substantiated by findings that students who receive accommodations often are perceived as less intelligent and are less respected by their peers (Egan & Giuliano, 2009). So while students with disabilities may stand to benefit academically, they may consequentially suffer emotionally and socially. Data also suggest that many people believe that providing testing accommodations only to students with disabilities is inherently unfair (Egan & Giulian, 2009; Lovett & Leja, 2013). How a student feels or believes others to feel about his or her receipt of an accommodation may influence whether or not the student chooses to use the accommodated testing condition and potentially benefits from an otherwise appropriate accommodation (Lovett & Leja, 2013). Clinicians should consider all of these factors when determining whether or not to recommend extended time.

Additionally, clinicians should consider that by recommending a student for extended time conditions, they are in effect identifying the student as “disabled” as accommodations are only granted to those who are disabled. This could have a negative effect on a student’s self-perception, as well as negative effect on peer perceptions of the student. Again, this is not to say that clinicians should never recommend extended time, but they will want to proceed cautiously, and consider more than the potential for academic benefit, when doing so. Finally, the evaluation process is an opportunity for clinicians to coach students for whom testing accommodations are recommended. For example, professionals can assess the student’s perception of the recommended accommodation at the time that the accommodation recommendation is made, and perhaps there would be an opportunity for brief coaching and counseling regarding the accommodation to minimize any negative perception the student may experience.

### **Implications for Policy Makers**

Students with disabilities may be at a disadvantage in comparison to their non-disabled peers in certain areas. Students with LD or ADHD may read and process information more slowly, or they may become distracted and thereby prolong their test-taking. However, the literature is unclear as to whether or not extended time actually compensates for these deficits. Students without LD often outperform students with LD, even when students with LD are given extended time conditions. All students, regardless of disability, appear to benefit from extended time. Moreover, granting testing accommodations to one group, but not another, when all students potentially stand to benefit, seems inherently unfair.

To alleviate concerns about fairness, policy makers may want to grant the use of extended time to all students, regardless of disability status, on tests not designed to assess speed. Ideally, tests could be constructed in such a way that extended time accommodations become unnecessary for test-takers. Of course, it must first be determined that granting ample or additional time to all test takers will not change the construct being measured. To the extent that a test is not designed to measure processing speed or fluency, perhaps all students, regardless of disability status, should receive ample time to complete the test. Of course the difficulty is determining what constitutes “ample time”. Given that evidence suggests that double time may go beyond leveling the playing field for students with disabilities (Lewandowski et al., 2013), one can likely assume that unlimited time would do the same. Therefore, time and a half is the suggested amount of additional time to best ensure the validity of resulting test scores. Moreover, given that extended time as a specific accommodation granted only to a select group of students would become irrelevant, concerns of negative peer perception or negative peer interaction would become similarly irrelevant. Providing the same amount of time to all students may be the

only way to eliminate concerns regarding utility and fairness of extended time as an accommodation. An alternative to the provision of time and a half to all students, would be to simply shorten the length of the test itself. A shortened test would have the same net effect of providing extended time to all students. That said, this could result in the test covering less material pertinent to the construct being measured. The hope would be that changes in test administration practices such as these would allow all students to perform to their full potential (Stretch & Osborne, 2005) as well as, experience the benefits of increased confidence, self-efficacy and motivation, as well as, decreased anxiety and stress that come with extended time.

It is important to recognize the potential limits and costs associated with such changes in test administration processes. While some researchers argue for untimed tests, it likely would be unrealistic and financially burdensome to provide truly unlimited time conditions for all test-takers. For example, one student might argue that he or she needs a week to complete a test. This is obviously unreasonable, and practical constraints need to remain in place. Research is needed to determine a reasonable amount of time it takes for the majority of both typical students and students with various disabilities, across all ages, to complete specific tests. This could help companies, organizations, and teachers that design and implement tests determine how much time is ample time.. On measures of speed, no student, regardless of disability, should receive extended time, as this would interfere with the construct being measured.

As it stands now, the process of granting accommodations is a costly one in which everyone associated with academic testing shares the cost. For example, personnel is required to review documentation necessary to request and be granted extended time on the SAT. All test-takers, regardless of disability, pay a fee, determined by all costs and conditions associated with administration, to take the SAT. Therefore a non-disabled student not asking for

accommodations in effect is sharing the cost of a staff member to review requests for accommodations. The provision of time and a half to all students could eliminate the need for extended time, and thereby eliminate the need for personnel hours devoted to review of associated documentation specific to this most commonly requested accommodation. Moreover, by providing extended time to all students, those with mild disabilities may no longer have to endure the often extensive and costly clinical process to receive a diagnosis of disability and recommendation for extended time.

### **Summary**

In sum, the literature concerning the utility, fairness, and students' perceptions of extended time is inconsistent and sparse. It is unclear whether or not students with disabilities truly benefit from extended time conditions in comparison to students without disabilities. While students with disabilities do sometimes show improvements in test scores when provided with extended time, it appears that students without disabilities continue to outperform students with disabilities regardless of extended time conditions (Gregg & Nelson, 2010). Furthermore, there may not be a differential positive effect just for students with disabilities. Similarly, it is unclear whether the process for obtaining extra time and the provision of extended time to one group of students but not another are fair. It may be that students from advantaged backgrounds have better access to, and are more knowledgeable about, accommodations, but other plausible explanations, including biological and sociological ones, must also be considered. Finally, students' feelings and perceptions of accommodations vary greatly, from feelings of increased confidence and motivation, to concerns about negative peer interaction and peer perceived feelings of unfairness. Moreover, little is known about the long term psychological effects of receiving testing accommodations. Given these uncertainties, it is suggested that before

recommending that a student receive extended time, clinicians should consider these three aspects related to extended time: utility, fairness, and psychological implications. In a clinical setting, it is unwise to consider one of these factors without considering the others. For example, an accommodation may have positive utility but it may negatively impact the student's self-perception. Clinicians are responsible for seeing to the health and benefit of the entire individual, and considering these issues simultaneously will help promote the academic needs of the student with disabilities in a responsible manner.

## CHAPTER FOUR

### Suggestions for Future Research

The majority of existing research suggests that extended time provides a benefit to all students, regardless of disability status, leaving questions regarding the utility, fairness, and students' perceptions of extended time largely unanswered (Chiu & Pearson, 1999; Gregg & Nelson, 2010; Sireci et al., 2005). Additional research regarding both characteristics of the test-taker and characteristics of the test itself is necessary.

#### **Characteristics of the Test-Taker**

##### **Disability Status.**

More research is needed to further evaluate whether or not extended time provides a true benefit specific to individuals with disability (Elliott et al., 2002, 2009; Fuchs et al., 2005; Lang et al., 2008; Kettler, 2012; Sireci et al., 2005; Stretch & Osborne, 2005). Moreover, extended time may have different effects on an individual depending on the type and severity of disability. Given the heterogeneous nature of the population of individuals with disabilities, future studies should further evaluate and discriminate between the types and severities of disabilities being studied (Gregg & Nelson, 2010; Elliott et al., 2009). It may be equally helpful to provide more detailed information about the control groups (e.g. students without disabilities), as studies examining extended time frequently fail to describe characteristics such as the variability of socioeconomic background and skill levels of those groups (Lang et al., 2005).

##### **Age.**

Existing literature is also lacking in its evaluation of the role that age of the student might play in determining whether reducing time constraints on tests is a useful accommodation. The majority of research suggests that extended time benefits both students with and without

disabilities (Elliott & Marquart, 2004; Feldman et al., 2011; Fuchs et al., 2000a, 2000b). These findings appear to hold true across K-12 and college level students (Lewandowski et al., 2013). In fact, only one existing study has drawn a conclusion regarding the role of age (Crawford, Helwig, & Tindal, 2004). Results from this study of 5th and 8th graders, some in general education classrooms and others in special education classrooms, suggested that when given three days to complete a writing assessment (as opposed to 30 minutes) only the group of 5th graders showed improvement. This suggests that age may play a factor in the utility of extended time as an accommodation. It is possible, however, that older children already engage in a more recursive, and less linear, writing process, therefore demonstrating less benefit from extended time on writing assessments (Crawford et al., 2004). Thus, the interaction between age, disability, and academic subject would be a potentially fruitful line of future research as clinicians may be able to determine an appropriate amount of extra time for different aged students.

### **Gender.**

Similarly, limited attention has been given to the role of gender as a moderating variable on test performance under extended time conditions (Huesman & Frisbie, 2000). In general, males are more likely to be identified within the school system as needing special education services, even though females with LD are typically more severely impaired and exhibit lower IQ scores than their male counterparts (Huesman & Frisbie, 2000). Given that males are more readily identified as LD within a school system, it is unclear whether results from studies evaluating the utility of extended time are generalizable to the greater student population. Before broader conclusions concerning the role of variables such as age and gender can be drawn, additional research is needed.

**Socioeconomic Status.**

Some data suggest that individuals from economically advantaged backgrounds are more likely to be diagnosed with a disability and have disproportionate access to testing accommodations in comparison to their peers from lower socioeconomic backgrounds (Lichtenburg, 2004; Ranseen & Parks, 2005). It may be that students from more affluent backgrounds are more knowledgeable about, and have greater access to, academic supports and services. However, alternative explanations for this disparity such as the role of prenatal health care or the influence of parents' perceptions of accommodations might emerge from more rigorous study of the role of socioeconomic factors in accessing extended time for testing. As derived from such research, a better understanding of the differences in diagnostic rates and access patterns across socioeconomic levels may help better enable the fair access and administration of accommodations across student groups.

**Influence of Comorbidity and Student Personality.**

Many students diagnosed with LD experience comorbid conditions such as ADHD, depression, or anxiety. It is difficult to determine whether the student's academic difficulties are related to LD, the comorbid condition, or a combination of the two. Some data (Lewandowski et al., 2013) show that students with comorbid conditions have slightly lower test scores than students without comorbid conditions, although this difference was not significant. Future research should evaluate further the possible effects of comorbidity, as well as the potential moderating effects of the personal characteristics of the test-taker (Lewandowski et al., 2008). For example, a highly anxious test-taker may be too embarrassed to utilize accommodations in front of others. Researchers should investigate whether students' perceptions of accommodations influence not only utilization of accommodations, but also accommodation decision-making.

While it has been recommended that students' perceptions and feelings be considered when determining appropriate accommodations, this may not be practiced in reality (Lovett & Leja, 2013). Furthermore, results might help guide clinicians in determining accommodations that are not only useful, but also more widely accepted, and thus easier to implement (Feldman et al., 2011).

### **Parental Influence.**

Through their children, parents are key consumers of, and have an influential role on the implementation and use of, accommodations provided to their children. However, little research has been conducted regarding parents' perceptions of testing accommodations (Lang et al., 2005). Such research could be useful in evaluating the role a parent's views of accommodation plays in whether or not a child chooses to utilize an accommodation. Additionally, it could be helpful to explore the role parents' perceptions of accommodations play in clinical identification of a disability and the consequent recommendation for extended time.

### **Long-Term Consequences.**

Finally, the literature fails to address the possible long-term psychological effects that testing accommodations such as extended time might have on an individual. For example, some teachers and school administrators argue that testing accommodations are counterproductive in the long run because it is unrealistic to assume that similar concessions will be granted in the post-school workplace in which all students must eventually learn to succeed (Taylor & Houghton, 2008). However, longitudinal research to determine whether or not this is the case has not been conducted. Additionally, some clinicians feel that accommodations may interfere with a child's educational development (Lerner, 2004). Given that children with disabilities may be sheltered from the realities of the real world only for so long as they have a system in place

advocating for them, they may actually benefit in some ways from being held to the same standards as children without disabilities. Experts argue that perhaps it is best that children, regardless of disability status, learn from an early age how best to overcome shortcomings and challenges, instead of having those challenges artificially reduced or removed (Lerner, 2004).

### **Characteristics of the Test**

Little emphasis has been given to test subject/content area, format, and length in terms of how these test characteristics are affected by the use of extended time for students with disabilities. It would be useful to evaluate whether the subject being tested, format of the test (e.g., multiple choice, essay), response format (e.g., computerized, paper-and-pencil), length of the test, and testing situation (e.g., high-, moderate-, or low-stakes) have a moderating impact on the utility of extended time (Lewandowski et al., 2008). Results may help clinicians and policy makers better understand under what testing conditions extended time is beneficial and appropriate for students with various disabilities. For example, the Nelson-Denny Reading Test (NDRT) is given under such strict time conditions that all students, regardless of disability status, may stand to benefit from extended time conditions on this particular test (Chiu & Pearson, 1999).

Often it is unclear exactly how much extra time is provided in specific studies, as well as the conditions under which extended time is provided (Elliott et al., 2009; Gregg & Nelson, 2010; Huesman & Frisbie, 2000; Sireci et al. 2005). Extended time is often provided as part of a package of accommodations, rather than as an isolated accommodation. It could be useful to more rigorously research the effects of extended time alone as an individual accommodation. That said, some authors have argued that it is unrealistic to isolate extended time, given that the majority of students receive multiple accommodations on state- and district-wide testing (Elliott

& Marquart, 2004). On a separate note, some evidence suggests that extended time may result in lower test scores for students due to increased fatigue resulting from extended time conditions, yet little is known about the effects of testing conducted over multiple days. Future research should examine the effects of variable formats of extended time such as simply providing a set amount of additional time, providing more frequent breaks, or allowing multiple testing sessions (Bolt & Thurlow, 2004; Lewandowski et al., 2008).

### **Conclusion**

In conclusion, existing literature concerning the utility, fairness, and students' perceptions of extended time as a testing accommodation for students with disabilities is lacking and inconclusive. In fact, the majority of studies do not support extended time as differentially assisting students with disabilities. Clinicians have little empirically-based evidence on which to base decisions whether or not extended time is an appropriate accommodation and under what circumstances it should be recommended. As researchers attempt to fill in the gaps and provide more conclusive answers, it may be helpful for policy makers and test board administrators to consider changes to testing processes that could alleviate the need for extended time altogether given that most studies do not support extended time as an accommodation that is specifically beneficial to students with disabilities.

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BIOGRAPHICAL SKETCH  
 Caroline R. Jennings  
[Caroline.R.Jennings@gmail.com](mailto:Caroline.R.Jennings@gmail.com)

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EDUCATION/TRAINING

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INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Yale University, New Haven, CT	B.A.	2007	Spanish
The University of Texas Southwestern Graduate School of Biomedical Sciences	M.R.C.	2014	Rehabilitation Counseling Psychology

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Positions and Employment

Pure Barre, Dallas, TX; Brooklyn, NY  
*Instructor:* September 2010 - Present

Pace Academy, Atlanta, GA  
*Third Grade Associate Teacher/Lead Spanish Teacher:* August 2008 - June 2010

Connecticut Attorney General, New Haven, CT  
*Intern with Child Protection Department:* Summer 2007

Planned Parenthood, Washington D.C.  
*Fundraising/Public Relations Intern:* Summer 2006

Clinical Experience

Children's Medical Center of Dallas, Dallas, TX  
*Intern:* February 2013 - August 2013

M. Matthew Houson Ph.D. & Associates, Dallas, TX  
*Intern:* August 2012 - February 2013