

5-2014

The Definition, Identification, and Cause of Specific Learning Disabilities: A Literature Review

Joseph M. Cottrell
Utah State University

Follow this and additional works at: <https://digitalcommons.usu.edu/gradreports>

 Part of the [Psychology Commons](#)

Recommended Citation

Cottrell, Joseph M., "The Definition, Identification, and Cause of Specific Learning Disabilities: A Literature Review" (2014). *All Graduate Plan B and other Reports*. 434.
<https://digitalcommons.usu.edu/gradreports/434>

This Report is brought to you for free and open access by the Graduate Studies at DigitalCommons@USU. It has been accepted for inclusion in All Graduate Plan B and other Reports by an authorized administrator of DigitalCommons@USU. For more information, please contact dylan.burns@usu.edu.



THE DEFINITION, IDENTIFICATION, AND CAUSE OF SPECIFIC LEARNING
DISABILITIES: A LITERATURE REVIEW

by

Joseph M. Cottrell

A Plan B paper submitted in partial fulfillment of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

Approved:

Courtenay A. Barrett, Ph.D.
Major Professor

Gretchen Peacock, Ph.D.
Committee Member

Donna Gilbertson, Ph.D.
Committee Member

UTAH STATE UNIVERSITY
Logan, Utah

2014

Copyright © Joseph Cottrell 2014

All Rights Reserved

ABSTRACT

The Definition, Identification, and Cause of Specific Learning Disabilities: A Literature
Review

by

Joseph M. Cottrell, Master of Science

Utah State University, 2014

Major Professor: Courtenay A. Barrett, Ph.D.
Department: Psychology

Students with specific learning disabilities (SLDs) currently make up approximately 40% of students receiving special education. The definition of SLD has not changed since the original special education law was implemented in 1975. Even with the recent changes to special education law in 2004, the definition stayed the same. Some professionals believe this lack of change reveals consistency while other scholars believe this lack of change reveals a lack of knowledge about what SLDs really are. The definition of SLD gives little insight regarding the etiology of the disorder. There are three prominent theories regarding the cause of SLDs: (a) environmental theory, (b) biological theory, and (c) interactional theory. Because these theories are oriented to different perspectives they also align with different methods of identification. IDEA (2004) outlines three SLD identification procedures: (a) the IQ-Achievement discrepancy method, (b) the response-to-intervention method, and (c) alternative research based

procedures (PSW). School psychologists are one member of a multidisciplinary team aimed toward identifying children with disabilities, including SLDs, and providing remediation to them. School psychologists are estimated to spend nearly half their time in special education decision making and thus a large portion of their time is spent identifying students in need of special education services. Therefore, it is important to understand school psychologists' perspectives regarding the SLD construct and identification. Current research is scant regarding school psychologists' beliefs about the cause of SLDs and how these beliefs impact practice, including identification and job satisfaction. This article first addresses the construct and definition of SLD, followed by literature surrounding SLD identification and the school psychologist's role in SLD identification. Finally, the conclusion of this article addresses future research regarding SLDs and possible research directions regarding the topics addressed in this article.

(28 pages)

ACKNOWLEDGMENTS

I want to first acknowledge my advisor, Dr. Courtenay Barrett, and the guidance that she gave me throughout this project. It has been a pleasure to work and learn from her throughout this process. I want to also thank those that were part of my thesis committee, Dr. Gretchen Peacock and Dr. Donna Gilbertson, for their assistance and suggestions throughout the writing process. This project would not have been possible without the help of these individuals. I also want to thank Ben Pierce, Sydnie Ringle, and Alisha Anderson for lending their time in collaborating about this project and their suggestions throughout the writing process.

Above all, I want to acknowledge the support that I receive from my wife and best friend, Ashley Cottrell. Her support has motivated me to work hard each and every day toward completing this project. I would not have been able to complete this project without her help. Without her I wouldn't be the person I am or be where I am today. Thank you.

Joseph M. Cottrell

CONTENTS

	Page
ABSTRACT.....	iii
ACKNOWLEDGMENTS.....	v
CHAPTER	
I. INTRODUCTION.....	1
The Definition of SLD.....	2
II. REVIEW OF LITERATURE.....	5
IDEA and SLD.....	5
Identification Methods and Theories about Causes of SLDs.....	6
SLD and School Psychology.....	11
III. CONCLUSION.....	15
IV. REFERENCES.....	17

CHAPTER I

INTRODUCTION

Students with Specific Learning Disabilities (SLDs) comprise the fastest and largest growing segment of students receiving special education services. Since the passage of the Education for All Handicapped Children Act (Public Law 94-142) in 1975, the percentage of students with SLDs has increased substantially (Fuchs & Fuchs, 1998). Today, over 6.5 million students (ages 3-21) receive special education services in the U.S. with nearly 2.5 million of these students (roughly 40% of all students in special education) identified as having an SLD (Data Accountability Center, 2012). SLDs are related to short-term consequences, such as a more negative self-concept (Zelege, 2004), lower academic achievement (Judge & Watson, 2011), and delinquent behavior (Keilitz & Dunivant, 1986), and long-term consequences such as difficulty obtaining and retaining a job as an adult (Cortiella, 2009). Therefore, proper evaluation of SLDs is paramount in order to inform prevention and intervention initiatives aimed at improving outcomes for youths.

This review of the literature regarding SLD includes (1) the definition of SLD, (2) the procedures used for identifying SLDs, and (3) the causes of SLD. Although there is great overlap between these three topics, they are discussed separately throughout this document for clarity. For example, although the IDEA (2004) definition of SLD does not explicitly contain specific procedures for identification, the definition of SLD is clearly related to procedures needed to identify SLDs. The remainder of this introduction discusses the definition of SLD; the next chapter discusses causes of SLDs and procedures for identification.

The Definition of SLD

The negative outcomes associated with SLDs have been well-documented, but there is still uncertainty regarding the definition of SLD as a psychological construct. A psychological construct is a hypothetical concept that can never be absolutely confirmed; the degree to which any psychological construct characterizes an individual can only be inferred from observations of his/her behavior (Crocker & Algina, 1986). There are few topics in the field of SLD that evoke as much controversy and conflict as those related to the definition of the condition (Hammill, 1990).

Hammill (1990) compiled varying definitions of SLD put forth by several researchers (e.g., Kirk, Bateman, and Wepman, Cruickshank, Deutsch, Morency, and Strother), institutions, and organizations (e.g., The National Advisory Committee on Handicapped Children, Northwestern University, The Division for Children with Learning Disabilities, 1976 U.S. Office of Education, 1977 U.S. Office of Education, The National Joint Committee on Learning Disabilities, The Learning Disabilities Association of America, and The Interagency Committee on Learning Disabilities). Seven of the eleven definitions were found to be in 89% agreement on nine definitional characteristics (i.e., underachievement determination, central nervous system dysfunction etiology, process involvement, being present throughout the life span, specifications of spoken language problems as potential learning disabilities, specification of academic problems as potential learning disabilities, specification of conceptual problems as potential learning disabilities, specification of other conditions as potential learning disabilities, and allowance for the multihandicapping nature of SLDs). Some professionals believe the consistency shown among definitions regarding the conceptual base of SLD conveys

consensus regarding its meaning (Hammill, 1990). However, other scholars claim that consensus does not depict a clear understanding of what the construct is because the primary element for determining SLD eligibility is never mentioned in the formal definitions (Kavale & Forness, 2000).

The U.S. Office of Education (1968) defined SLD as “a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or do mathematical calculations” (pg. 34). Special education law has been reauthorized many times since its passage in 1975. However, even with recent changes to special education law under the Individuals with Disabilities Education Improvement Act (IDEA; 2004), the definition of SLD has remained the same over the years.

In order for a definition to be useful for identification it must include specific operations or rules stipulating how the term is to apply to a particular case if the specified operations yield certain characteristic results (Kavale & Forness, 2000). In 1976 the U.S. Office of Education issued the following operational definition of SLD:

A specific learning disability may be found if a child has a severe discrepancy between achievement and intellectual ability in one or more of several areas: oral expression, written expression, listening comprehension, basic reading skills, mathematics calculation, mathematics reasoning, or spelling. A “severe discrepancy” is defined to exist when achievement in one or more of the areas falls at or below 50% of the child’s expected achievement level, when age and previous educational experiences are taken into consideration (p.52405).

However, for a definition to be operational it must clarify and be linked to concepts from the definition of the construct. The operational definition of SLD focuses on the term “discrepancy” but there is no mention of a “discrepancy” between a child’s achievement and intellectual ability mentioned in the definition of the construct. Also, there is no

mention about which intellectual and achievement measures should be used to identify a “discrepancy” (Kavale & Forness, 2000). It is difficult to understand how to successfully identify, diagnose, prescribe treatment for, teach, motivate, or help to improve the life of a person with an SLD without having a clear understanding of the nature of SLD including operations used to identify SLDs (Hammill, 1990).

Additionally, the cause of SLD is not explicitly addressed in the definition of the construct or operational definition, nor is there consensus between professionals about the cause of SLD. Some definitions express the idea that SLDs are the result of a problem in the central nervous system or basic psychological processes (Kavale & Forness, 2000). Others believe SLDs are caused by environmental deprivations (Coles, 1989). Still others claim that SLDs are biological in nature, potentially stemming from innate predispositions (Cortiella, 2009). And still others believe SLDs are due to an interaction between environment and biology (Rumelhart, 1977). These schools of thought will be further discussed in the literature review.

CHAPTER II

REVIEW OF LITERATURE

The literature about SLDs falls into five categories: (1) the technical adequacy of the IQ-Achievement discrepancy (Ab-Ach) and personal strengths and weaknesses (PSW) methods (e.g. Ford, 2008; Franklin, 2007; Haight, Patriarca, & Burns, 2002; Macheck & Nelson, 2010; Sotleo-Dynega et al., 2011; Stuebing, Fletcher, Branum-Martin, & Francis, 2012; Vaughn & Fuchs, 2003), (2) the technical adequacy of the response-to-intervention (RtI) method (e.g. Kavale & Spaulding, 2008; Reynolds, 2008; Reynolds & Shaywitz, 2009), (3) school psychologists role in SLD identification (e.g., Castillo, Curtis, & Gelley, 2012) or (4) recent studies that evaluate school psychologists perceptions of SLD (e.g., Macheck & Nelson 2010, Unruh & Mckellar 2013). This literature review describes research in the aforementioned categories within the context of IDEA (2004) and federal/state guidelines regarding SLD identification. Then, this literature review describes research examining the link between identification practices and causes of SLDs. Finally, this literature review discusses SLD identification and its implications for school psychology.

IDEA and SLD

The educational system is the primary context in which SLDs are identified and treated. IDEA (2004) is the system that currently governs how states (i.e., state education agencies, SEAs) and public agencies (e.g., schools or local education agencies, LEAs) provide early intervention, special education, and related services to students that are part of America's school system (Küpper & Rebhorn, 2007).

IDEA (2004) includes three classification guidelines that states must adhere to for the identification of students with SLDs: (a) the state *may not require* the use of a “severe discrepancy” between intellectual ability and achievement (i.e., the Ab-Ach method); (b) the state *must permit* use of a process based on the child’s response to scientific, research-based procedures (i.e., the RtI method); and (c) the state *may permit* the use of other alternative research-based procedures. Alternative research-based procedures may include the evaluation of a pattern of strengths and weaknesses via tests of cognitive abilities and neuropsychological processes (i.e., PSW) (Hale et al., 2013; Küpper & Reborn, 2007; Sotleo-Dynega et al., 2011).

IDEA (2004) allows for SLDs to be identified using any of these methods, which are quite different from each other. SEAs may choose which method(s) LEAs may implement as long as the measures are deemed appropriate by IDEA guidelines. Because the three methods outlined in IDEA allow for much variability, there is a lack of consistent measurement across the U.S. (Zirkel & Thomas, 2010). Therefore, a student identified in one state as having an SLD may not meet the criteria for SLD in another state. SEAs allow LEAs to adapt state regulations and recommendations based on professional research and norms of the schools. Districts within the same state implement different identification methods (Haight et al., 2002).

Identification Methods and Theories about Causes of SLDs

In addition to the variability allowed within IDEA (2004) to identify SLDs, the ambiguity and vagueness of the definition of SLD further adds to the confusion of how to identify SLDs (Sotleo-Dynega, Flanagan, & Alfonso, 2011; Kavale & Forness,

2000). There are three prominent theories about the foundation or cause of SLDs: biological basis, environmental basis, or an interactional basis between biology and environment. Different explanations for the underlying mechanism of SLDs lend themselves to different methods on how to identify the disability. The Ab-Ach, PSW, RtI, and a combination method are described below in relation to their theoretical basis.

The biological basis of SLDs and associated identification methods. Because the definition of SLD states that SLD is a disorder in one or more of the basic *psychological processes* some professionals regard SLD as a biologically based disorder associated with specific neurological dysfunctions. While it is still unclear what precedes neurological disorders that may lead to SLDs, heredity is considered to be a major factor with SLDs occurring at higher rates within members of the same families (Cortiella, 2009). Other possible causes of SLDs include pre-natal and birth problems such as illness, drug and alcohol use during pregnancy, low birth weight, oxygen deprivation and premature or prolonged labor (Cortiella, 2009). Research has also suggested that there are significant differences in the left hemisphere of the brain between individuals with dyslexia (one type of SLD) and those without (Galaburda, 1989).

According to the biologically based research about SLDs, SLDs should be identified using discrepancy methods (e.g., Ab-Ach or PSW) because cognitive tests used as part of the discrepancy methods assesses specific cognitive processing deficits based in biology. The two most prominent discrepancy methods used for SLD identification are the Ab-Ach and PSW.

Ab-Ach is a procedure used for identifying a severe discrepancy between achievement and intellectual ability in one or more of the following areas: oral

expression, listening comprehension, written expression, basic reading skills, reading comprehension, mathematics calculation, and mathematics reasoning (Vaughn & Fuchs, 2003). If neurological dysfunctions do contribute to the development of an SLD then it can be postulated that Ab-Ach would be a tool used to detect the neurological dysfunction and its correspondence to an academic domain. However, Ab-Ach has been criticized by professionals for several reasons: (a) it is considered a “wait-to-fail” method of identification because a discrepancy does not typically appear until students are in third or fourth grade (Sotleo-Dynega et al., 2011), (b) it leads to the overidentification of minority students due to cognitive tests showing cultural bias (Ford, 2008; Franklin, 2007), and (c) it has questionable reliability due to inconsistencies regarding which discrepancy formula is implemented by SEAs and LEAs (Haight et al., 2002).

PSW aims to evaluate broad profiles of strengths and weaknesses in cognitive skills. Therefore, multiple cognitive skills are typically identified with the goal of uncovering a weakness that is related to an achievement domain. However, the weakness must exist within a set of strengths for a discrepancy to be discovered and the diagnosis of SLD to be given (Stuebing et al., 2012). One of the issues associated with PSW methods (e.g., the Concordance-Discordance method, the Discrepancy/Consistency Method, and Cross Battery Assessment) is the over identification of non-SLD students being identified as having an SLD (i.e., Type I error) (Stuebing et al., 2012).

The environmental basis of SLDs and associated identification method. An environmental theory of SLD posits that children function poorly due to injustices in the school system and in society, not due to deficits within the child (Miller, 1990). Coles (1989) stated the issue with the biological theory is that the existence of the “condition”

is virtually unproven, with only the shakiest of evidence being reported. After decades of research it has still not been demonstrated that neurological dysfunctions exist in more than a minuscule number of SLD children (Coles, 1989). Coles (1989) also stated that the diagnosis of SLD, in a biological sense, may disregard the contribution the schools, families, or other social influences might have had toward the development of an SLD. RtI focuses on the instructional environment of the child and considers how the child responds to evidence-based instruction compared to other students receiving the same or similar instruction (see Fuchs & Fuchs, 1998).

RtI is a multi-tier process that includes the following: (1) Students are provided with “generally effective” instruction by their classroom teacher; (2) Their progress is monitored; (3) Those who do not respond get something else, or something more, from their teacher or someone else; (4) Again, their progress is monitored; and (5) Those who still do not respond either qualify for special education or for special education evaluation (Fuchs, Mock, Morgan, & Young, 2003). Curriculum-based measurement (CBM), which consists of a series of brief probes of basic academic skills, is the assessment system often incorporated in RtI method(s) and is used to collect data on a student’s progress to aid in making decisions regarding instructional planning (Machek & Nelson, 2010) .

Support for RtI implementation has been substantial but there continues to be controversy about whether or not RtI sufficiently provides adequate guidance to practitioners about implementation. There is also concern with many details about RtI remaining to be elaborated and specific aspects of RtI needing to be defined (such as, what constitutes a response?) (Reynolds & Shaywitz, 2009; see also Burns, Jacob, & Wagner, 2008; Vaughn & Fuchs, 2003). Some professionals argue that it is unknown

how to best implement RtI (e.g., the intensity and duration of intervention), that RtI ignores the processing disorder component of the definition of SLDs, that RtI is in greater alignment with No Child Left Behind (Public Law 107-110) regulations rather than IDEA (2004) regulations, and that RtI assumes the regular classroom instruction provided to date has not been science-based (Kavale & Spaulding, 2008; Reynolds, 2008; Reynolds & Shaywitz, 2009). RtI proponents focus much of their Ab-Ach arguments on the fact that the Ab-Ach method does not identify a discrepancy between ability and achievement until later in the student's education. However, some argue that RtI does little to remedy this issue because children are not referred for intervention until they reach problematic levels of academic attainment in a classroom. Therefore, RtI is considered by some professionals to be a "watch them fail" method of identification (Reynolds, 2008).

The interactional basis of SLDs and associated identification methods. Still other professionals believe there is an interaction between biology and environment that has been called the "interactivity hypothesis" (Coles, 1989). Some professionals postulate that the academic failure experienced by students with SLDs results from an interaction between the way they process information and the information-processing demands of the instructional methods used in their classrooms (Conner, 1983). Another interaction theory proposes that the reading process consists of an interaction between the reader, the different kinds of information in the material, and the general context in which the material is read (Rumelhart, 1977). With both of these interaction theories there is equal responsibility extended toward the child's neurological capabilities and the child's environment.

The “interactivity hypothesis” lends itself to combination methods for SLD identification. This may be accomplished by first eliminating students who respond quickly to evidence-based instruction, as RtI may be used properly, and then moving toward comprehensive assessment (of neurological or psychological processing) of the non-responding students (Reynolds, 2008).

Some LEA’s have taken the route of using discrepancy approaches as a first option for SLD identification to determine gaps in a student’s learning. This may be accomplished by identifying specific academic and cognitive areas where problems exist. The multidisciplinary team may choose to evaluate the gaps in learning to inform the team on which intervention approaches may be most appropriate. Once the student has been given appropriate interventions and the student’s progress has been monitored, the multidisciplinary team uses the data from achievement and cognitive tests as well as RtI to make a decision regarding whether the student has an SLD (Box Elder School District, 2013).

SLD and School Psychology

In the school context, the school psychologist is one of the main participants in a multidisciplinary school-based team that identifies students as having a disability, including an SLD, and is legally “qualified to conduct individual diagnostic examinations of children” (Authority: 20 U.S.C. 1221e-3; 1414(b)(6); IDEIA, 2004). School psychologists are estimated to spend more than half their time in special education decision making and thus, identification plays an important part of the school psychologist’s role (Castillo et al., 2012). Because there is autonomy given to LEAs to

adapt state regulations based on norms within the schools, school psychologists within the same state, district, or even school may choose to identify SLDs differently.

When conducting SLD evaluations within the school setting, school psychologists may be limited by time constraints (e.g., high caseload or working in multiple schools), financial resources, and guidelines of the district or school. It is possible that a school psychologist has a preferred method or procedure for identifying SLDs in an ideal setting (e.g., no time or financial constraints, limited caseload, work in one school, support from school administration and faculty), but is prevented from using this preferred procedure because of the restrictions of working in the school setting. The preference of one procedure over another may impact which SLD identification method the school psychologist chooses to use, particularly in schools where several identification methods are permitted.

SEAs and LEAs that require the use of a specific SLD identification procedure through law or encourage the use of one method through cultural norms may lead to a misalignment between school psychologists' ideal SLD identification practice and actual SLD identification practice. There are multiple studies that document school psychologists' job satisfaction on a national level (e.g., Anderson, Hohenshil, & Brown, 1984; Brown, Swigart, Bolen, Webster, & Hall, 1998; Reschly & Wilson, 1995; Worrell, Skaggs, & Brown, 2006). Worrell and colleagues (2006) found that 90% of school psychologists practicing in the U.S. were either very satisfied or satisfied with their jobs. Research has suggested that when there is a large discrepancy between school psychologists' values and his/her actual practice, they report lower levels of job satisfaction (Worrell et al., 2006). This job dissatisfaction may lead to attitudes seeking

system reform (Reschly & Wilson, 1995) or higher rates of turnover (Anderson et al., 1984). To date, there is little known about how a school psychologist would evaluate SLDs in an ideal setting, how these practices relate to actual, current practices in identifying SLDs, and how the interaction between the two relates to job satisfaction regarding SLD assessment practices.

Two studies have investigated school psychologists' perceptions and practices regarding SLDs. Macheck and Nelson (2010) evaluated the perceptions of school psychologists regarding the utility of IQ scores in reading disability (RD) assessment, as well as school psychologists' perceptions about the treatment validity of Ab-Ach and its association with perceived job security. Macheck and Nelson (2010) also asked school psychologists questions regarding perceived advantages, as well as possible hurdles to using an RtI approach in RD identification. A substantial percentage of the respondents perceived IQ tests to have utility for RD assessments (62.2% preferred Factor Index Scores, 59.8% preferred Subtest analysis, and 48.3% preferred Full Scale IQ scores). However, the majority of participants (60.7%) did not perceive Ab-Ach to be a useful criterion for SLD evaluations. Most participants (69.3%) did not perceive threatened job security if decreases in the use of intelligence tests occurred.

Unruh and Mckellar (2013) evaluated the perceptions and practices of school psychologists (e.g., how many evaluations are performed per year, level of challenge, and level of job satisfaction) working in schools implementing the RtI method. It was shown that respondents reported using each method (i.e., RtI, Ab-Ach, or PSW) alone or in combination: 59.9% of respondents reported using Ab-Ach for identification, 55.8% of respondents reported using RtI, and 48.7% of respondents reported using PSW. It was

found that respondents working in schools that implement RtI were more likely to report completing a lower number of initial evaluations and were more likely to report higher levels of job challenge and satisfaction in comparison to practitioners working in non-RtI schools.

Both of these studies evaluated the perceptions and practices of school psychologists regarding current use of identification procedures (e.g., validity of Ab-Ach, advantages of the RtI, percentage of school psychologists using each identification method, differences between RtI implementing schools and non-RtI implementing schools) and the interaction with related practices, job security, job challenge, and overall job satisfaction. However, neither study evaluated the perceptions of school psychologists' regarding the theoretical basis of SLDs and its interaction with identification practices and job satisfaction regarding SLD assessment.

CHAPTER III

CONCLUSION

In sum there is support for a biological theory of SLDs which is hypothesized to be associated with the use of Ab-Ach and PSW methods for identification. There is also support for an environmental theory of SLDs which is hypothesized to be associated with the use of RtI for identification. Finally, there is also support for an “interactivity hypothesis” of SLDs which is hypothesized to be associated with the use of combination methods for identification. There appears to be a gap in the current literature regarding the evaluation of the association between beliefs about the cause of SLDs and corresponding preferences for identification as well as how beliefs about the cause of SLDs impact current practices and job satisfaction.

Given that (a) the number of students identified as having an SLD has increased significantly over the past 39 years, (b) there is ambiguity and inconsistency in the definition of SLD and methods of identification, and (c) the prominent role psychoeducational evaluation has in the role of school psychology, the investigation of the intersection of beliefs, identification methods, and job satisfaction among practicing school psychologists is warranted. A study evaluating beliefs about the SLD construct, ideal SLD identification procedures, current SLD identification procedures, and SLD assessment job satisfaction among practicing school psychologists may seek to answer such questions as: (1) What are school psychologists’ beliefs about the cause(s) and characteristics of SLDs? (2) To what extent are the beliefs about the cause(s) of SLDs related with the school psychologist characteristics or school characteristics? (3) To what

extent are beliefs about the cause(s) of SLDs associated with how school psychologists report they would ideally evaluate SLDs? And (4) Does greater alignment between ideal SLD identification practices and current SLD identification practices contribute to an increase in SLD assessment job satisfaction? A study answering these questions may aid in furthering knowledge about the SLD construct and provide insight into how SLD beliefs relate with school psychologists job satisfaction.

REFERENCES

- Anderson, W. T., Hohenshil, T. H. & Brown, D. T. (1984). Job satisfaction among practicing school psychologists: A national study. *School Psychology Review, 13*, 225-230. Retrieved from <http://www.nasponline.org/publications/spr/about.aspx>
- Box Elder School District. (2013). Special education policies and procedures. Retrieved from <http://www.besd.net/speced/policies.php>
- Brown, M. B., Swigart, M., Bolen, L. M., Webster, R., & Hall, C. (1998). Doctoral and Non-Doctoral practicing school psychologists: Are there differences? *Psychology in the Schools, 35*, 347-354. Retrieved from [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1520-6807](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1520-6807)
- Burns, M. K., Jacob, S., & Wagner, A. R. (2008). Ethical and legal issues associated with using response-to-intervention to assess learning disabilities. *Journal of School Psychology, 46*, 263-279. doi: 10.1016/j.jsp.2007.06.001
- Castillo, J. M., Curtis, M. J., & Gelley, C. (2012). School psychology 2010 part 2: School psychologists' professional practices and implications for the field. *Communique, 40*, 4-6. Retrieved from <http://www.apa.org/pi/oema/resources/communique/>
- Coles, G. S. (1989). Excerpts from the learning mystique: A critical look at "learning disabilities." *Journal of Learning Disabilities, 22*, 267-277. Retrieved from <http://ldx.sagepub.com/>
- Conner, F.P. (1983). Improving school instruction for learning disabled children: The Teachers College Institute. *Exceptional Education Quarterly, 4*(1), 23-44. Retrieved from <http://search.library.wisc.edu/catalog/ocm05869878>

- Cortiella, C. (2009). *The State of Learning Disabilities 2009*. New York: National Center for Learning Disabilities. Retrieved from <http://www.LD.org/stateofld>
- Crocker, L. & Algina, J. (1986) *Introduction to classical and modern test theory*. Belmont, CA: Wadsworth.
- Data Accountability Center, Individuals with Disabilities Education Act (IDEA) Data. (2012). *Data Table for OSEP State Reported Data*. Retrieved from https://www.ideadata.org/arc_toc13.asp#partbCC
- Ford, D. Y. (2008). Intelligence testing and cultural diversity: The need for alternative instruments, policies, and procedures. In J. L. Van Tassel-Baska (Ed.), *Alternative Assessments with Gifted and Talented Students* (pp. 107-128). Waco, TX: Prufrock Press.
- Franklin, V. P. (2007). The tests are written for the dogs: The journal of Negro education, African American children, and the intelligence testing movement in historical perspective. *Journal of Negro Education*, 76, 216-229. Retrieved from <http://www.journalnegroed.org/>
- Fuchs, S. L. & Fuchs, D. (1998). Treatment validity: A unifying concept for reconceptualizing the identification of learning disabilities. *Learning Disabilities Research and Practice*, 13, 204-219. Retrieved from [http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1540-5826](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1540-5826)
- Fuchs, D., Mock, D., Morgan, P., & Young, C. (2003). Responsiveness to intervention: Definitions, evidence, and implications for the learning disabilities construct.

Learning Disabilities Research and Practice, 18, 157-171. Retrieved from [http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1540-5826](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1540-5826)

Galaburda, A. M. (1989). Learning disability: Biological, societal, or both? A response to Gerald Coles. *Journal of Learning Disabilities*, 22, 278-286. Retrieved from <http://ldx.sagepub.com/>

Haight, S. L., Patriarca, L. A., & Burns, M. K. (2002). A statewide analysis of eligibility criteria and procedures for determining learning disabilities. *Learning Disabilities: A Multidisciplinary Journal*, 11, 39-46. Retrieved from <http://www.ldanatl.org/journal.asp>

Hale, J. B., Hain, L. A., Murphy, R., Cancelliere, G., Bindus, D. L., & Kubas, H. A. (2013). The enigma of learning disabilities: Examination via a neuropsychological framework. In C. A. Noggle and R. S. Dean (Eds.), *The neuropsychology of psychopathology* (pp. 75-93). New York, NY: Springer Publishing Co.

Hammill, D. D. (1990). On defining learning disabilities: An emerging consensus. *Journal of Learning Disabilities*, 23, 74-84. Retrieved from <http://ldx.sagepub.com/>

Individuals With Disabilities Education Improvement Act of 2004, 20 U.S.C. § 1400 (2004). Retrieved from <http://idea.ed.gov/download/statute.html>

Judge, S. & Watson, M. R. S. (2011). Longitudinal outcomes for mathematics achievement for students with learning disabilities. *The Journal of Educational Research*, 104, 147-157. doi: 10.1080/00220671003636729

- Kavale, K. A., & Forness, S. R. (2000). What definitions of learning disability say and don't say: A critical analysis. *Journal of Learning Disabilities, 33*, 239-256.
Retrieved from <http://ldx.sagepub.com/>
- Kavale, K. A. & Spaulding, L. S. (2008). Is response to intervention good policy for specific learning disability? *Learning Disabilities Research and Practice, 23*, 169-179. Retrieved from
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1540-5826](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1540-5826)
- Keilitz, I., & Dunivant, N. (1986). The relationship between learning disability and juvenile delinquency: Current state of knowledge. *Remedial and Special Education, 7*(3), 18-26. Retrieved from <http://rse.sagepub.com/>
- Küpper, L., & Reborn, T. (2007). Module 2: Key changes in IDEA. Retrieved from <http://nichcy.org/laws/idea/legacy/module2>
- Machek, G. R., & Nelson, J. M. (2010). School psychologists' perceptions regarding the practice of identifying reading disabilities: Cognitive assessment and response to intervention considerations. *Psychology in the Schools, 47*, 230-245. doi: 10.1002/pits.20467
- Miller, J. L. (1990) Apocalypse or renaissance or something in between? Toward a realistic appraisal of the learning mystique. *Journal of Learning disabilities, 25*, 86-91. Retrieved from <http://ldx.sagepub.com/>
- Reschly, D. J. & Wilson, M. S. (1995). School psychology practitioners and faculty: 1986 to 1991-92 trends in demographics, roles satisfaction, and system reform. *School*

Psychology Review, 24, 62-81. Retrieved from

<http://www.nasponline.org/publications/spr/about.aspx>

- Reynolds, C. R. (2008). RTI, neuroscience, and sense: Chaos in the diagnosis and treatment of learning disabilities. In E. Fletcher-Janzen and C.R. Reynolds (Eds.), *Neuropsychological perspectives on learning disabilities in the era of RTI: Recommendations for diagnosis and intervention* (pp. 1-13). Hoboken, NJ: Wiley.
- Reynolds, C. R., & Shaywitz, S. E. (2009). Response to intervention: Ready or not? Or, from wait-to-fail to watch-them-fail. *School Psychology Quarterly*, 24, 130-145. doi: 10.1037/a0016158.
- Rumelhart, D. E. (1994). Toward an interactive model of reading. In R. B. Ruddell, M. R. Ruddell, & H. Singer (Eds.), *Theoretical models and processes of reading* (4th edition). (pp. 864-894). Newark, DE: International Reading Association.
- Sotelo-Dynega, M., Flanagan, D. P., & Alfonso, V. C. (2011). Overview of specific learning disabilities. In A. S. Kaufman & N. L. Kaufman (Eds.), *Essentials of specific learning disability identification* (pp. 1-19). Hoboken, NJ: Wiley.
- Stuebing, K. K., Fletcher, J. M., Branum-Martin, L., & Francis, D. J. (2012). Evaluation of the technical adequacy of three methods for identifying specific learning disabilities based on cognitive discrepancies. *School Psychology Review*, 41(1), 3-22. Retrieved from <http://www.nasponline.org/publications/spr/about.aspx>
- Unruh, S. & Mckellar, N. A. (2013). Evolution, not revolution: School psychologists' changing practices in determining specific learning disabilities. *Psychology in the Schools*, 50, 353-365. doi: 10.1002/pits.21678

- U.S. Office of Education. (1968). First annual report of the national Advisory Committee on Handicapped Children. Washington, DC: U.S. Department of Health, Education, and Welfare.
- U.S. Office of Education. (1976). Proposed rulemaking. *Federal Register*, 41(230), 52404-42407. Washington, DC: U.S. Government Printing Office.
- Vaughn, S., & Fuchs, L. S. (2003). Redefining learning disabilities as inadequate response to instruction: The promise and potential problems. *Learning Disabilities Research and Practice*, 18, 137 – 146. Retrieved from [http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1540-5826](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1540-5826)
- Worrell, T. G., Skaggs, G. E., & Brown, M. B. (2006). School psychologists' job satisfaction: A 22-year perspective in the USA. *School Psychology International*, 27, 131-145. doi:10.1177/0143034306064540
- Zelege, S. (2004). Differences in self-concept among children with mathematics disabilities and their average and high achieving peers. *International Journal of Disability, Development and Education*, 51, 253-269. Retrieved from <http://www.tandfonline.com/toc/cijd20/current#.UcSK-LXIZIE>
- Zirkel, P.A. & Thomas, L.B. (2010). State laws and guidelines for implementing RTI. *Teaching Exceptional Children*, 43, 60-73. Retrieved from <http://journals.cec.sped.org/tec/>