Investigating Differences in Professionals' Use of Information for Learning Disability

Identification

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Education

in

School and Clinical Child Psychology

Department of Educational Psychology

University of Alberta

Abstract

A learning disability (LD) can be defined as unexpected or chronic underachievement that cannot be explained by any other cognitive deficits (Swanson, Harris & Graham, 2013). LD has been said to be one of the least understood disabilities to affect school-aged population (Lyon et al., 2001). Different models may be used to identify an LD (e.g., Ability-Achievement Discrepancy and Response to Intervention (RtI) Models). Three groups of professionals (practicing psychologists, pre-service psychologists and pre-service teachers) were recruited from the Edmonton area. Participants were given three different cases and were asked to determine their confidence in both their ability to make a decision about the student needs and ability to interpret the data provided in the cases. Finally, the professional's evaluated which case was most likely or least likely to have an LD. Pre-service psychologists were able to identify the model that combined both RtI and the ability-achievement discrepancy at a rate higher than both practicing psychologists and pre-service teachers. The pre-service teacher's answers were dispersed among all three cases, confirming that these professionals would be no greater than chance in identification of an LD. The preliminary results of this small sample size study indicate that both pre-service psychologists and practicing psychologists found the case that combined both the ability-achievement discrepancy model and RtI model most useful in the identification of an LD.

Keywords: learning disability, ability-achievement discrepancy, response to intervention,

Preface

This thesis is an original work by Serena Seeger. The research project, of which this

thesis is a part, received research ethics approval from the University of Alberta Research

Ethics Board, Investigating differences in professionals' use of information for learning

disability identification No. 00051494, February 11, 2015

Acknowledgements

I would like to acknowledge and give many thanks to my supervisor, Dr. Damien Cormier, for providing me with support, guidance and insight that was unparalleled. I would like to thank the research team in the CRAME department for helping me with the analysis process and taking the time to go over this with me. I would like to also thank Dr. Lia Daniels for her support and ideas in helping to create and go through my statistical design. I would like to thank Amy Thomas for allowing me to survey the teachers within her classes. I would like to thank my friends and family at home for their continued support and understanding throughout this entire process. Finally, I would like to thank SSHRC for their generous funding throughout my second year of my Masters program.

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Disability Identification

A learning disability (LD) can be defined as unexpected or chronic underachievement that cannot be explained by any other cognitive deficits (Swanson, Harris & Graham, 2013). In Canada, there are more children identified with an LD than all other disabilities combined (Statistics Canada, PALS, 2006). LD is one of the most debated and least understood disabilities affecting both children and adolescents (Lyon et al., 2001). This misunderstanding may be due to disagreement about the classifications, definitions, identification process, diagnostic criteria, content and intensity of an LD (Lyon et al., 2001). Historically, the criterion that is acceptable for the correct identification of an LD has also been a very controversial topic (Vaughn & Fuchs, 2003). Moreover, psychologists may employ different models of identification for an LD. Two examples are the Ability-Achievement Discrepancy and Response to Intervention (RtI) Models. However, the use of ability-achievement discrepancy model has received much criticism (Vaughn & Fuchs, 2003) and there has been increased debate about which model better informs a valid identification of an LD (Decker, Hall & Flanagan, 2013; Fletcher, Francis, Morris & Lyon, 2005; Hale, Kaufman, Naglieri & Kavale, 2006; McIntosh, MacKay, Andreou, Brown, Mathews, Gietz & Bennett, 2011; Ysseldyke, 2005). Therefore, increasing our understanding of the strengths and weaknesses within each model of LD identification will help to better inform educational and psychological practices.

The Elusive LD Definition

Historically, individuals not performing at an expected academic level or that have had difficulty acquiring basic academic skills, despite their average to above average intelligence, were often speculated to have an LD (Sotelo-Dynega, Flanagan & Alfonso, 2011). Samuel Kirk first used the term *learning disability* in 1962 (Lyon et al., 2001). The following year, Kirk presented his definition and the underlying factors contributing to the identification of LD at a national conference, where he addressed both parents and educators (Lyon et al., 2001; Sotelo-Dynega et al., 2011). When the term LD was first used by Kirk, it was described as a range of symptoms that affected learning, communication and language development (Lyon et al., 2001). Despite the definition by Kirk gaining acceptance from professionals and the general public over time (Flanagan & Alfonso, 2011), the ongoing debate about the definition of LD has been described by Tucker, Stevens & Ysseldyke (1983) as "characterized by a lack of consensus on the basic issues of identification, assessment and programming" (p. 6). As a result, the current definition of LD has remained similar to the original definition that was first presented over 30 years ago (Flanagan, Fiorello & Ortiz, 2010; Flanagan, Alfonso, Mascolo & Sotelo-Dynega, 2011; Kavale & Forness, 2000).

There are many different operational definitions of LD that are used that do not coincide with the formal definition, which may lead to errors in the identification process (Kavale & Forness, 2000). There have been many different proposals about changing the definition of an LD to include more current information. However, the decisions made about an LD have continued to rely heavily on test scores and there has been little change over time in the ways of the predominant assessment practices (Ysseldyke, 2005; Ysseldyke, Algozzine, Richey & Graden, 1982). A student's scores on both cognitive and

achievement tests are used solely to determine their placement or eligibility to receive services (Lyon et al., 2001). When relying solely on test scores, a student's educational experience and classroom instruction is not taken into account. Some students may just require special services or instruction in the classroom to be successful academically rather than an identification of an LD.

Diagnostic definition. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) describes a Specific Learning Disorder (SLD) as a difficulty in school, that is persistent, in areas such as reading, mathematical reasoning skills, writing and arithmetic (American Psychiatric Association, 2013). The difficulties may also include slow reading, trouble understanding what has been read, problems with spelling and written expression, trouble mastering the use of numbers, number facts, calculation or mathematical reasoning (American Psychiatric Association, 2013). These difficulties must be present for at least six months even after interventions that target the difficulties have been put into practice. The DSM-5 explains that SLD is a "neurodevelopmental disorder with a biological origin that is the basis for abnormalities at a cognitive level that are associated with the behavioral signs of the disorder" (American Psychiatric Association, 2013 p. 68). A feature essential for a diagnosis of an SLD is a *persistent* difficulty with both learning and the use of learned academic skills (American Psychiatric Association, 2013).

Models for Diagnosis of LD

In the United States the use of assessment methods to identify students with an LD has been subject to heated debates (Fletcher et al., 2005; Vaughn & Fuchs, 2003). In Canada, there has been dissatisfaction with the sole use of the ability-achievement

discrepancy as a model for identification of an LD (McIntosh et al., 2011). However, it is a model that is most often used for identification.

    Ability-achievement discrepancy model. The ability-achievement discrepancy model includes tests of cognitive ability and achievement and the statistically significant discrepancy between these and what a student is expected to achieve based on their Intelligence Quotient (IQ) score (Sotelo-Dynega et al., 2011; Fletcher et al., 2005; Mather & Wendling, 2012). The Wechsler Intelligence Scale for Children – Fourth Edition (WISC-IV), which is commonly used in Canada, is the measure of cognitive ability determined by a combination of four composite scores, the Verbal Comprehension Index (VCI), Perceptual Reasoning Index (PRI), Processing Speed Index (PSI), and Working Memory Index (WMI). These four composite scores combined determine an individual Full Scale Intelligence Quotient (FSIQ). The measure of achievement is an individual's current performance in reading, writing and/or math.

    As previously noted, the standard score of the FSIQ is used along with the scores on an achievement measure to determine if a significant discrepancy is present between the two. Depending on the established criteria that has to be met for an LD diagnosis, this difference must be one, one and a half, or two standard deviations below the standard score value (Fletcher et al., 2005). Once the cognitive ability and academic achievement of a student has been measured, the scores are looked at together to see if a discrepancy exists (Restori, Katz & Lee, 2009). If there is a significant difference between what would be expected of the student academically based on their cognitive ability scores the psychologist may then identify an LD (Sotelo-Dynega et al., 2011; Fletcher et al., 2005; Mather & Wendling, 2012).

The ability-achievement discrepancy model has been criticized as a "wait to fail" model because the discrepancies between cognitive ability (i.e. IQ) and academic achievement, as measured by standardized tests, are not always extreme enough to meet criteria for identification of an LD until the student reaches the 3rd or 4th grade (McIntosh et al., 2011; Sotelo-Dynega, et al., 2011). However, the ability-achievement discrepancy model has provided psychologists in schools with comprehensive information of both the student's cognitive and academic strengths and weaknesses (Kavale & Forness, 2001). Even though there has been evidence to suggest that alone the ability-achievement discrepancy model may not be the most valid measure of diagnosis, as stated above, it remains the most widely used model to identify an LD (Decker, et al., 2013).

There has been concern surrounding the rise in the diagnosis of an LD. It has been speculated that the rise in LD diagnoses may be attributed to the independent use of the ability-achievement discrepancy model (Decker et al., 2013). Ysseldyke (2005) explains the issues surrounding an accurate diagnosis of an LD as, "we continue to do what we did more than 25 years ago, and the outcomes remain the same as well - little satisfaction that we have identified the right children, 'too many children' and a lack of results" (p.126). If changes do not occur throughout the assessment process, we cannot expect different results. Other researchers such as Sotelo-Dynega, et al. (2011) explain the problem of the ability-achievement discrepancy model as the inability to distinguish LD students from low achievers. IQ is not a perfect predictor of achievement and the discrepancy may be statistically significant but not relevant clinically (Sotelo-Dynega et al., 2011). The ability-achievement discrepancy model may not only over-identify low achievers but also

may also over-identify students from minority groups (Sotelo-Dynega et al., 2011). The ability-achievement discrepancy model used as a sole indicator of an LD does not inform methods of intervention for classrooms, making it difficult for educators to further assist their students (Sotelo-Dynega et al., 2011). The ability-achievement discrepancy model does not allow students who do not qualify for services to receive any additional support or interventions (McIntosh et al., 2011; Fletcher et al., 2002).

The ability-achievement discrepancy model is not a required model to identify an LD. However, it is the model that is often taught in training programs and recognized by many psychologists (Vaughn & Fuchs, 2003). The dissatisfaction with the use of the ability-achievement discrepancy model has lead to a change towards the integration and use of RtI for the identification of an LD (McIntosh et al., 2011). Therefore, these changes may alter the role of a psychologist from that of a "gatekeeper to a dynamic agent of change in the school system" (McIntosh et al., 2011, p. 19).

Response to intervention. In 2004, changes to the Individuals with Disabilities Education Act (IDEA) in the United States were made to improve the identification of an LD by including the process of RtI (Kavale, Spaulding & Beam, 2009). VanDerHeyden and Burns (2010) discuss that special education relies on two factors "(a) providing effective instruction that is individualized to students needs, and (b) the valid identification of student disabilities" (p. 2). The RtI model has emerged from the limitations of the ability-achievement discrepancy model as well as from the debate surrounding how LD should be identified (Sotelo-Dynega et al., 2011). Although the ability-achievement discrepancy model allows students the opportunity to benefit from special education services if a discrepancy between their cognitive ability and

achievement is found, it does not provide the same opportunity for low achievers to receive the same services (McIntosh, et al., 2011). VanDerHeyden & Burns (2010) discuss the implications of the recent data showing the beneficial effects of intervention on young learners' brain development. This data has led to questions about the diagnosis of an LD by further suggesting that delivering interventions to struggling learners at young ages may be the most effective and simplest way to assist these students (VanDerHeyden & Burns, 2010). The RtI model is characterized by:

> (a) quality core instruction; (b) universal screening; (c) progress monitoring for students identified with difficulties; (d) increasingly intensive interventions implemented based on student need; and (e) resulting data used to make instructional, resource allocation, placement and special education identification decisions (VanDerHeyden & Burns, 2010 p.6).

RtI addresses the drawbacks of the ability-achievement discrepancy model to produce improved outcomes for all students by including interventions to assist struggling learners (McIntosh et al., 2011). More specifically, the use of RtI assists psychologists that work in schools as well as educators by providing immediate support to aid students that require it (McIntosh et al., 2011). This immediate and continued academic support has been discussed as one of the model's greatest benefits (Fuchs & Fuchs, 2006). RtI includes a three-tiered service delivery model that continues to support students at multiple levels (McIntosh et al., 2011; VanDerHeyden & Burns, 2010).

The RtI model allows for students to receive support through the use of interventions at differing levels to better meet their individual needs (McIntosh et al., 2011). As McIntosh et al (2011) discussed: "RtI is a systems-level approach to school

psychology service delivery that integrates instruction, the scientific model, formative assessment, and the psychoeducational assessment process" (p.21). Further, if students require more support, they may receive small group or individual interventions to maximize their opportunity for success. O'Donnell & Miller (2011) completed a study looking at school psychologists' acceptance of the ability-achievement discrepancy model versus the RtI model. Their results, based on American data, showed that increasingly school psychologists are accepting the use of the RtI model (O'Donnell & Miller, 2011). As more school psychologists were exposed to the RtI model, acceptance ratings increased and the ratings for the use of the ability-achievement discrepancy model decreased (O'Donnell & Miller, 2011). The more that psychologists working in schools are exposed to RtI, the more they may become familiar with the process and open to its use. RtI also provides educators with an opportunity to become a part of the universal screening process and to assist with the implementation of the interventions (VanDerHeyden & Burns, 2010).

Even though the RtI model is becoming more known, it has also received criticism (Fuchs et al., 2003; Hale et al., 2006; McIntosh et al., 2011; VanDerHeyden & Burns, 2010; Ysseldyke, 2005). One of the main criticisms is the lack of empirical support to provide evidence for the use of the model when making individual decisions about an LD (O'Donnell & Miller, 2011). O'Donnell & Miller (2011) include some other criticisms such as, the disagreement over including forms of cognitive assessment, the different contexts and methods in which the model has been implemented and the abilities to switch to a new model of identification for an LD. In speaking about the future of LD identification, Ysseldyke (2005) explained a possible resistance that may

develop towards RtI suggesting that more students may be identified as having an LD through the independent use of the RtI model. If RtI is implemented as the sole indicator of an LD, questions such as those asked by Ysseldyke (2005) - "How bad does the response have to be to qualify as LD? Is RtI stable over time?" (p.127) - may have to be addressed.

As much of the criticism about the ability-achievement discrepancy model focuses on the unreliability of the identification of an LD, psychologists working in schools that adopt the RtI model for identification may also produce an unreliable LD diagnosis (Fuchs & Fuchs, 2006). Unlike the ability-achievement discrepancy model, RtI further identifies the group of underachievers, but on its own does not provide enough information to diagnose an LD (Fletcher, et al., 2005). However, the RtI model does provide educators and psychologists working in schools with information about the student's unique needs that can be used to further develop plans and interventions to assist the student (Fletcher et al., 2005).

RtI provides important information for educational programming and further supports for students in the classroom. It allows for instructional planning and curriculum goals to be considered. It also permits students to receive interventions on multiple occasions and not just through a single assessment (Fletcher et al., 2005). A key component of the RtI model is the importance of the fidelity of implementation of the interventions. The interventions require continuous monitoring and training in order to maximize their effectiveness (McIntosh et al., 2011) However, the implementation of RtI in schools can also create questions about its effectiveness in addressing the definitions and identification of an LD (Hale et al., 2006). RtI identifies students that may be at risk

for continued lags in learning, but alone it does not address the definition of an LD (Hale et al., 2006).

The Shifting Landscape of LD Assessment

It has become clear that there is much debate over the use of the ability-achievement discrepancy model and the RtI model being used separately as the sole diagnostic criteria for an LD. The ability-achievement discrepancy model and the RtI model both have benefits and drawbacks. The integration of both to one model that begins with multi-tiered interventions and then provides comprehensive psycho-educational assessment to students whose learning problems have not improved after receiving interventions presents a move in the right direction (Hale et al., 2006).

The controversy over the use of intelligence testing in school-based practice has remained a concern in modern school psychology (Decker et al., 2013). Decker et al. (2013) suggests placing an emphasis in training programs on more contemporary models that have been research-based as the framework of applied practice and the possibility of joining cognitive to academic assessment. The use of the well-researched Cattell-Horn-Carroll (CHC) framework has also been a method that has been recommended to assist in further understanding of individual differences and the impacts of the efficacy of academic intervention in a timely manner (Decker et al., 2013). The administration of norm-referenced tests of cognitive abilities and academic achievement is not only used to obtain an IQ score but also to better understand individual learning problems and to develop applicable interventions (Decker et al., 2013). With the emphasis placed on individual student differences rather than just the IQ score, it has been suggested that assessments could better inform the use of interventions and instruction rather than a

prediction of achievement (Decker et al., 2013). If current training programs were to prepare psychologists to understand more than just the IQ and achievement scores, which provides little information to understand the individual's underlying problems, we may be able to better link interventions to student needs (Decker et al., 2013).

Flanagan et al. (2011) suggest a multitude of data-gathering methods when identifying an LD "beginning with curriculum-based measurement (CBM) progress monitoring, and culminating in norm-referenced tests of cognitive abilities and neuropsychological processes for students who demonstrate an inadequate response to intervention" (p. 646). A combination of all aspects would provide psychologists with compelling information about students' needs in order to maximize interventions for success. A model combining both the ability-achievement discrepancy and RtI models could produce a system in which the best components of both models are included and that maximizes the accurate identification of students with an LD (Hale et al., 2006). RtI is important for the prevention of misidentification, but through the use of both models students with an LD can be separated from underachievers and specialized interventions can be created for both (Hale et al., 2006). The identification of an LD should connect to the definition being used (Hale et al., 2006). RtI also allows professionals to assist students who may not meet criteria for identification of an LD but just require further support or intervention within the classroom.

Even though RtI can help to identify an LD early and can decrease over-identification, it is not a method that should be used independently (Hale et al., 2006). However, students may not respond to intervention strategies for many reasons, not necessarily because they have an LD. A model that integrates both the ability-

achievement discrepancy model and the RtI model would allow for both early intervention and identification along with understanding the specific areas in which the student is struggling (Hale et al., 2006). It is best to understand the strengths and weaknesses of the student to be able to create an individualized approach that leads to their individual success (Mather & Wendling, 2012). Implementation should include both aspects of instruction and academic performance (Mather & Wendling, 2012). When a student is not adequately responding to the interventions, the ability-achievement discrepancy model may then assist psychologists working in schools to understand why students are not responding (Mather & Wendling, 2012). The RtI model also provides an opportunity for different models of intervention to be put into place that will work for that student (Mather & Wendling, 2012). A model that integrates both the ability-achievement discrepancy model and the RtI model could allow for an understanding of what works and what does not for each model individually and takes the best components of each to create a model that focuses on the student's best possible outcome.

Pre-service teacher training. In many cases, teachers are the first to observe a particular student's struggles with learning. Often, the teacher becomes aware of the difficulties after having differentiated instruction for the student who is struggling and observing no change in their academic progress (Edmunds & Edmunds, 2008). Once the teacher identifies that individualized instruction is not addressing the student's challenges, they may decide to make a referral to a psychologist (Edmunds & Edmunds, 2008). The classroom teacher can be an important ally in the process of identification, as they may have detailed knowledge about the student's daily academic strengths and

weaknesses, as well as information about instructional supports that have been attempted to remediate the student's areas of academic weakness.

Despite teachers being the first to identify concerns with learning, many do not receive any formal training in special education (McBride, 2008). Teachers' ongoing efforts to support students with learning disabilities in the classroom suggests a need to improve their training in assisting with the early identification of an LD (Lyon et al., 2001). Lyon et al. (2001) suggest some recommendations for improving teacher preparation programs such as; the definitions of LD should include notions of adequate instruction, training to address individual learning differences and encouragement to keep up with the application of research and how to do so in order to combine research and practice. Many teacher-training programs in Canada do not require pre-service teachers to take specific coursework in Special Education for teacher certification (McBride, 2008). Therefore, they may lack general knowledge about the identification of and LD and the skills required to adequately support students with an LD in their general education classrooms.

Present Study

The prevalence rates of LD are on the rise but the identification process continues to be a highly debated topic. As previously mentioned, the correct identification of an LD has become a longstanding issue within the field of psychology (Lyon et al., 2001). The use of the ability-achievement discrepancy model to diagnose an LD has historically been the method of practice with only the recent shift towards the use of the RtI model. There is a need to come to a consensus about definitions of an LD and uses of the models to

alleviate concerns of an invalid diagnosis. It is imperative to understand the use of the models separately as well as the benefits of the use of a combination of both.

The present study will examine three distinct groups of professionals: pre-service teachers who have no background in diagnosing LD; pre-service psychologists who have background knowledge in more contemporary models, such as RtI and the ability-achievement discrepancy model, but lack experience; and, practicing psychologists that have experience in the process of diagnosis, but mostly using the ability-achievement discrepancy model. This study aims to provide empirical evidence to identify gaps between research and practice, with implications for the training of future psychologists and for the ongoing professional development of psychologists currently in practice. This study will also seek to answer the following questions:

1) To what extent do professionals (e.g., practicing psychologists, pre-service psychologists, and pre-service teachers) differ in their ability to accurately define an LD?

2) To what extent do professionals (e.g., practicing psychologists, pre-service psychologists, and pre-service teachers) differ in their confidence in *interpreting* data when using different models for LD identification (e.g., the ability-achievement discrepancy model, the RtI model and/or a model that combines the two)?

3) To what extent do professionals (e.g., practicing psychologists, pre-service psychologists, and pre-service teachers) differ in their confidence in *making decisions* using data when using different models for LD identification (e.g., the

ability-achievement discrepancy model, the RtI model and/or a model that combines the two)?

4) To what extent do professionals (e.g., practicing psychologists, pre-service psychologists, and pre-service teachers) differ in their ability to identify an LD using different models for LD identification (e.g., the ability-achievement discrepancy model, the RtI model and/or a model that combines the two)?

Method

Sample

Fourteen participants from the three professional training backgrounds were included in this study. The participants were recruited using a convenience sample. The three groups of participants that completed the online survey were: three pre-service teachers who have no background in diagnosing LD; five pre-service psychologists, who have background knowledge in more contemporary models, such as RtI, but lack experience in diagnosing LD; and, six practicing psychologists, that have experience in the process of diagnosis, but mostly using the ability-achievement discrepancy model. To participate in the current study, individuals had to be enrolled at the University of Alberta Bachelor of Education classes (EDPY497 or EDPY301), a Graduate student in Educational Psychology with knowledge of assessment practices and/or be affiliated through a course offered by the University of Alberta School and Clinical Child Psychology program.

Procedure

Participants were recruited from multiple sources in Edmonton, Alberta. Pre-service teachers were recruited through their enrolment in the Bachelor of Education at

the University of Alberta EDPY497 and EDPY301 classes; pre-service psychologists were invited to participate through an email LISTSERV at the University of Alberta and had to be enrolled in the School and Clinical Child Psychology program; and, finally, practicing psychologists were identified through their affiliation with the Educational Psychology Department at the University of Alberta and were invited to participate via email. Participation in the study was anonymous. The participants received a letter through the email LISTSERV about the study with a link attached that directed them to an online survey. The participants were able to complete the survey on their own time and were given a completion date.

When the participants accessed the link they were brought to the first page of the study that provided consent of participation by continuing to the study. The participants were first asked to identify their specific group (e.g., pre-service teacher, pre-service psychologist or practicing psychologist) and then identify the definition and characteristics of an LD. Participants were then asked to read three individual case studies of different students and to identify their confidence in their ability to make a decision about the student's needs and the interpretation of the case (e.g., cases included the ability-achievement discrepancy case, an RtI case and a case including both information from the ability-achievement and RtI). The participants were not told which LD information (i.e. ability-achievement discrepancy, RtI or both) was being used when each case was presented. All participants received an example from each of three types. Participants were asked to respond to a brief survey after completing each case that involved two item categories. This allowed for a better understanding of how they used the information that was presented within each particular sample. Participants were asked

to make a decision about each case sample and whether the case presented was an LD or non-LD case. First, rating scale items to provide information on what case they perceived to be most likely an LD. Second, rating scale items to provide information on what case they perceive to be least likely an LD. Finally, the participants were given an opportunity to provide information about what was missing from the case they perceived as least helpful in the identification of an LD.

Questionnaire Development

Previous work by Ysseldyke and Algozzine (1981; 1982) served as a starting point for the development of the questionnaire. The number of children that were being misidentified to receive special education services within these studies was very interesting. I began to wonder if this previous trend was still occurring today, considering the models of LD identification that are currently used in practice. I used Ysseldyke and Algozzine (1982) work as a model to develop my own questionnaire to gather information from professionals.

Sample characteristics. A descriptor was used to indicate if the participant was a pre-service teacher, pre-service psychologist or a practicing psychologist. This information provided an opportunity to separate the types of professionals when analyzing the data. The identification of the participant's knowledge about an LD and what characterizes an LD was also important as it allowed the researcher to identify the participants past knowledge on LD. Therefore, participants were given a drop-down menu where they could decide which definition best describes an LD, which definition best describes the characteristics of an LD and/or if all definitions were valid descriptions. The descriptions included that of an intellectual disability, an autism

spectrum disorder and an LD. These descriptions were taken from the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (American Psychiatric Association [DSM-V], 2013). It was decided to use the above disorders as they fall under the category of Neurodevelopmental Disorders in the DSM-V along with LD. The professionals included in this study may have more exposure to these types of disorders as I am mainly studying individuals that work with school-aged populations. Refer to Appendix D for more information.

Next the cases were developed. It was clear that three separate cases needed to be included (ability-achievement discrepancy model, the RtI model and a combination of the two) in order to recognize the differences between the types of professionals. However, the specifics and required information within each case (model) had to be determined. Using the essential information that needed to be provided in order for the professionals to be able to interpret the data, the three different case descriptions were developed. In developing each case the important information that was similar between cases in providing a context for the professionals was age, reason for referral, grade, background information and educational history.

Ability-achievement discrepancy case. This case was meant to be representative of a typical ability-achievement discrepancy report by including the following characteristics: reason for referral, background information, educational history, testing observations, scores on composites and subtests and descriptors for those scores. A typical ability-achievement discrepancy report includes information on both intelligence scores (i.e., IQ score) as well as the achievement score (i.e., reading comprehension, mathematical computation, applied mathematics, writing and the mechanical aspects of

both reading and writing). It was important to identify the concerns of the student as it allows the participant to better understand the areas in which the student is struggling. Even though their could be many concerns about the area that a student is struggling in, I chose to focus on reading difficulties as this area of LD is one that is commonly researched. The characteristics included in the ability-achievement discrepancy case (refer to Appendix A for further information) are important to include within the case because it documents that the student has been struggling for a period of time and it is not without effort that he is not doing well. These documentations are imperative for making a decision about the question of LD or non-LD as it gives prior information about the student's school experience. Scores from both the Wechsler Intelligence Scale for Children – Fourth Edition Canadian (WISC-IV) and the Wechsler Individual Achievement Test – Third Edition Canadian (WIAT-III). The WISC-IV and the WIAT-III were chosen for the case as they are the measures typically used by school psychologists in Canada, therefore would also be the measures that pre-service teachers and psychologists have exposure to within their programs and practice. Detailed descriptions of composites and subtests were provided for those professionals who may not have had detailed exposure to the measures, therefore to verify that they understand what is being measured through these assessments. Information about confidence intervals and percentile ranks was also discussed. This provided the participants with a context for interpretation of the information to understand the areas the student excels and the areas they are struggling (Refer to Appendices A to look at the details of ability-achievement discrepancy case). The Full Scale Intelligent Quotient (FSIQ) was reported in the Average range. The decision for this score was made due to the DSM-V criteria of

a diagnosis of LD for IQ to be in the Average functioning range. Therefore, the student is performing overall at the same level as the same-age peers. The scores were then provided from the WIAT-III in the Borderline range, however there were areas that the student performed in the Average and Low Average range. To make it clear to participants, the student performed Borderline on all composite and subscales of reading measured by the WIAT-III. Therefore, in looking at the scores on both the WISC-IV and the WIAT-III it was clear that he has a deficit in the area of reading that cannot be explained by his Average FSIQ. In conclusion, the student met criteria to be diagnosed with an LD under the ability-achievement discrepancy model.

RtI case. This case was meant to be representative of a typical RtI report by including the following characteristics: reason for referral, background information, educational history, teacher interview, assessment of instructional placement, problem analysis and intervention plan. The RtI case explains the student's initial struggle, their universal screening and the plan of intervention for the area the student is struggling. The RtI case includes both components of assessment and intervention as well as information about progress monitoring of the student. The nature and intensity of the intervention is monitored as the student proceeds through the interventions. The instructional placement summary is provided to the participants to give them context on the student's starting reading level.

To begin, the case identified the student's struggle in reading. It was chosen to stick with reading in the RtI case, as it was consistent with the ability-achievement discrepancy case. Important information pertaining to RtI is that of benchmark assessments which placed the student at a grade one reading level. This provides

information that the student is unable to fluently read at a grade two level and without assistance cannot comprehend the material read. This information was important to include because it gives context to the participant's as to the level the student is currently reading at compared to the level they should reading at. The scores on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) were then provided. DIBELS was chosen as a monitor of progress to the intervention. This information is key to include as it allows the participant's to look at the assessment of the student's instructional placement to determine if reading fluency and comprehension has increased since the intervention began. DIBELS was chosen for the case, as it is a tool readily used with young children to measure the acquisition of early reading skills. The RtI case provides the participant with an opportunity to see the initial DIBELS score and to work further to analyze the problem. The decision was made for the student to meet with an interventionist two times a week for 30 minutes for 12 weeks. This allotted amount of time was chosen as the literature suggests that 8-12 weeks for 2-3 sessions per week is a good amount of time for an academic intervention, such as the ones chosen. Word Identification Fluency (WIF) and Oral Reading Fluency (ORF) were chosen as measures of the student's progress throughout the 12-week intervention. Therefore, to determine if the student is continuing to struggle or is progressing as expected. The results provided showed that the student's performance throughout the intervention remained the same. Therefore, this indicated that the student would meet criteria for an LD under the RtI model as they have failed to respond to the interventions provided over the time period allotted for intervention.

Combined ability-achievement discrepancy and RtI case. This case was meant to be representative of a typical ability-achievement discrepancy and RtI reports by including the following characteristics: reason for referral, background information, educational history, teacher interview, assessment of instructional placement, problem analysis, intervention plan, cognitive and achievement assessment scores. The consistency of struggles with reading is maintained just as with the first two cases. All of the pertinent information included in the background section from both the RtI model and ability-achievement discrepancy model were also included within this case. The student was first identified for reading difficulties and began an academic intervention for these struggles. The beginning part of the third case was to mirror the RtI model of tiered levels of interventions along with progress monitoring. Beginning with the RtI model allows for those students that may benefit from intervention initially to not have to receive further assessments. Appendix C shows that the student did not improve from the academic interventions provided. Therefore, the student is referred for further assessments or more specifically the ability-achievement discrepancy model. The data is then provided for both the WISC-IV and the WIAT-III scores. The decision was made (as with the first ability-achievement discrepancy case) to place the student's FSIQ in the Average range. When looking at the scores on the WIAT-III it is clear that a deficit is present when it comes to reading. In this third case the decision was made to make it clear to the participants that the student first did not benefit from the intervention and then was referred to have a psycho-educational assessment. The importance of this next step is the key component of a model including both ability-achievement discrepancy and RtI. The

psycho-educational assessment confirms a deficit in the area of reading. After taking all information into consideration, the student meets the criteria to be diagnosed with an LD.

   Rating scale items. The professionals were then asked to rate both their confidence in interpretation of the data as well as ability to make a decision about the student needs. This rating scale was given for each case discussed previously. The rating scale was a scale from 1-5 where the professionals were asked to rate their confidence, 1 being the lowest and 5 being the most confident. This scale was included as it allowed me to understand how confident the professionals felt with their use and exposure of the differing models. This also allows for a clear picture of the model that each professional uses in his or her identification process of an LD.

Data Analysis

   Data were analyzed using the Statistical Package for Social Sciences (SPSS) and the figures were created using Microsoft Excel. Participants were first compared on their ability to accurately determine the definitions of an LD from the information provided. Bar graphs were created using Microsoft Excel to compare responses to the item on definitions between professionals (refer to Appendix D for full definitions). Descriptive statistics were then computed to determine the mean, standard deviations, minimum, maximum range, median and mode per type of professional in order to compare the similarities and differences between the groups level of confidence on the interpretations of the data as well as addressing the student's needs for each case. Bar graphs were also created to compare each professional's confidence in data interpretation and ability to make decisions about the student needs. Finally, a bar graph was completed in order to

determine the differences between professionals on their interpretation of the data and decision-making ability for an LD or non-LD.

Results

Accurate Definitions of an LD

The participants were given two questions with multiple definitions of differing disorders, including an LD, and were asked to correctly determine which definition best described an LD. Figure 1 provides the groups of professionals and whether they correctly identified the definition of an LD in each question. Results showed that practicing psychologists identified the definition and characteristics correct for all cases, 4 out of the 5 pre-service psychologists correctly identified LD and 1 out of the 3 pre-service teachers were able to accurately identify the definition of an LD.
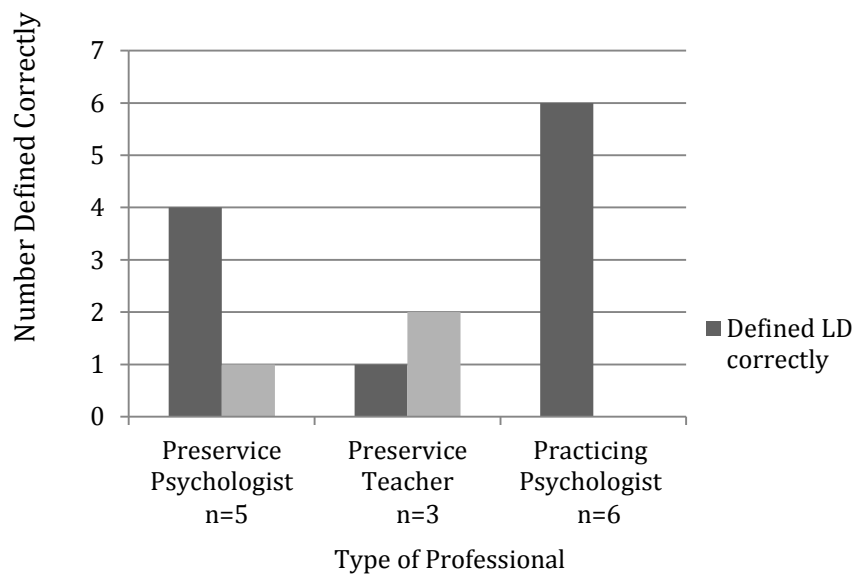

Figure 1. *Number of Professionals to Identify the Definition and Characteristics of an LD*

Confidence in Interpreting Data and Making Decisions About Student Needs

Descriptive statistics for all questions asked to the groups of professionals are presented in Tables 1 – 3 (refer to Appendix D for a full list of the questions asked). The means of the professional's confidence in their ability to make decisions about the student's needs and to interpret the data is presented in the Tables below. Each Table represents the participants answers based on each model presented within the study. The higher the professionals rating, the more confidence they have in their ability to accurately address and make a decision about the student's needs and to interpret the data within each model.

Table 1

Ability-Achievement Discrepancy Case: Confidence in Making Decisions about Student Needs and Interpretation of Data

	Making Decisions		Data Interpretation	
	Mean	*SD*	Mean	*SD*
Pre-service Psychologists	3.40	0.89	4.40	0.55
Practicing Psychologists	4.50	0.55	4.67	0.52
Pre-service Teachers	2.33	0.58	2.33	1.53

Results for the ability-achievement discrepancy case found that practicing psychologists felt most confident in their ability to make a decision about student needs ($M = 4.50$*, SD = 0.89)* and in their interpretation of the data ($M = 4.67$, $SD = 0.52$). Pre-service psychologists were less confident than practicing psychologists about their ability to make decisions about the student's needs ($M = 3.50$, $SD = 0.89$) however, were very similar in their confidence to interpret the data presented ($M = 4.40$, $SD = 0.55$). Pre-service teachers were least confident in both their ability to make decisions about student needs ($M = 2.33$, SD $= 0.58$) and their interpretation of the data ($M = 2.33$, $SD = 1.53$).

Table 2

RtI Case: Confidence in Making Decisions about Students Needs and Interpretation about Data

	Making Decisions		Data Interpretation	
	Mean	*SD*	Mean	*SD*
Pre-service Psychologists	3.00	1.00	3.60	1.14
Practicing Psychologists	1.33	0.52	2.67	1.86
Pre-service Teachers	2.67	0.58	3.67	0.58

Results for the RtI case displayed a difference from the ability-achievement discrepancy case. The results showed that pre-service psychologists felt most confident in their ability to make a decision about student needs ($M = 3.00$, $SD = 1.00$), followed by pre-service teachers ($M = 2.67$, $SD = 0.58$) and finally by practicing psychologists ($M = 1.33$, $SD = 0.52$). In looking at responses to the items about confidence in the interpretation of the data, results showed that pre-service teachers were most confident ($M = 3.67$, $SD = 0.58$) followed closely by pre-service psychologists ($M = 3.60$, $SD = 1.14$) and practicing psychologists feeling the least confident in their interpretation of the data presented in this model ($M = 2.67$ $SD = 1.86$).

Table 3

Combined Case: Confidence in Making Decisions about Student Needs and Interpretation of Data

	Making Decisions		Data Interpretation	
	Mean	*SD*	Mean	*SD*
Pre-service Psychologists	4.20	0.45	4.60	0.55
Practicing Psychologists	4.33	0.82	4.66	0.52
Pre-service Teachers	2.67	0.58	2.67	1.53

Results for the combined case displayed a difference from the ability-achievement discrepancy case and the RtI case. The results revealed that practicing psychologists felt the most confident in both their ability to make decision about student needs ($M = 4.33$,

SD = 0.82) and their ability to interpret the data (*M* = 4.66, *SD* = 0.52). Pre-service

psychologists reported that they were also quite confident in their ability to interpret the

data (*M* = 4.60, *SD* = 0.55) and make a decision about the student needs (*M* = 4.20, *SD* =

0.45). Lastly the pre-service teachers results showed that they were the least confident in

both their ability to make a decision about the student needs (*M* = 2.67, *SD* = 0.58) and

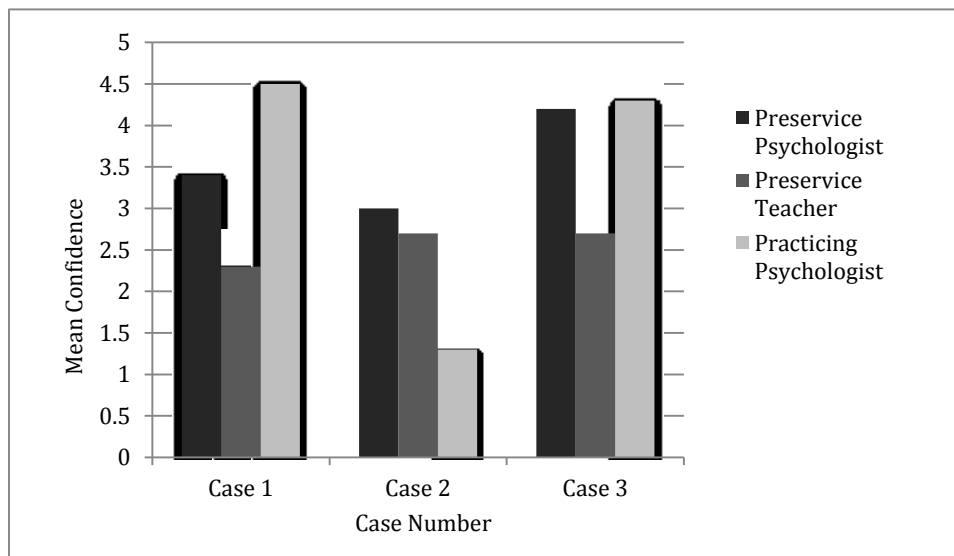their ability to interpret the data (*M* = 2.67, *SD* = 1.53).

Figure 2. *Confidence by Professional on Making Decisions about Student Needs*
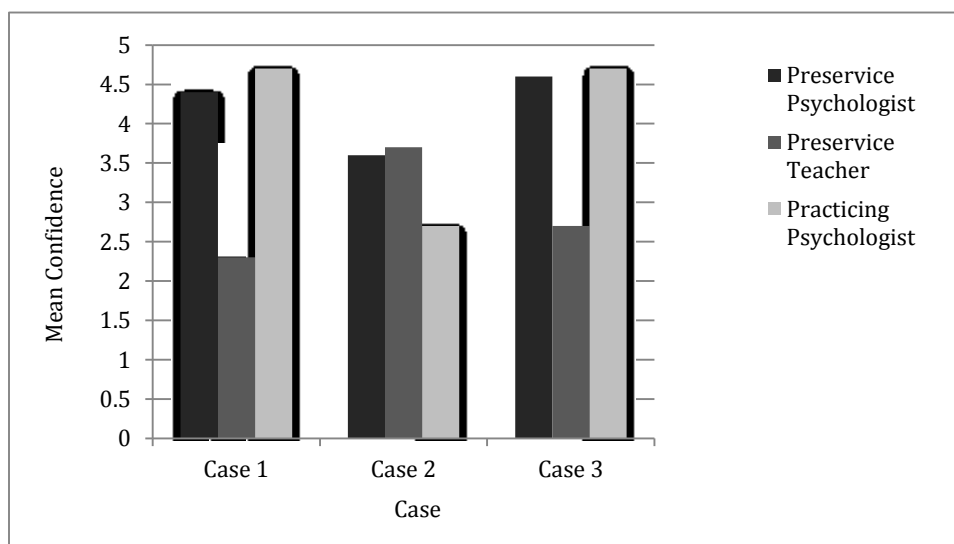

Figure 3. *Confidence by Professional on Data Interpretation*

When the three groups of professionals were presented with the data from the ability-achievement discrepancy case, they were asked to determine their confidence in their ability to interpret the data and make a decision about the student needs. Results showed that practicing psychologists had the most overall confidence. Pre-service psychologists also expressed confidence in their ability to interpret the data presented in the first case. However, their confidence ratings, when making decisions about the student's needs, were more varied. The confidence ratings from the pre-service teachers were also quite varied from feeling somewhat confident to very unconfident in their ability to interpret the data presented in the ability-achievement discrepancy model. The results indicated that when looking at the first case the practicing psychologists felt most confident across all cases with both their ability to interpret and make decisions based on the information provided in this case. The pre-service psychologists were less confident in their ability to make decisions about the student needs but had close to the same level of confidence on interpretation of the data as the practicing psychologists did. The pre-service teachers were the least confident of the three professionals on both the interpretation of the data and on making a decision about the student's needs based on the data provided in the first case.

When the three groups of professionals were presented with the data from the RtI case (second case), the practicing psychologists' rated their confidence as the lowest across all three professionals on both their ability to interpret the data as well as to use the data to make a decision about the student's needs. More specifically when asked to make a decision based on the students needs from the RtI case, the practicing psychologists reported little to no confidence. Both pre-service teachers and pre-service psychologists

reported their confidence to be about the same when interpreting the data and in making a decision based on the student's needs presented in this case. However, the pre-service teachers rated their confidence slightly higher than pre-service psychologists in the interpretation of the RtI data.

In looking at the results of the case model that combined both the ability-achievement discrepancy (case 1) and RtI (case 2), the practicing psychologists reported the highest confidence across professionals in both their ability to interpret the data as well as to make decisions about the student's needs. The results from the practicing psychologists were unexpected as this case also included data from the RtI case (second case) which the practicing psychologists felt little to no confidence in both the interpretation of the data as well as the ability to make a decisions about the student's needs. However, the practicing psychologists still felt the most confidence across professionals with this case but still not as confident as they were when using the ability-achievement discrepancy model. Unexpectedly, the pre-service psychologists reported less confidence than the practicing psychologists on both the interpretation of data and making a decision about the student's needs. However, their results were not drastically lower. The responses from the pre-service teachers varied from feeling very confident to not at all confident.

Likelihood of an LD

By including the last two questions on the questionnaires I wanted to find out if the professionals were able to identify which of the three cases, were most likely and least likely to have an LD. The results are shown in Figure 4 and 5.
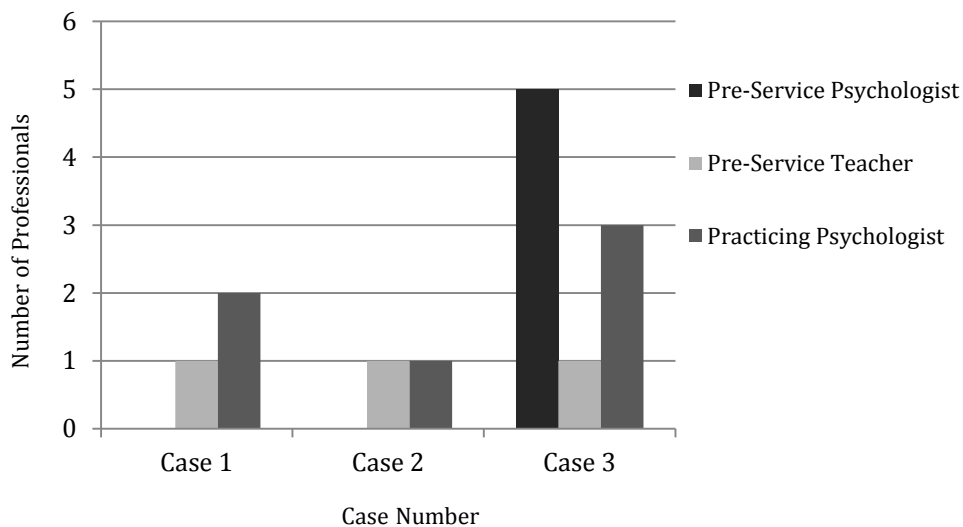
Figure 4. *Which case is most likely to have an LD?*
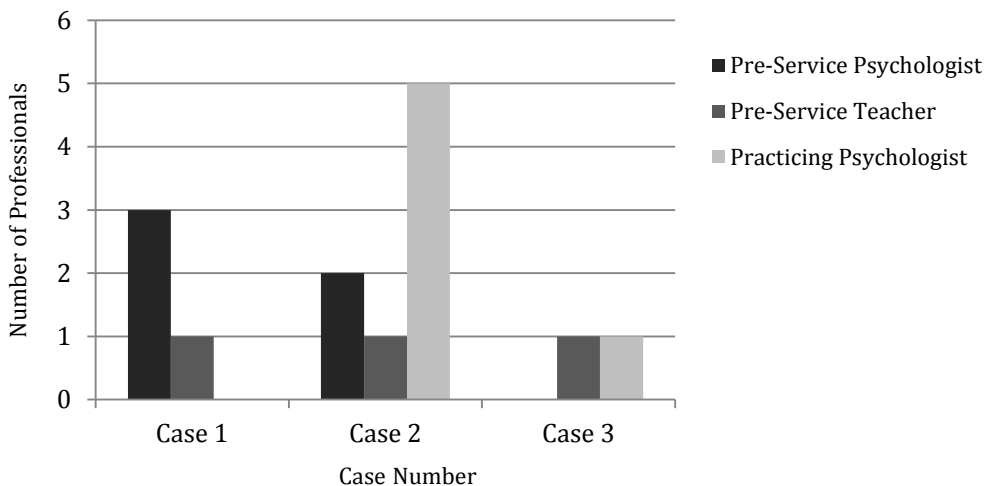
Figure 5. *Which case is least likely to have an LD?*

All of the pre-service psychologists and three out of the six practicing psychologists identified that the third case was the most likely to have an LD whereas the pre-service teachers were split between the three cases for both questions. When asked to identify which of the three cases was least likely to have an LD the pre-service teachers were again split between the first and second case. However, all of the practicing

psychologists identified case 2 as least likely to have an LD. The pre-service

psychologists were split between first and second case as least likely to have an LD.

Use of Information

Finally, the professionals were given an opportunity to provide qualitative

information along with their submission of the questionnaire. The professionals were

asked about the information missing from the case that they rated as being the least

helpful. Moreover, which case was the most difficult to determine if the student was most

likely or least likely to have an LD. The responses by each group of professionals are

summarized below.

Practicing psychologists. The practicing psychologists indicated that the second

case (RtI case) was missing information about intellectual ability and academic

achievement to make decisions about an LD. The practicing psychologists described that

the RtI case provided information about the student's struggles; however, no

psychometric testing information was present making it difficult to feel confident about

making a decision about the student's needs.

"The tests in case 2 were not familiar to me and there was no information on intelligence

and standardized academic measures. I use an ability-achievement discrepancy analysis,

so I essentially had very little information to work with." Overall, the practicing

psychologists identified that they were not familiar with the information presented in the

RtI case.

Pre-service psychologists. The pre-service psychologists described the

importance of screening for emotional/behavioural along with psycho-educational

assessments. The pre-service psychologists spoke about the importance of

emotional/behavioural information to the understanding of student needs. The pre-service psychologists also indicated that the cases were missing information about the student's own perception of their strengths and weaknesses. The pre-service psychologists discussed the models that they were familiar with and attributed the decisions they made to these models. It was noted that the models were missing information about student performance and just included information about scores, which did not provide enough information to feel confident about making a decision. The RtI case was specifically mentioned as not having information about standardized measures once the student did not respond to the intervention.

Pre-service teachers. The pre-service teachers indicated that they did not have familiarity with reading these tests, however, they did mention missing scores on the WISC-IV and WIAT-III. Moreover, the pre-service teachers felt that they found the information from the DIBELS straightforward but that the other assessments "did not make sense when considering the application of the information. I was unable to discern a true picture of what an LD looks like from the WISC and WIAT assessments."

<div align="center">**Discussion**</div>

The purposes of this study were to best identify the ways that that the three groups of professionals (a) practicing psychologists; (b) pre-service psychologists; and (c) pre-service teachers define an LD and to determine which models for LD identification the professionals were most confident in using (a) the ability-achievement discrepancy model; (b) RtI model; and (c) a model combining the two. Finally, I also sought to identify each group of professional's confidence in the use of the differing models for data interpretation and decision-making.

The results of this study provide preliminary information about responses from three groups of professionals to help us to better understand which model(s) practicing psychologists, pre-service psychologists and pre-service teachers feel most confident in using when it comes LD identification. The more understanding we have about the models that are currently in use by these professionals, the better we are able to work towards an opportunity to maximize the training of professionals working with students to identify and LD and to be able to provide consistency towards an approach for identification.

The case that combined the RtI and the ability-achievement discrepancy models was referenced as the model that provided the most detailed amount of information, allowing the all of the pre-service psychologists and three out of the six practicing psychologists to feel that this case was most likely an LD case. However, the practicing psychologists were still the most confident in their interpretation of data and their ability to make a decision about the student's needs based on the data provided in the first case (ability-achievement discrepancy case). This shows that the practicing psychologists still felt the most confident when making a decision about an LD when using the ability-achievement discrepancy model over the other models. However, the practicing psychologists indicated that the case combining both models provided the most information about the student's strengths and weaknesses as well as past interventions that were not successful, allowing the aforementioned professionals to feel confident in their final decision of identification of an LD.

Defining an LD

The results that all practicing psychologists were able to correctly identify the definition of an LD suggests that with more exposure to training, opportunities to work with individuals with an LD and further exposure to the variability of definitions that exist, these professionals may be able to better identify how the definition of an LD is conceptualized within different settings. Even though all of the practicing psychologists identified the definitions correctly it may be that those participants surveyed work within the same areas and in the same province, which may have lead to a greater likelihood that they use the same definition. It may also be that the practicing psychologists were left to make this decision on their own, whereas if placed within a school team, which is very likely, the decisions as to what the definition of an LD is may be different (Tucker, Stevens & Ysseldyke, 1983). These results suggest that with further training and experience professionals confidence in the use of a correct definition of an LD may increase. Hale et al. (2006) stated that "we should challenge SLD practices, not SLD constructs" (p. 754). Therefore, it may be that some practicing psychologists can correctly identify the definition of an LD, however, in practice they seek to meet the individual student needs to make sure they are able to get the support needed whether an LD is present or not (Hale et al., 2006).

Models to Identify LD

As previously mentioned, there are a number of different models proposed for the identification of an LD. The models that are in use all share a common goal of working towards a valid identification of an LD. As previously discussed, the ability-achievement discrepancy model has been used for a number of years with the RtI model used more often in the recent years. Hale et al. (2006) proposed the idea of a combination of both

models in order to meet all student needs and not just to meet the needs of students with a possible diagnosable LD. The combination of the two models may give professionals the opportunity to incorporate more information about a student while being able to accurately separate the low achievers, which may benefit from individualized intervention, from those students that require further psycho-educational assessments. The practicing psychologists included in this study have likely received training and exposure working with the ability-achievement discrepancy model with many not having that same exposure/training with the RtI model. O'Donnell & Miller (2011) examined school psychologists acceptability of the discrepancy model versus RtI and found that the more exposure the professionals had to the RtI model, the more they accepted this model for identifying students with disabilities. However, Hale et al. (2006) discussed the need for incorporation of both models together, rather than a stand-alone model used for a diagnosis of an LD.

A model that incorporates both the ability-achievement discrepancy model and the RtI model provides an opportunity to address some of the issues surrounded around the accurate identification of an LD (Hale et al., 2006). Training in one model over the other can increase the professional's confidence in the sole use of a model their most familiar with. The results of this study showed that the practicing psychologists felt most confident with the ability-achievement discrepancy model over the RtI model and the combination of the two models. When they were asked what was missing within the RtI model, the practicing psychologists specifically indicated the use of the psycho-educational assessment information and that without this information (as in the RtI model alone) their confidence decreased and they felt they could not confidently make a

decision about an LD. However, when the practicing psychologists were provided with both models together, they indicated that this case was an LD case rather than the stand-alone information from each model separately. This provides information about the practicing psychologists confidence in the use of the differing models. Although the practicing psychologists felt the most confident in the use of the ability-achievement discrepancy model in making a decision about students needs as well as interpretation of the data, their confidence in the model that combined both was not much lower than their confidence in the stand-alone ability-achievement discrepancy case. The practicing psychologists still felt confident in their use of a model that incorporated RtI with information from a model they were familiar with (ability-achievement discrepancy case). It would be interesting to further examine how the practicing psychologists made use of the RtI information in the combined model and how this information was used differently from the stand-alone RtI model. This information further works to support the Hale et al. (2006) proposal of a combined model to meet the needs of all students and to give practicing psychologists an opportunity to have as much information possible before making a decision about an LD diagnosis. In order to meet all students that are struggling within the classroom, the use of interventions and if these interventions are not successful a more comprehensive assessment can be given when the RtI model is included. This allows all students the opportunity to receive assistance (if needed) and to be successful in the classroom.

The pre-service psychologists had more confidence than the practicing psychologists in their use of the RtI model, aligning with O'Donnell & Miller (2011) results that acceptability of models increased when exposure and training was provided

within each model. Current training programs may provide pre-service psychologists with the opportunity to be exposed to the RtI model and its use and effectiveness for students. Pre-service psychologists also had confidence in the use of the combined model for both the interpretation of the data as well as the ability to make a decision about the student's needs. However, this confidence was slightly lower than that of the practicing psychologists and may be attributed to further training and experience in the process of identification. This indicates that practicing psychologists may feel more confident in their use of a combined model if they receive adequate training in both the ability-achievement discrepancy model and the RtI model, in order to make a decision about a student's needs as well as to identify an LD.

With the current shift towards a more inclusive model of identification of an LD those pre-service psychologists still in training may feel more confident in the combined model than practicing psychologists. As those professionals still in training may be exposed to both the ability-achievement discrepancy model and the RtI model. This allows for more pre-service psychologists and new practicing psychologists the opportunity to receive training in both models in order to be accepting of this transition as well as to feel confident in their use and understanding of both models. This being a step in the right direction for psychologists working with struggling students as well as students that may be identified as having an LD. Finally, pre-service teachers may be exposed to both models in courses but may not receive further training in the interpretation of data presented by the models. However, the results of this study did show that pre-service teachers were more confident when the RtI model was included (both case 2 and 3). Interestingly, pre-service teachers felt the most confident out of all of

the professionals in their ability to interpret the data included in the RtI case. Their

confidence may come from classwork used to interpret documents like this that are

included in the study. It will be important to further train teachers on how to provide

effective implementation of interventions within RtI and how these interventions can be

used efficiently with students in their classrooms. Therefore, it will be important to make

sure educators are also included within this process of implementation of RtI for

identification of struggling students as well as students with an LD.

Group Comparisons

It is possible that due to the breadth of training the practicing psychologists have,

they felt the most confident across professionals in the sole use of the ability-achievement

discrepancy model and felt least confident in using the independent use of the RtI model.

The results of this study showed that practicing psychologists felt the most confident in

their ability to make decisions and to interpret the data in the ability-achievement

discrepancy model at a rate higher than that of both other groups of professionals. These

results indicate that the practicing psychologists that completed the survey felt most

confident in the use of the ability-achievement discrepancy model and that their

confidence in the use of this model was highest across all groups. O'Donnell & Miller

(2011) stated that the school psychologists with little to no exposure to the RtI model did

not have high acceptability. Therefore, if the practicing psychologists had received

training on how to interpret and make decisions based on the RtI model, their

acceptability and confidence may increase allowing their confidence for use of the model

to be much greater than it was when this study was completed. Interestingly, even though

practicing psychologists indicated qualitatively that they had no exposure to the RtI

model of identification, they still indicated that the third case, that integrated both RtI and the ability-achievement discrepancy models, as most clearly having an LD. The practicing psychologists included in this study may not have exposure to the RtI model of LD identification and this could be the reason that they felt little confidence in the use of the model independently. However, when the RtI model was combined with the ability-achievement discrepancy model, a model they were familiar with, their confidence increased. Though, the practicing psychologists still felt the most confident in the sole use of the ability-achievement discrepancy model. It is a noteworthy point to question if the practicing psychologists really made an attempt to understand the information in the case that combined both models or if they focused mainly on the data they were most familiar with in the ability-achievement discrepancy component of the model.

In comparison to the practicing psychologists, the pre-service psychologists also expressed confidence in the use of the ability-achievement discrepancy model. However unlike the practicing psychologists, the pre-service psychologists did indicate some confidence for the use of the RtI model of identification. Pre-service psychologists may have exposure and receive training in the RtI model and the use of interventions within schools more so than the practicing psychologists have in the past. However, it may be that current school psychology training programs in Canada are still heavily focused on the use of the ability-achievement discrepancy model and even though the pre-service psychologists have some training in RtI, most of their training is still focused on the ability-achievement discrepancy model for LD identification. Similar to the practicing psychologists, the results also revealed that pre-service psychologists chose to make a decision about an LD based on the information presented in the third case. Through

further exposure and training within the RtI model and the benefits of the use of the models together, the pre-service psychologist's confidence in their ability to interpret the data and make decisions about student's needs may increase. Even though the pre-service psychologists were more confident than the practicing psychologists in the use of the RtI model, they were still not extremely confident in making a decision about the student's needs based on the use of RtI model independently. As Hale et al. (2006) indicated it is not possible to use just one model for the sole identification of an LD. The benefits of both models incorporated together in order for struggling students and students with an LD to achieve success and to be correctly identified (Hale et al., 2006). The pre-service psychologists also felt more confident in their interpretation of data versus making decisions about the student's needs across all cases. Even though pre-service psychologists may not have the length of experience that the practicing psychologists have, it may be that through training programs they feel more confident in their ability to interpret the data because their programs may provide them with experience and training in the interpretation of data over making decisions about student's needs. This lower confidence may be that due to lack of opportunity to make decisions about student's needs independently without support from a trained psychologist with further experience. Therefore, the ability to independently make decisions about student's needs may develop more thoroughly over the course of training and exposure and may help to increase pre-service psychologists confidence in decision-making.

Teachers are an important partner to have in a school as they work with the students everyday and may better understand some of the student's individual strengths and weaknesses in regards to learning. O'Donnell & Miller (2011) discuss the importance

of teacher training and their acceptability to implementing interventions. School psychologists work with many different educators through both identification and implementation of interventions in order to ensure students are successful. This study did not focus heavily on the teacher use of the models, but I thought it was important to understand what types of assessments and reports teachers may have confidence in reading and making decisions about the students needs based on these reports. The assistance from a teacher in implementation is important for a school psychologist.

The results of this study showed that in comparison to practicing psychologists and pre-service psychologists, pre-service teachers felt the most confident in their interpretation of the RtI model and the combined model. More specifically the pre-service teachers included in the study rated their confidence as higher than both the practicing and pre-service psychologists on data interpretation. Even though the pre-service teachers confidence in making decisions about the student's needs was lower than that of pre-service psychologists it was still close. It may be that some pre-service teachers receive exposure to the RtI model through completed classes, therefore allowing them to feel more confident in the interpretation and use of this model. However, the fact that only three pre-service teachers participated in the study makes it difficult to interpret their decisions and confidence within this study and to generalize their results further. The three pre-service teachers responses were quite varied, making it difficult to draw conclusions from this information. Broadly speaking, the pre-service teachers felt some confidence for the interpretation of data but more confident in their ability to make decisions about the student's needs. Like pre-service psychologists, pre-service teachers may experience training and feel a heightened sense of confidence in understanding some

of the decisions that need to be made within the classroom from the data presented in the case rather than being able to interpret the data that was being presented. Therefore, their exposure to some of the interventions included in both the RtI case and the combined case may be more familiar to them rather than the data and cognitive information presented within the ability-achievement discrepancy case.

Limitations

One major limitation to this study was the small sample size. The target sample size for this study was 30 participants per professional group. Due to some unforeseen circumstances, such as the inability to recruit enough participants, it became quite difficult to complete the study with the expected sample size. With more professionals within each group we may be able to see more differences, allowing for a better indication of which model is most effectively known and used. Due to the small sample size, comparisons between the groups should be looked at with caution, as the groups were not comprised of equal numbers. This makes it difficult to draw out direct comparisons between groups in terms of levels of confidence further than an average of their responses. It may have also been helpful to recruit for longer periods of time and provide incentives to participants. These incentives may have made participation in the study more enticing. Lastly, participants were only recruited from the University of Alberta; branching out to other universities as well as other provinces may have increased our sample size. The three participants from the teacher-training programs were all enrolled in special education courses (as these courses were the ones surveyed) and this may also create a bias towards a specific type of training that not all pre-service teachers receive. In the future, it will be important to survey general education teachers more

broadly to better understand their confidence in the interpretation and decision about needs through these models. There were many assumptions made throughout this study specifically about the professional's exposure to different types of reports, their training background as well as links from these assumptions to their final decisions. It will be important in the future to include more questions clarifying some of this information in order to be able to validly make these claims rather than just assuming the professionals made the decisions for specific reasons and drawing conclusions that may not be completely valid from the assumptions. The psychological constructs, such as confidence, were only measured with a single item, which also does not allow for a thorough understanding of exposure to or use of the measures included. The study could have included more measures on the questionnaires that included the differences in exposure to the models and a question about preference for one model over another. This would have allowed for a more complete understanding of how the different professionals use the models and to make further conclusions about what models are in use for LD identification in Alberta.

Future Directions

There are many different ideas that could be further explored from this study. First, understanding the differences between the use of the models within different provinces in Canada as well as throughout Canada and the United States. A better understanding of the ways in which pre-service psychologists are trained in the United States could inform some aspects of training in Canada and vice versa. There are many different programs within Canada and the United States that could provide training on both RtI and the ability-achievement discrepancy models but in various ways.

Completing a study looking at the different training models of each program could help to create a consistent model of training for psychologists.   If all professionals are working from similar training models it may become an easier to have a common definition and identification process for LD. Second, as teachers are also working closely with psychologists throughout this process applying recommendations and instruction in the classroom it is important that they also understand the process of identification. This could help teachers to better understand the correct decisions that have to be made in the classroom for their student's to be successful. It may be that with time and experience teachers can become more familiar with the models used by psychologists to better inform their opinions and decisions made within the classroom.

The importance of experience within the profession leads to another possible future direction of including information within a study about the year of the program that the pre-service psychologist or pre-service teacher is enrolled in and how long psychologists has been practicing in the field. This could show the growth in learning that occurs throughout a program and can also inform further training within the program to better understand components that may be missing for future practice within the profession. This would create a more thorough understanding of the possible changes that may occur with more practice and training. Finally, it would be important to have a larger sample size for a clearer understanding of the differences between the uses of the models and the ways in which the different types of professionals make decisions about the information presented.

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Appendix A

Name: David Smith
Parents Names: Mr. and Mrs. Smith
Date of Birth: 03/10/2004
Age: 10 years, 4 months
Date of Testing: 07/10/2014
School: St. Paul's Catholic School
Teacher: Mrs. Lowe
Grade: 5
Date of Report: 09/05/2014

Reason for Referral
David was referred for a psycho-educational assessment by his classroom teacher, Mrs. Lowe, due to concerns related to his academic progress in reading. David appears to be struggling to decode words, reading fluently, and comprehend written text, compared to his grade-level peers. Therefore, this assessment was designed to:

1. Assess David's current level of cognitive functioning, and identify relative strengths and weaknesses;
2. Assess David's current level of academic achievement, and identify relative strengths and weaknesses;
3. Assess David's current level of social, emotional, and behavioural functioning, and how this relates to his learning and cognitive abilities; and

Background Information

The following information was obtained through a semi-structured phone interview with Mr. and Mrs. Smith. A semi-structured phone interview was also conducted with David's current teacher, Mrs. Lowe. Additional information was obtained from: David's previous report cards and the BASC-2 Structural Developmental History form that was completed by Mrs. Smith.

Mrs. Smith reported no problems during her pregnancy or childbirth; she also mentioned that David reached all developmental milestones within normal limits. Mrs. Smith describes David as being in good health with no major problems of illness or accidents during his childhood. David's parents report that he works hard on homework in the evening but it tends to take him longer than they would expect for him to complete his homework. David's parents also commented that David often states that he dislikes reading.

Educational History
David attended preschool at a Headstart program and has attended St. Paul's Catholic School since kindergarten. David is currently enrolled in grade 5 and has had good

attendance. Throughout his schooling at St. Paul's, David has missed an average of 5 school days and has, on average, been late 4 times per academic year.

David has always attended regular education classes and has not received any educational modifications or accommodations. However, Mrs. Lowe has stated a concern of his struggles with the core areas of reading (e.g. decoding, fluency, comprehension).

Assessment Procedures
Wechsler Intelligence Scale for Children – Fourth Edition Canadian (WISC-IV)
Wechsler Individual Achievement Test – Third Edition Canadian (WIAT-III)

Testing Observations
During the testing David was cooperative, polite, attentive and sat quietly. David appeared to be at ease with the examiner, adapting to the testing situation without any trouble and was fully cooperative with all the demands placed upon him. It appeared that David was focused on the testing and wanted to complete the tasks accordingly. David was persistent to complete the tasks even when presented with difficult items. David's approach to the testing varied based on the demands of the task at hand. During non-verbal presented tasks, David often proceeded at a slow pace and continued to express dissatisfaction with his performance. Conversely on orally presented verbal tasks, David proceeded slightly faster and at times cut off the examiner before the question was finished.

Overall, during the testing situation, David appeared to be trying his best and putting forth his best effort to complete the tasks that were presented to him. Therefore, given the examiners testing observations, David's performance on both measures should be interpreted as a valid representation of his abilities.

Assessment
David was administered ten subtests on the WISC-IV. This is a test of general cognitive ability used with children. The WISC-IV examines functioning on a range of subtests, which make up four different index scores. The four index scores are Verbal Comprehension (VCI), Perceptual Reasoning (PRI), Working Memory (WMI) and Processing Speed (PSI), together these four indexes calculated create a Full Scale IQ (FSIQ) score.

The WISC-IV is a norm-referenced tool used to measure overall cognitive abilities, as well as verbal and non-verbal abilities. Confidence intervals are used in order to demonstrate the range in which David's scores are likely to fall upon repeated administrations. A 95% confidence band denotes that one can be confident that 95% of the time the subject's score will fall within this range. David's scores are also represented relative to his similarly aged peers by a percentile rank. A percentile rank indicates the percent of individuals that attained at or below the score attained by David.

David was tested in a number of cognitive areas such as verbal comprehension, perceptual reasoning, working memory and processing speed. Verbal comprehension is

the ability to understand and create messages. For example, it is familiarity with sentence structures, word problems and vocabulary. Perceptual reasoning is the ability to take in visuo-spatial information to solve problems. An example of this ability is to rotate a shape in order for it to fit into a puzzle. Working memory is a brain function in which information can be retained temporarily as it is being formed, transformed, or executed. Complex cognitive tasks that involve learning, reasoning, and comprehension use working memory. An example is being told a forward sequence of numbers and to then repeat them backwards. Processing speed provides an estimate of the ability to perform psychomotor tasks quickly. Processing speed also measures visuo-motor processing speed, including the ability to quickly and accurately visually scan and discriminate visual information, her cognitive flexibility, motivation and attention.

Subtest	Standard/ Scaled Score	95% Confidence Interval*	Percentile Rank	Qualitative Description
Verbal Comprehension (VCI)	119	112-124	90	High Average
Similarities	12	--	75	--
Vocabulary	12	--	75	--
Information	16	--	98	--
Perceptual Reasoning (PRI)	116	108-122	86	High Average
Block Design	11	--	63	--
Matrix Reasoning	13	--	84	--
Visual Puzzles	14	--	91	--
Working Memory (WMI)	100	92-108	50	Average
Digit Span	9	--	37	--
Arithmetic	11	--	63	--
(Letter-Number Sequencing)	9	--	37	--
Processing Speed (PSI)	85	78-95	16	Low Average
Symbol Search	8	--	25	--
Coding	7	--	16	--
(Cancellation)	7	--	16	--
FULL SCALE IQ (FSIQ)	109	104-114	73	Average

David was also administered the WIAT-III. This is an individually administered test battery used to assess the academic achievement of those who are in grades Pre-K (4 years old) through adulthood. David's scores are computed in comparison to other

children of the same age and are reported in standard scores and percentiles. There are four basic scales including: Reading, Math, Oral Language and Writing. These scales include a total of 16 subtests to measure 8 areas of achievement.

The Oral Language composite measures listening, speaking and word vocabulary. It also measures the ability to make decisions about and remember details from oral sentences and discourse, how easily he can retrieve words, his oral syntactic knowledge and finally, his short-term memory. The Total Reading composite measures speed and accuracy of reading without the aid of a context, his ability to decode nonsense words, his speed, accuracy and prosody of oral reading, and finally his reading comprehension of differing texts. The Written Expression composite measures written spelling of letter sounds and single words, sentence formulation skills, written syntactic maturity/ability and finally his ability to spontaneously compose a piece of writing in a given time period. The Mathematics composite scale reflects the ability to complete untimed math problem solving in the domains of basic concepts and everyday applications of geometry and algebra. His abilities were measured with written math calculation in the domains of basic skills, basic operations with integers, geometry and the speed and accuracy at which he completed calculations of addition, subtraction and multiplication.

David's academic achievement was assessed with the Wechsler Intellectual Achievement Test, 2nd Edition (WIAT-III) on July 10, 2014. The WIAT-III is a norm-referenced tool used to measure of curricular learning in core subject areas such as reading, mathematics, and written and oral language.

SUBTEST	Standard Score	Composite Standard Score	95% Confidence Interval	Percentile	Descriptor
TOTAL ACHIEVEMENT		78	74-82	7	Borderline
1.Word Reading	68		64-72	2	
2. Reading Comprehension	85		75-95	16	
3. Pseudoword Decoding	71		66-76	3	
4. Oral Reading Fluency	79		71-87	8	
TOTAL READING COMPOSITE[1,2,34]		**73**	**69-77**	**4**	**Borderline**
BASIC READING COMPOSITE[1,3]		**70**	**66-74**	**2**	**Borderline**
READING COMPREHENSION & FLUENCY COMPOSITE[2,4]		**78**	**71-85**	**7**	**Borderline**
1. Numerical Operations	90		81-99	25	
2. Math Problem Solving	97		90-104	42	
3. Math Fluency- Addition	99		88-110	47	
4. Math Fluency- Subtraction	80		71-89	9	
MATHEMATICS COMPOSITE[1,2]		**93**	**87-99**	**32**	**Average**
MATH FLUENCY COMPOSITE[3,4,5]		**88**	**80-96**	**21**	**Low average**
1. Alphabet Writing Fluency (K-2)	98		82-114	45	
2. Sentence Composition	87		79-95	19	
4. Spelling	72		65-79	3	
WRITTEN EXPRESSION COMPOSITE[1-4 or 2-4]		**82**	**73-91**	**12**	**Low Average**

1. Listening Comprehension	110		97-123	75	
2. Oral Expression	101		91-111	53	
ORAL LANGUAGE COMPOSITE[1&2]		106	96-116	66	Average

Appendix B

Name: Shelley White
School: Our Lady of Mount Caramel
Parents Names: Mr. and Mrs. White
Teacher: Ms. Killam
Date of Birth: 03/10/2005
Grade: 3
Age: 10 years, 4 months
Date of Testing: 05/17/2014
Date of Report: 06/05/2014

Reason for Referral

Shelley's classroom teacher, Ms. Killam, initially referred Shelley for individualized instructional intervention, given her concern with Shelley's lack of progress in the area of reading, compared to her grade-level peers. The goal was to provide Shelley with an appropriate intervention to increase her reading abilities so she can once again benefit from current grade-level instruction. The results of the academic intervention are described in detail below.

Problem Identification

Background Information:
A review of Shelley's file indicates that she is a typically developing 3rd grade girl. Before coming to Our Lady of Mount Caramel in the first grade Shelley attended school at Walkerville Elementary. Information from Shelley's previous school indicates that she had trouble developing foundational reading skills in kindergarten (e.g. letter naming, letter sounds, and decoding). Her goals in the first grade were to spend more time reading to develop age-appropriate skills.

Educational History:
It is Shelley's second year enrolled at Our Lady of Mount Caramel and her records have indicated that she has had good attendance for the last two years. Shelley has missed an average of 6 days and has, on average, been late 7 times per academic year.

Shelley completed a reading intervention in the first grade. At the time of the reading intervention Shelley was reading at a kindergarten level but was not referred for any special education services. In regards to Shelley's current academic performance, she continues to struggle with reading.

Teacher Interview:
An interview was conducted with Shelley's teacher, Ms. Killam, on 05/14/2014 to better understand Shelley's specific areas of academic difficulty. Ms. Killam reported that Shelley's performance was low in comparison to her same-age peers in most subjects, but

the greatest concern is in reading. Ms. Killam feels that Shelley may be struggling in other subjects due to her poor reading ability.

In the fall, Ms. Killam administered a reading assessment to her students; the results indicated that Shelley was reading at a grade one level. Her score placed her in the 15th percentile for reading relative to her same-age peers. When given second grade material, Shelley was unable to read the material fluently and needed a lot of assistance with comprehension. Shelley was also having trouble pronouncing and decoding words that were used in the second grade materials. However, Shelley read fluently from grade one level materials only making few errors and was able to comprehend most of the material without much assistance.

When Ms. Killam was asked about any classroom behavioural concerns, she reported that Shelley gets along well with her classmates and is a very kind student. But, Shelley can become distracted easily by her classmates and has a hard time staying on task. Shelley seems to work hard in class but has trouble finishing activities.

Assessment of Instructional Placement
Shelley's instructional placement was assessed to determine if her comprehension and reading fluency has increased since the initial benchmark was given. The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) was used to measure her reading fluency and to monitor her response to intervention. DIBELS is used with young children particularly children at or below grade 3. DIBELS is used with young children particularly children at or below grade 3 to measure the acquisition of early literacy skills. DIBELS is designed as a short measure of fluency to monitor student's development of early literacy and reading skills.

As seen in Table 1, Shelley was presented with reading passages beginning at her current grade level and down to a level that was consistent with her instructional level, to aid the selection of an intervention that targets her specific weaknesses in reading. Shelley's instructional level in reading is determined by examining the number of words read correct per minute and the number of errors when asked to read a brief passage for one-minute. Shelley's instructional level corresponds to the grade level at which she is able to read between 40 and 60 words read correct per minute and make 4 or fewer errors.

Table 1. *Instructional Placement Assessment Summary*

Probe Level	Total Attempted	Total Errors	Words Read Correct/Minute
Grade 1	56	4	52
Grade 2	34	5	29
Grade 3	23	7	16

Problem Analysis

The results of the DIBELS assessment show that Shelley's reading fluency is low when compared to her same-age peers. Therefore, the primary focus of intervention was on her reading fluency. In Shelley's case, grade 1, 2 and 3 level curriculum materials were obtained from Ms. Killam and used in a fluency intervention.

Intervention Plan

Shelley was to meet with one of the two interventionists 2 times a week for a session that lasted 30 minutes. Two types of reading interventions were introduced: Repeated Reading with Error Correction and Reading Fluency: Support Cloze Procedure (SCP).

Repeated Reading is an intervention used with students with adequate decoding skills, but need to practice reading fluency. Due to the close link between reading fluency and comprehension, students need to be correctly reading about 50 to 60 words per minute in order for comprehension to occur.

SCP is an assisted intervention in which Shelley's interventionist read a passage jointly with Shelly by orally reading every other word. SCP is intended to target reading accuracy by the modeling of correct reading of words in the passage. SCP is for students who have struggle applying phonetic skills to reading text.

Word Identification Fluency (WIF) and Oral Reading Fluency (ORF) were used during each session to measure Shelley's progress throughout the intervention.

WIF
Shelley was presented with a random set of words, sampled from the 100 most frequent words used at this age. She had 1 minute to read the words. Her score is determined based on the number of words she reads correctly. The primary score, which is graphed over time, represents Shelley's overall reading competence at the grade level.

Figure 1: *WIF Number of Words Read Correct Per Minute for First Grade*
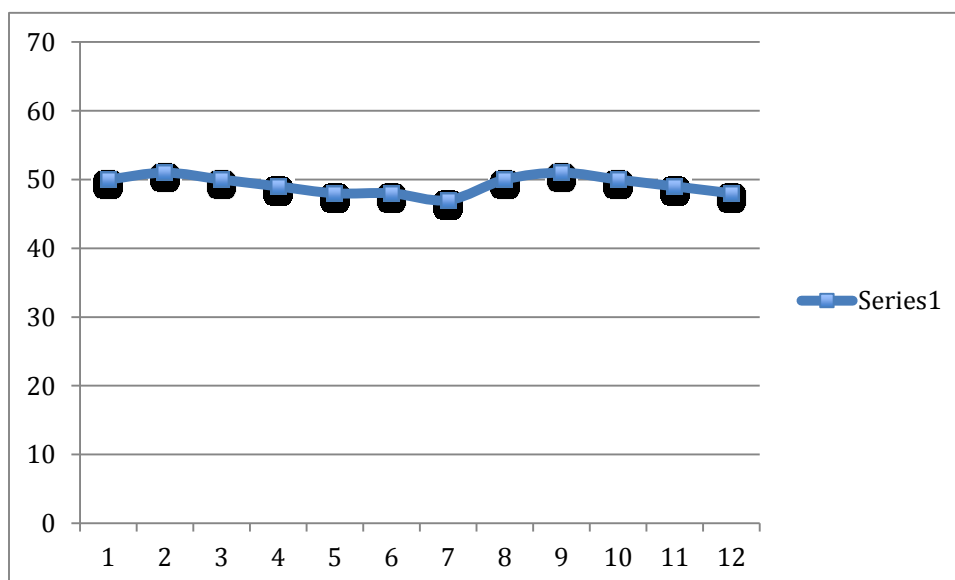
ORF: DIBELS

Shelley was presented with a reading sample and was given a minute to read the sample out loud to the interventionist. Shelley began at the grade one level and worked towards reading at the same level of her same-age peers.

Figure 2: *DIBELS Number of Words Read Correct Per Minute for First Grade*
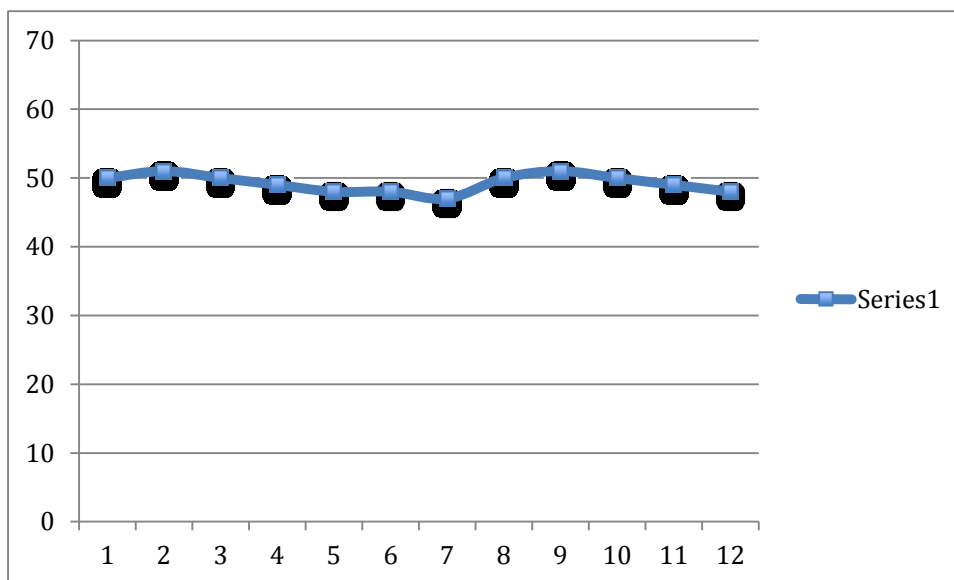
Appendix C

Name: Josh Burt
School: St. Pius Catholic School
Parents Names: Mr. and Mrs. Burt
Teacher: Mr. Wright
Date of Birth: 14/03/2005
Grade: 3
Age: 9 years, 1 month
Date of Report: 15/05/2014
Date of Testing: 17/04/2014

Reason for Referral
Josh's classroom teacher, Mr. Wright, initially referred Josh for instructional intervention, given his concern with Josh's lack of progress in the area of reading fluency, compared to his grade-level peers. Following 6 weeks (12 sessions) of reading interventions, Josh was referred for psycho-educational assessment due to a lack of growth in response to the individualized instructional support provided by the intervention. The results of both the academic intervention and the psycho-educational assessment are described in detail below.

This assessment was designed to:

1. Assess Josh's current level of cognitive functioning, and identify relative strengths and weaknesses;
2. Assess Josh's current level of academic achievement, and identify relative strengths and weaknesses; and
3. Assess Josh's current level of social, emotional, and behavioural functioning, and how this relates to his learning and cognitive abilities

Problem Identification

Background Information:

The following information was obtained through a semi-structured phone interview with Mr. and Mrs. Burt. A semi-structured phone interview was also conducted with David's current teacher, Mr. Wright. Additional information was obtained from: David's previous report cards and the BASC-2 Structural Developmental History form that was completed by Mrs. Burt.

Josh is 9 years old and currently lives with his mother, father and younger brother. Josh attends St. Pius Elementary School. Mrs. Burt reported that Josh was active in *utero,* but she did not report any problems during pregnancy or birth. Mrs. Burt also reported that Josh reached all developmental milestones on time.

Educational History:
Before attending St. Pius in September 2013, Josh attended Massey Elementary. Josh's classroom teacher from Massey Elementary also reported his difficulties in reading. Throughout his schooling at St. Pius's, Josh has missed an average of 2 school days and has, on average, been late 2 times per academic year. As for his conduct in the classroom and with his peers, Mr. Wright reported that he is well behaved and interacts well with his classmates. When Mr. Wright was asked about classroom behavioural concerns, he reported that Josh does his best to listen to instructions and complete his work on time. Mr. Wright also reported that he does not have any concerns with Josh's behaviour in relation to listening to the classroom rules and treating others with respect. In regards to Josh's academic performance, he has been having continued difficulties in reading.

Teacher Interview: An interview was conducted with Josh's teacher, Mr. Wright, on 04/10/2014 to better understand Josh's specific areas of academic difficulty. Mr. Wright reported that in reading Josh's performance was low in comparison to his same-age peers in most subjects, but the greatest concern is in reading.

In the fall, Mr. Wright administered a reading assessment to his students; the results indicated that Josh was reading at a grade one level. His score placed him in the 32nd percentile for reading relative to his same-age peers. Josh read fluently from grade one level materials only making few errors and was able to comprehend most of the material without much assistance. However, when given second grade material, Josh was unable to read the material fluently and needed a lot of assistance with comprehension. Josh was also having trouble pronouncing and decoding words that were used in the second grade materials.

Assessment of Instructional Placement
Josh's instructional placement was assessed to determine if his reading fluency had increased since the initial benchmark assessment was given. The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment was used to measure Josh's reading fluency and to monitor his response to intervention. DIBELS is used with young children particularly children at or below grade 3 to measure the acquisition of early literacy skills. DIBELS is designed as a short measure of fluency to monitor student's development of early literacy and reading skills.

 As seen in Table 1, Josh was presented with reading passages beginning at his current grade level and down to a level that was consistent with his instructional level, to aid the selection of an intervention that targets his specific weaknesses in reading. Josh's instructional level in reading is determined by examining the number of words read correct per minute and the number of errors when asked to read a brief passage for one-minute. Josh's instructional level corresponds to the grade level at which he is able to read between 40 and 60 words read correct per minute and make 4 or fewer errors.

Table 1. *Instructional Placement Assessment Summary*

Probe Level	Total Attempted	Total Errors	Total Correct
Grade 1	45	4	41
Grade 2	32	6	26
Grade 3	25	7	18

Problem Analysis

The results of the DIBELS assessment show that Josh's reading fluency is low when compared to his same-age peers. Therefore, the primary focus of intervention was on his reading fluency. In Josh's case, grade 1, 2 and 3 level curriculum materials were obtained from Mr. Wright and used in a fluency intervention.

Intervention Plan

Josh was to meet with one of the two interventionists 2 times a week for a session that lasted 15-30 minutes. . Two types of reading interventions were introduced: Repeated Reading with Error Correction and Reading Fluency: Support Cloze Procedure (SCP).

Repeated Reading is an intervention used with students with adequate decoding skills, but need to practice reading fluency. Due to the close link between reading fluency and comprehension, students need to be correctly reading about 50 to 60 words per minute in order for comprehension to occur.

SCP is an assisted intervention in which Josh's interventionist read a passage jointly with Josh by orally reading every other word. SCP is intended to target reading accuracy by the modeling of correct reading of words in the passage. SCP is for students who have struggle applying phonetic skills to reading text.

Word Identification Fluency (WIF) and Oral Reading Fluency (ORF) were used during each session to measure Josh's progress throughout the intervention.

WIF
Josh was presented with a random set of words, sampled from the 100 most frequent words used at this age. He had 1 minute to read the words. His score is determined based on the number of words he reads correctly. The primary score, which is graphed over time, represents Josh's overall reading competence at the grade level.

Figure 1. *WIF Number of Words Read Correctly for First Grade*
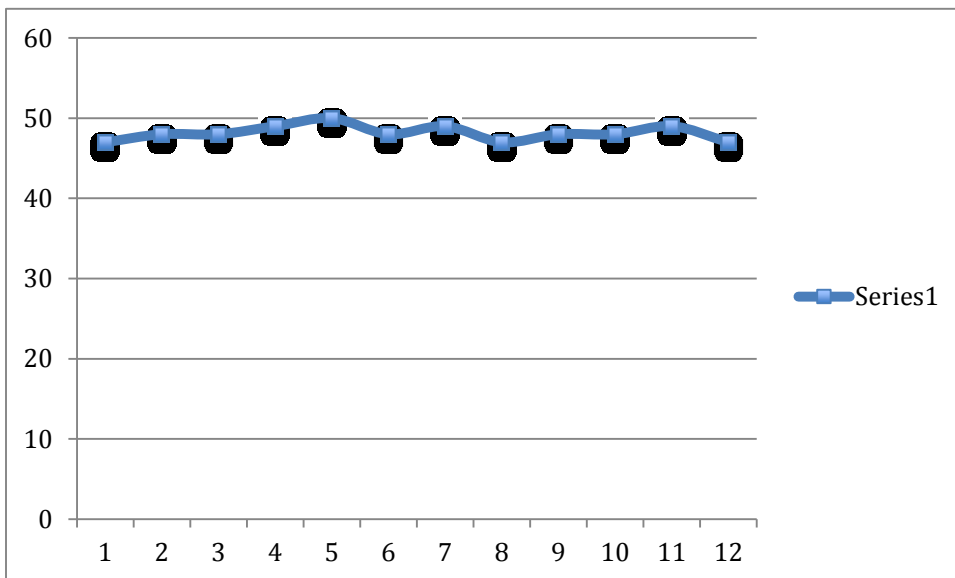
ORF: DIBELS

Josh was presented with a reading sample and was given a minute to read the sample out loud to the interventionist. Josh again began at the Grade 1 level and worked towards reading at the same level of his same-age peers.

Figure 2. *DIBELS Number of Words Read Correctly Per Minute for First Grade*
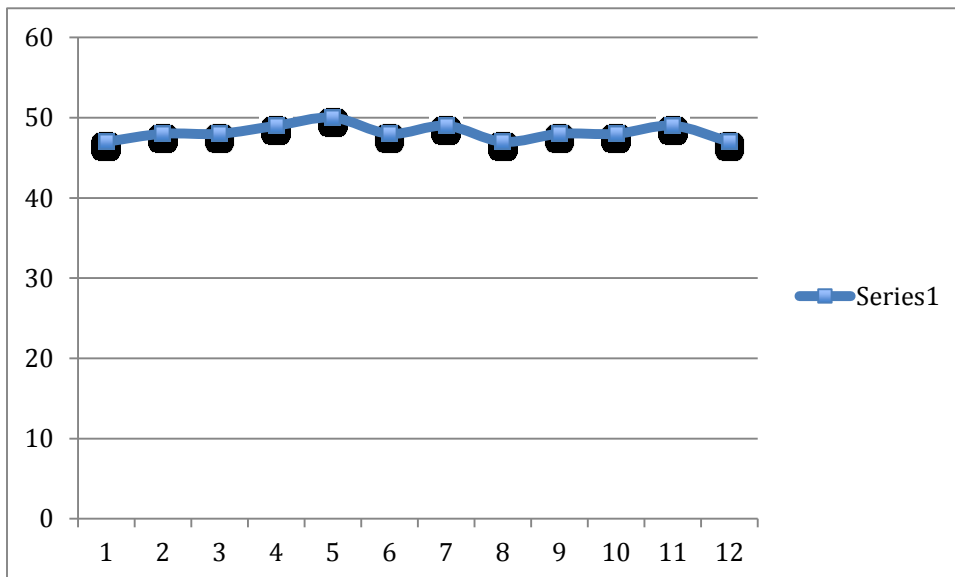
Assessment Procedures

Wechsler Intelligence Scale for Children – Fourth Edition Canadian (WISC-IV)

Wechsler Individual Achievement Test – Third Edition (WIAT-III)

Testing Observations
During the testing Josh was cooperative, attentive and polite. Although there were times when he would become distracted and have to focus on the materials at hand. Josh appeared to be at ease with the examiner, although he did require multiple breaks. While completing the testing, Josh appeared to be trying his best to complete the tasks. When presented with difficult items, Josh had to be reassured to try his best and to give his best answer. At times, Josh appeared to be rushing through tasks and again was reminded to try his best.

Overall, during the testing, Josh appeared to be trying to put his best effort forward and wanted to complete the tasks presented to him. Therefore, given the examiners testing observations, Josh's performance on both measures should be interpreted as a valid representation of his abilities.

Assessment

Josh was administered ten subtests on the WISC-IV. This is a test of general cognitive ability used with children. The WISC-IV examines functioning on a range of subtests, which make up four different index scores. The four index scores are Verbal Comprehension (VCI), Perceptual Reasoning (PRI), Working Memory (WMI) and Processing Speed (PSI), together these four indexes calculated create a Full Scale IQ (FSIQ) score.

The WISC-IV is a norm-referenced tool used to measure overall cognitive abilities, as well as verbal and non-verbal abilities. Confidence intervals are used in order to demonstrate the range in which Josh's scores are likely to fall upon repeated administrations. A 95% confidence band denotes that one can be confident that 95% of the time the subject's score will fall within this range. Josh's scores are also represented relative to his similarly aged peers by a percentile rank. A percentile rank indicates the percent of individuals that attained at or below the score attained by Josh.

Josh was tested in a number of cognitive areas such as verbal comprehension, perceptual reasoning and working memory. Verbal comprehension is the ability to understand and create messages. For example, it is familiarity with sentence structures, word problems and vocabulary. Perceptual reasoning is the ability to take in visuo-spatial information to solve problems. An example of this ability is to rotate a shape in order for it to fit into a puzzle. Working memory is a brain function in which information can be retained temporarily as it is being formed, transformed, or executed. Complex cognitive tasks that involve learning, reasoning, and comprehension use working memory. An example is being told a forward sequence of numbers and to then repeat them backwards.

Josh was also administered the WIAT-III. This is an individually administered test battery used to assess the academic achievement from Pre-Kindergarten (4 years old) through adulthood. Josh's scores are computed in comparison to other children of the

same age and are reported in standard scores and percentiles. There are four basic scales including: Reading, Math, Oral Language and Writing. These scales include a total of 16 subtests to measure 8 areas of achievement.

The Oral Language composite measures listening, speaking and word vocabulary. It also measures the ability to make decisions about and remember details from oral sentences and discourse, how easily he can retrieve words, his oral syntactic knowledge and finally, his short-term memory. The Total Reading composite measures speed and accuracy of reading without the aid of a context, his ability to decode nonsense words, his speed, accuracy and prosody of oral reading, and finally his reading comprehension of differing texts. The Written Expression composite measures written spelling of letter sounds and single words, sentence formulation skills, written syntactic maturity/ability and finally his ability to spontaneously compose a piece of writing in a given time period. The Mathematics composite scale reflects the ability to complete untimed math problem solving in the domains of basic concepts and everyday applications of geometry and algebra. His abilities were measured with written math calculation in the domains of basic skills, basic operations with integers, geometry and the speed and accuracy at which he completed calculations of addition, subtraction and multiplication.

	Composite Standard Score/Scale score	Percentile Rank	95% Confidence Interval	Qualitative Description
Verbal Comprehension (VCI)	100	50	93-107	Average
Similarities	12	75		
Vocabulary	10	50		
Comprehension	8	25		
Perceptual Reasoning (PRI)	109	73	100-116	Average
Block Design	8	25		
Picture Concepts	12	75		
Matrix Reasoning	14	91		
Working Memory (WMI)	88	21	81-97	Low Average
Digit Span	9	37		
L/N Sequencing	7	16		
Processing Speed (PSI)	94	34	86-103	Average
Coding	8	25		
Symbol Search	10	50		
FULL SCALE	98	45	92-104	Average

Josh's academic achievement was assessed with the Wechsler Intellectual Achievement Test, 2nd Edition (WIAT-III) on April 17, 2014. The WIAT-III is a norm-referenced tool used to measure of curricular learning in core subject areas such as reading, mathematics, and written and oral language.

SUBTEST	Standard Score	Composite Standard Score	95% Confidence Interval	Percentile	Descriptor
TOTAL ACHIEVEMENT		78	74-82	7	Borderline
1.Word Reading	68		64-72	2	
2. Reading Comprehension	85		75-95	16	
3. Pseudoword Decoding	71		66-76	3	
4. Oral Reading Fluency	79		71-87	8	
TOTAL READING COMPOSITE[1,2,34]		**73**	**69-77**	**4**	**Borderline**
BASIC READING COMPOSITE[1,3]		**70**	**66-74**	**2**	**Borderline**
READING COMPREHENSION & FLUENCY COMPOSITE[2,4]		**78**	**71-85**	**7**	**Borderline**
1. Numerical Operations	90		81-99	25	
2. Math Problem Solving	97		90-104	42	
3. Math Fluency- Addition	99		88-110	47	
4. Math Fluency- Subtraction	80		71-89	9	
MATHEMATICS COMPOSITE[1,2]		**93**	**87-99**	**32**	**Average**
MATH FLUENCY COMPOSITE[3,4,5]		**88**	**80-96**	**21**	**Low average**
1. Alphabet Writing Fluency (K-2)	98		82-114	45	
2. Sentence Composition	87		79-95	19	
4. Spelling	72		65-79	3	
WRITTEN EXPRESSION COMPOSITE[1-4 or 2-4]		**82**	**73-91**	**12**	**Low Average**
1. Listening Comprehension	110		97-123	75	
2. Oral Expression	101		91-111	53	
ORAL LANGUAGE COMPOSITE[1&2]		106	96-116	66	Average

Appendix D

INSTRUCTIONS:

Please complete the list of questions below. For questions listing answer choice with a box (▢), mark ▢ _in the box that best represents your answer for that question. You will have the opportunity to provide your opinion to one question at the end of the survey. Do not provide any personally identifiable information (e.g., name) anywhere on the questionnaire. Be sure to answer independently and submit the survey once it is completed. Thank you for your cooperation.

At the beginning of the study:

1) **Choose one of the following occupations based on your background:**

o Pre-service Teacher (Teacher in training)
o Pre-service Psychologist (Psychologist in training)
o In-Service Psychologist (Psychologist in practice)

2) **A learning disability can be defined as a disorder:**

o Emerging during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social and practical domains. The individual may have deficits in functions such as reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and learning from experience.

o Involving persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following: deficits in social-emotional reciprocity, non-verbal communicative behaviours used for social interaction and problems developing, maintaining and understanding relationship

o Requiring persistent difficulties in reading, writing, arithmetic, or mathematical reasoning skills during formal years of schooling. Symptoms may include inaccurate or slow and effortful reading, poor written expression that lacks clarity, difficulties remembering number facts, or inaccurate mathematical reasoning.

o All of these above are definitions of a learning disability.

3) **A learning disability can also be defined as a disorder characterized by:**

o An inability to establish or maintain satisfactory relationships with peers or adults, a general mood of unhappiness or depression, inappropriate behaviour or feelings under ordinary conditions, continued difficulty in coping with the learning situation in spite of remedial intervention, physical symptoms or fears associated with personal or school

problems, difficulties in accepting the realities of personal responsibility and accountability and physical violence toward other persons and/or physical destructiveness toward the environment.

o   Difficulties in the acquisition, organization, retention, understanding or use of verbal or nonverbal information. These include, but are not limited to: language processing; phonological processing; visual spatial processing; processing speed; memory and attention; and executive functions (e.g., planning and decision-making). Affects individuals who demonstrate at least average abilities that are essential for thinking and/or reasoning."

o   An intelligence quotient (IQ) in the range of approximately 30 to 50 ± 5 as measured on an individual intelligence test, an adaptive behaviour score equivalent to the moderately delayed level on an adaptive behaviour scale and programming that reflects significant modifications to basic curriculum and instruction in literacy, numeracy and living/vocational skills.

o   All of these above are definitions of a learning disability.

At the end of each case:

1) **How *confident* are you in your ability to make a decision about a student's needs based on the data provided in this report? (1 = Not at all confident, 4 = Extremely confident)**

o   Not at all confident (1)
o   Somewhat confident (2)
o   Confident (3)
o   Extremely confident (4)

2) **How *confident* are you in your ability to accurately interpret the <u>data</u> provided in this report? (e.g., scores, graphs) (1 = Not at all confident, 5 = Extremely confident?)**

o   Not at all confident (1)
o   Somewhat confident (2)
o   Confident (3)
o   Extremely confident (4)

At the end of the entire study:

1) **Of the three cases, which is <u>*most likely*</u> to have an LD?**

o   Case 1
o   Case 2

o   Case 3

2) Of the three cases, which is _least likely_ to have an LD?

o   Case 1
o   Case 2
o   Case 3

3) What information was missing from the case that you rated as being the least helpful in item #2 above?

_____
_____
_____
_____
_____
_____

Thank you for your participation.