PARENTS' INTERPRETATION OF PSYCHOEDUCATIONAL RESULTS AS A FUNCTION OF TEST SCORE REPORTING FORMAT

by

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Abstract

This study investigated parents' comprehension of psychoeducational assessment results as a function of the type of norm-referenced test score reported and parental experience with psychoeducational assessments. Twenty-nine experienced parents and 37 non-experienced parents completed a questionnaire based on a fictitious assessment report containing intelligence and achievement test scores. The fictitious reports were varied by the type of norm-referenced score used to depict achievement test results. These test results were presented as percentile ranks, grade equivalents, or standard scores (M = 100, SD = 15) and were not significantly discrepant from intelligence test results which were presented as deviation IQ scores. The results indicated that parents were significantly more likely to overestimate the magnitude of the IQ-achievement discrepancy and perceive the presence of a learning disability when achievement scores were presented as percentile ranks or grade equivalents. In contrast, parents presented with standard scores made judgments consistent with the intelligence and achievement test data. They interpreted the scores more accurately and did not perceive a learning disability where the portrayed profile did not justify it. Parents' interpretations of the scores were not influenced by prior experience with psychoeducational assessment reports. Both experienced and non-experienced parents responded similarly across all three types of scores. The results of this study highlight the need for school psychologists to exercise caution when reporting norm-referenced test scores to parents.
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CHAPTER 1. INTRODUCTION

Background of the Problem

It has become common practice in schools to assess children for the purpose of providing special education services (Salvia & Ysseldyke, 1985). Decisions are regularly made regarding which children require and are eligible for special services. A substantial amount of resources, in terms of time and effort, are expended in collecting data in order to facilitate decision making. Psychoeducational assessment in the schools is the process of collecting data for the purpose of 1) verifying and specifying problems and, 2) making decisions about children regarding: screening; classification, including identification of handicaps, eligibility for special services, and placement in special programs; instructional planning; and progress evaluation (Salvia & Ysseldyke, 1985).

Information gathered in the process of assessment is conveyed primarily through psychoeducational reports. According to Sattler (1988, p. 726), the report serves varied purposes:

1) It provides accurate assessment-related information to the referral source and other concerned parties.

2) It provides a source of information for testing clinical hypotheses and for conducting program evaluation and research.

3) It serves as an archive of historical, interview, psychometric, observational, and other information, as well as of current
remediation and treatment plans.

4) It may serve as a legal document.

There is widespread agreement that the primary function of reports is to communicate the assessment findings effectively if they are to fulfill their purposes as outlined above (Lacey & Ross, 1964; Ownby, Wallbrown, & Brown, 1982; Ross-Reynolds, 1990; Rucker, 1967; Tallent, 1992). However, findings of research studies to be discussed in the literature review indicate that ambiguous communication of assessment results frequently leads to misinterpretation of the information presented, even among those who are experienced in interpreting it. This, in turn, has led to errors in decision-making with regard to educational classification, eligibility for special services, and special class placements. One of the variables that has been demonstrated to affect the interpretation of results is the type of norm-referenced score used to depict test performance. The findings of some of the studies investigating the interpretation of norm-referenced scores suggest that percentile ranks can be readily misunderstood by teachers and school psychologists (Huebner, 1988, 1989). Reynolds (1981) advises against using grade equivalent scores to describe test performance as they are too easily misinterpreted by lay people and professionals. This author recommends using standard scores over other derived scores because they have a constant mean and standard deviation across all ages and, therefore, can be compared across ages.

As current practice and The Freedom of Information Act and Protection of Privacy Act (1994) dictate, parents have access to reports written about their
children. If parents are reading reports written following psychoeducational assessments, it is important for the authors of such reports to present the assessment findings in a way that parents can understand. The purpose of this study was to investigate parents' comprehension of psychoeducational assessment results as a function of test score reporting format.

Statement of the Problem

Research indicating that the type of norm-referenced score used to describe psychoeducational test results can influence the interpretation of the results has thus far focussed solely on school psychologists, teachers, and other experienced professionals. To date, there has not been any research investigating the relationship between the type of test scores presented and parental understanding of test results. This study attempted to determine if such a relationship exists and whether such a relationship is associated with prior experience with assessment reports. Specifically, this study investigated the following questions: (a) Does the type of norm-referenced score used to communicate psychoeducational test results have an effect on parents' interpretation of the results? and (b) Is prior experience with psychoeducational assessment reports related to increased accuracy in interpreting test scores?

It was hypothesized that parents will interpret assessment results more accurately when they are presented as standard scores than when they are presented as grade equivalents or percentiles. It was also hypothesized that parents who have had experience with psychoeducational assessment reports will interpret assessment results more accurately than will parents who do not
Definition of Variables

Independent Variables

*Type of score:* The three forms of norm-referenced scores compared in terms of their effects on parents' understanding of achievement test results are standard scores ($M = 100, SD = 15$), percentile ranks, and grade equivalent scores.

*Experience with assessment reports:* Parents who have had a child assessed in the past and who have read a psychoeducational assessment report are designated as "experienced". Parents whose children have not been assessed are designated as "non-experienced".

Dependent Variable

*Interpretation of scores:* Parents' responses to questionnaire items that index the degree to which they believe the scores indicate a child is learning disabled is the dependent variable.

Justification of the Study

In previous years, school personnel were considered the authority in determining appropriate educational services for children with learning handicaps. However, special education policy and legislation in the United
States and Canada has provided avenues for parents of handicapped children to be involved with determining educational services for their children (Wiener & Kohler, 1986). The Education for All Handicapped Children Act of 1975 (PL 94-142) in the United States provides for parental involvement in two ways:

a) parents must be notified about proposed changes in their child’s educational status and program and must give consent to changes; and
b) parents must be invited to the planning and placement team meetings where decisions are made about eligibility, program, and placement for the handicapped child (cited in Hoff, Fenton, Yoshida, & Kaufman, 1978, p. 265)

The psychoeducational report written following an individual assessment of a child provides a major source of information about the child’s educational status and needs (Weddig, 1984). Since decisions made at the planning and placement team meetings are often based on information presented in the psychoeducational report, it is essential that parents understand the report if they are to participate in the decision making process.

Furthermore, it has been demonstrated that parental compliance with recommendations made by professionals is affected by how clearly the findings are communicated. Parents are more likely to follow through on recommendations if they understand the interpretation of results (Teglasi, 1985).

Finally, it is the school psychologist’s ethical responsibility to present the

For the above reasons, it is important to determine if parents do comprehend psychoeducational assessment reports. The limited research in this area indicates that parents have better comprehension of reports written at a lower reading level and of reports that use behavioural descriptions instead of jargon (Weddig, 1984; Wiener & Kohler, 1986). The results of the present study could provide additional information regarding how school psychologists can communicate test findings more effectively.
CHAPTER 2. LITERATURE REVIEW

A number of studies have documented limitations of written reports in effectively communicating psychological findings. In an early study, Cuadra and Albaugh (1956) investigated the degree to which written psychological reports accurately communicated the report writers' findings to various professionals in a hospital setting. The subjects in this study included psychologists, psychiatrists, social workers, and nurses. The results indicated that the correspondence between the report authors' intended meaning and the subjects' interpretations for all groups of professionals combined was only 53%.

Readers of reports in other clinical settings have indicated that the reports were sometimes unclear, that they did not contain enough of the basic data upon which conclusions were based, and that the professional terminology used served as a barrier to accurate interpretations (Lacey & Ross, 1964; Tallent & Reiss, 1959a, 1959b, 1959c). Shively and Smith (1969) investigated teachers', counselors', and student teachers' understanding of thirty terms commonly used in psychological reports and found their subjects could define only 54% of them correctly.

The above findings illustrate some of the difficulties in translating psychological data into reports that are understandable to others. Yet, it is common practice to use the reported results of psychoeducational assessments to make educational decisions for children, including the determination of eligibility for special education services and special class placement (Algozzine & Ysseldyke, 1981). Johnson (1980) notes that it is the school psychologist who usually provides the most important assessment
information and interprets the data and, therefore, has a substantial impact on the outcome and placement recommendations. Several studies have investigated the extent to which specific kinds of data influence the decision-making process and its outcomes. This research indicates that consistency among the decisions made by school psychologists, teachers, and other school personnel is often lacking and that there are potential sources of bias in reports that can affect decision-making.

In one such study, Ysseldyke and Algozzine (1981) found that decisions made by school psychologists, regular and special education teachers, administrators, and support personnel were significantly influenced by the referral statement of a child's problem when it was described as a behaviour problem. These students were significantly more often diagnosed and labeled as emotionally disturbed, despite assessment data that indicated average or normal performance. The authors attribute this finding to the influence of the stereotype created by the referral statement and caution against making classification decisions on factors other than objective data.

In a related investigation, Algozzine and Ysseldyke (1981) presented a similar group of professionals with a case study which included information about a student's sex, parental socioeconomic status, physical attractiveness, and a referral statement indicating that the child had either academic or behaviour problems. None of the issues contained in the referral statement was believed to be unusual for a fifth grader. The subjects had access to test scores and test observations which the experimenters claimed depicted average performance. On the basis of this information, approximately 51% of the
subjects indicated that the child was eligible for special education services. There were no significant differences among subjects' placement recommendations, that is, the same relative number from each discipline indicated that special education services were appropriate. As in the previous study, the authors suggest that these findings may be due to the influence of the stereotype engendered in the referral statement. The subjects in this study were not significantly influenced by the child's sex, attractiveness, or socioeconomic status.

Ward, Ward, and Clark (1991) studied the effect of the referral question on classification decisions made by school psychologists. As with Algozzine and Ysseldyke's (1981) results, these findings indicated that the subjects placed considerable emphasis on referral information when making such decisions. However, in this study, the subjects were more likely to classify average students as learning disabled when the referral statement indicated behaviour problems but not when it indicated academic problems. A possible explanation for this difference, the authors propose, is that the school psychologists with an academic referral question did not perceive the marginal, nonsignificant differences between predicted and actual reading achievement to be significant and, therefore, did not classify the student as exceptional. But when presented with the same reading scores in light of a behavioural referral, which may have suggested difficulties beyond those represented in the marginal test scores, the subjects may have ascribed more significant meaning to the scores and thus classified the student as learning disabled.

Huebner and Cummings (1985) expanded the investigation of factors influencing educational decision-making to include the effects of sociocultural
background as well as assessment data on decisions. School psychologists were presented with a brief case study description of a child referred because of learning problems. The case study included sociocultural background (either rural or suburban) and assessment results (either normal or learning disabled). The findings indicated that neither knowledge of sociocultural background nor referral information was related to the school psychologists' expectations or decisions regarding placement of students in special education programs. Expectations and decisions were shown to be influenced by the assessment data. Subjects who received data indicating a normal child were more likely to judge the child as normal, to recommend regular education services, and to have more optimistic academic expectations for the child. Those who received data indicating a child with learning disabilities were more likely to recommend special education services. In contrast to the findings of Ysseldyke and Algozzine (1981), Algozzine and Ysseldyke (1981), and Ward et al (1991), the subjects in Huebner and Cummings' (1985) study made decisions and recommendations which were consistent with the results of the individual assessment data. One factor that the authors suggest could account for the discrepancy was the type of data used to report test results. In the Huebner and Cummings' (1985) study, achievement test data were presented as standard scores in addition to grade equivalent scores (intelligence measures were presented as standard scores) whereas in the previous studies, achievement test results were presented as grade equivalents only.

Discussions on the difficulty in interpreting grade equivalent scores can be found in Salvia and Ysseldyke (1985) and in Sattler (1988). Grade equivalents can be ambiguous and open to misinterpretation because of characteristics such as a) the scores tend to be based on ordinal, not equal interval scales and,
therefore, they are not amenable to statistical manipulation, such as presentation to the standard error of measurement; b) grade equivalents vary among tests, subtests, and the same grade equivalent may correspond to different percentiles on different tests, thereby making comparisons across tests difficult; c) the same grade equivalent may mean different things on different tests; and d) grade equivalent's can exaggerate small differences in performance. Because of these difficulties with interpreting grade equivalents, Huebner and Cummings (1985) question whether the reporting of achievement data in grade equivalent scores only, as was done in the earlier studies, may have contributed to subjects misinterpreting the magnitude of the child's difficulties and may have led them to rely on less ambiguous information such as the referral statement in making educational decisions.

Results from an investigation into the influence of test scores on teachers' diagnoses of learning difficulties (Huebner, 1987) lends support to Huebner and Cummings' (1985) findings. Subjects were provided with a deviation IQ score and reading comprehension scores presented as standard scores and grade equivalents. Regular education teachers' decisions as to whether a child was learning disabled or normal were consistent with the results of the individual psychoeducational test information presented, despite referral information that indicated academic problems. This suggests that the teachers used test data rather than other variables (i.e. referral information) when making educational decisions. Huebner (1987) contends that the teachers correctly interpreted achievement data when they were presented as standard scores in addition to grade equivalents because standard scores are less ambiguous.

Huebner (1988) further investigated the effect of different modes of reporting
norm-referenced test scores on educational decision-making. He had classroom teachers answer questions related to diagnostic and educational placement decisions based on one of three case studies. These case studies were varied according to the test scores (grade equivalents, percentile ranks, and standard scores) used to depict achievement test results. Results of intellectual measures were reported as deviation IQs. Although the achievement scores were selected to correspond exactly to each other and were all within normal limits, teachers were more likely to recommend special education placement when they were asked to evaluate percentile ranks than when they evaluated the other two types of scores. There was also a trend to be more likely to diagnose a learning disability when percentile ranks were used. A predicted similar effect was not shown for grade equivalent scores even though, like percentile ranks, they typically represent ordinal data. The author suggests that perhaps more widespread use of grade equivalents has sensitized teachers to the problems related to their interpretation, thus the teachers were more careful when evaluating them.

In an attempt to test the generalizability of the Huebner (1988) findings, Huebner (1989) conducted a study using school psychologists as subjects. As in the 1988 study, subjects were required to complete a decision-simulating questionnaire after reviewing the information contained in one of three case studies of a student referred for academic difficulties. Equivalent achievement test results were presented as standard scores, percentile ranks, or grade equivalent scores and intelligence test results were presented as standard scores. Similar to the findings of the previous study, school psychologists' decisions were affected by the type of score used to depict achievement results. While subjects in all three treatment conditions hesitated to diagnose a
learning disability, subjects who received test scores presented as percentile ranks were more likely to recommend special education services than were subjects who received grade equivalents or standard scores. The experimenter cautions that because percentiles represent unequal intervals, small differences near the centre of the distribution (i.e. within 1 standard deviation of the mean) are exaggerated and large differences near the extremes of the distribution are minimized. Therefore, these scores may be susceptible to misinterpretation, even, as the findings of this study suggest, by those assumed to be trained in the psychometric properties of such scores.

One of the key roles of a school psychologist is to interpret and to communicate accurately the psychoeducational test results that are used to make educational decisions for children. It is apparent from the literature reviewed that the manner in which these results are communicated in reports can influence the decisions and recommendations made by school personnel. Despite the importance of parental involvement in helping to make these decisions, especially in current times, studies have not investigated the variables that could affect parents' interpretation of reported results. It is desirable that parents have a clear understanding of results not only because of the decisions to be made, but also because parents' perceptions of the results may affect their understanding and expectations of their child and their willingness to follow through on recommendations.

The present study attempted to determine if parents' interpretation of psychoeducational assessment results vary as a function of the type of score used to portray the results. It has been designed to investigate further Huebner's (1988, 1989) findings which indicate that the type of norm-
referenced score used to depict test data influences educational decisions made by teachers and school psychologists. If professionals experience difficulty interpreting scores accurately, then it would seem likely that parents would have even greater difficulty.
CHAPTER 3. METHOD

Sample

A total of 157 parents of school-aged children were selected from the registry lists of four elementary schools in a central interior town of British Columbia with a population of 30,000. Agency permission to contact these parents for conducting the research was obtained. Sixty-three of these parents were selected because their child has had a psychoeducational assessment in the past. These parents comprised the experienced group. It was expected that the participation rate would be lower for the non-experienced group, given that they may not be as interested in the research topic as parents who have been involved with assessments, therefore, 50% more subjects were selected for the non-experienced group with the anticipation of equal numbers of subjects in both groups. The non-experienced group was comprised of 94 parents who do not have a child who has been assessed. These parents were randomly selected from a population of parents of non-assessed children who were comparable to the assessed children in terms of classroom, age, and gender. The assessed and non-assessed children were in grades 3 through 7. There were 40 boys (mean age = 10 years 7 months) and 23 girls (mean age = 10 years 9 months) who had been assessed and 59 boys (mean age = 10 years 6 months) and 35 girls (mean age = 10 years 9 months) who had not been assessed.

Each parent was mailed a letter requesting participation in the study along with a consent to participate form. The letter explained the nature and purpose of the research and that it would take about 1/2 hour of their time to
read a brief, fictitious assessment report and answer a questionnaire based on what they had read in the report. Anonymity and confidentiality were assured. The letter also stated that their participation in the study was voluntary and that their decision to participate or not participate would not affect their child's/children's status at school. Thirty-one experienced and 44 non-experienced parents returned completed consent forms and agreed to participate. Each of these parents was mailed an assessment report and a questionnaire. Completed questionnaires were returned by 29 parents in the experienced group and 37 parents in the non-experienced group. Therefore, the overall participation rate was 46% for experienced parents and 39% for non-experienced parents. Sample characteristics are shown in Table 1. As can be seen, the experienced and non-experienced groups were similar in terms of gender, education, and number of children in school.

Procedure

Each parent who agreed to participate was mailed a cover letter, a definition of learning disabilities, a fictitious psychoeducational assessment report, a research questionnaire, and a stamped return envelope. As with the initial letter requesting participation, the cover letter assured parents that participation in the study was voluntary and that they could withdraw at any time. Furthermore, they were asked not to place their name on the response forms so that anonymity and confidentiality was ensured. It also stated in the cover letter that their responses or choice not to participate would in no way affect their child(ren)'s status at school.
Table 1

Sample Characteristics of Experienced and Non-Experienced Parents

<table>
<thead>
<tr>
<th></th>
<th>Experienced Frequency</th>
<th>Experienced Percent</th>
<th>Non-Experienced Frequency</th>
<th>Non-Experienced Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n = 29</td>
<td></td>
<td>n = 37</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>23</td>
<td>79</td>
<td>27</td>
<td>73</td>
</tr>
<tr>
<td>Male</td>
<td>6</td>
<td>21</td>
<td>10</td>
<td>27</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; Grade 11</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Grade 12</td>
<td>3</td>
<td>10</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Some post-secondary</td>
<td>6</td>
<td>21</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>2 year diploma</td>
<td>7</td>
<td>24</td>
<td>13</td>
<td>35</td>
</tr>
<tr>
<td>4 year degree</td>
<td>8</td>
<td>28</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Some post-graduate</td>
<td>4</td>
<td>14</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Number of Children</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>7</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>2-3</td>
<td>25</td>
<td>86</td>
<td>29</td>
<td>78</td>
</tr>
<tr>
<td>&gt;4</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Before reading the assessment report and completing the questionnaire, parents were instructed to read the following definition of learning disabilities which was adapted from the definitions provided by the National Joint Committee on Learning Disabilities (in Hammill, 1990) and the Province of
British Columbia Ministry of Education (1994):

"Learning disabilities" is a general term that refers to disorders which involve significant difficulties in learning and using listening, speaking, reading, writing, reasoning, or mathematical skills. These disorders result in a significant discrepancy between estimated learning potential, as measured by an intelligence test, and actual academic performance. In other words, an individual with a learning disability may have adequate intellectual ability but shows a lag in academic achievement of 2 or more years or a similar discrepancy on standardized score comparisons. This discrepancy is related to basic problems in memory, perception, attention, or understanding or using language. Psychoeducational assessments are undertaken to determine the presence, nature, and severity of a learning disability.

The two-page fictitious report that each parent received concerned a child, Jamie, referred for evaluation because he is experiencing academic difficulties. Jamie was described as a 9-year-old boy in grade 4 who does not complete assignments, learns slowly, reads and spells poorly, and has some difficulties with attention. This description was similar to the one used in Huebner's (1988) study. The report contained background information such as developmental and educational history as well as behavioural and test observations. Test scores from the Wechsler Intelligence Scale for Children-Third Edition (M = 100; SD = 15) (Wechsler, 1991) were included. Specifically, these were: Verbal Scale IQ (VIQ = 98), Performance Scale IQ (PIQ = 96), and Full Scale IQ (FSIQ = 91-103). The report also contained achievement test scores from the Peabody Individual Achievement Test-Revised (M = 100; SD = 15) (Markwardt, 1989) in one of three formats: (a) grade equivalent scores, (b) standard scores, or (c) percentile ranks (See Table 2 for achievement subtest scores). For the purposes of comparison, the scores employed were similar to those used by Huebner (1988; 1989). All test scores were within one standard
deviation of the mean and the IQ-achievement discrepancy was not significant, as determined by using Reynolds' (1981) method for assessing discrepancies. The report was intentionally designed to exclude information which could influence parents' perceptions of the test scores themselves. For this reason, the interpretation and recommendations sections that would typically appear in a report were omitted (see Appendix A for complete fictitious report).

Table 2
Peabody Individual Achievement Test-Revised Subtest Scores Included in Fictitious Psychoeducational Assessment Report

<table>
<thead>
<tr>
<th>Type of Test Score</th>
<th>Grade Equivalent</th>
<th>Percentile Rank</th>
<th>Standard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Recognition</td>
<td>3.2</td>
<td>30</td>
<td>92</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>2.8</td>
<td>25</td>
<td>90</td>
</tr>
<tr>
<td>Spelling</td>
<td>3.8</td>
<td>47</td>
<td>99</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3.8</td>
<td>45</td>
<td>98</td>
</tr>
<tr>
<td>General Information</td>
<td>2.9</td>
<td>23</td>
<td>89</td>
</tr>
<tr>
<td>Total Test</td>
<td>3.2</td>
<td>27</td>
<td>91</td>
</tr>
</tbody>
</table>

Parents in each subject group (experienced and non-experienced) were randomly assigned to one of these three formats.
Instrumentation

A 16-item questionnaire was developed in order to determine parents' interpretation and assessment of the fictitious report. Five-point rating scale answer formats were provided for their responses. Based on what they read in the report, parents were asked to rate the degree to which they agreed/disagreed with a statement indicating that Jamie has a learning disability. A number of questionnaire items were designed to assess their perception of Jamie's performance in the areas of intellectual ability, reading, spelling, mathematics, and general information. Parents were also asked to indicate the degree to which they agreed/disagreed with statements related to the need for special education services and the prognosis for any current learning problems. Additional items were intended to assess parents' perceptions of the usefulness and understandability of the report. A number of relevant questions regarding demographics and the extent of parental experience with psychoeducational assessments were included in the questionnaire. The responses to such questions aided in sample description (see Appendix B for complete questionnaire).
CHAPTER 4. RESULTS

The questions of whether the type of norm-referenced test scores used to portray psychoeducational assessment results have an effect on parental perceptions of a learning disability (LD), and whether such an effect is associated with parental experience with assessment reports were assessed by a two-factor ANOVA. The two factors included type of test score, with three levels (standard score, percentile rank, and grade equivalent), and parental experience, with two levels (experienced and non-experienced). There was a significant main effect for type of test score on perceived LD, ($F (2, 60) = 3.92, p < .025$), however, there was no significant difference between experienced and non-experienced groups of parents on perceived LD. There was no significant interaction between type of score and experience which indicated that there were no significant differences in ratings of LD by type of test score as a function of experience.

Perceived degree of LD, as measured by parents' ratings to item 1 on the research questionnaire, as a function of type of test score and experience are presented in Table 3.

Given that previous studies have indicated that both teachers and school psychologists tend to overestimate score discrepancies when interpreting percentile ranks (Huebner, 1988, 1989) and given the difficulties in interpreting percentile ranks and grade equivalents as discussed in Sattler (1988) and Salvia and Ysseldyke (1985), it was felt that a planned comparison was warranted. Planned comparisons can be used when the expected contrasts to
Table 3

Mean Ratings of Item 1 as a Function of Test Score and Experience

<table>
<thead>
<tr>
<th>Experience</th>
<th>Standard Score</th>
<th>Percentile</th>
<th>Grade Equivalent</th>
</tr>
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<tbody>
<tr>
<td>Experienced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>8</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>M</td>
<td>3.75</td>
<td>2.40</td>
<td>2.82</td>
</tr>
<tr>
<td>SD</td>
<td>0.89</td>
<td>0.70</td>
<td>1.25</td>
</tr>
<tr>
<td>Non-Experienced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>14</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>M</td>
<td>3.21</td>
<td>2.73</td>
<td>2.42</td>
</tr>
<tr>
<td>SD</td>
<td>1.37</td>
<td>1.19</td>
<td>1.31</td>
</tr>
<tr>
<td>Combined</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>22</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>M</td>
<td>3.41</td>
<td>2.57</td>
<td>2.61</td>
</tr>
<tr>
<td>SD</td>
<td>1.22</td>
<td>0.98</td>
<td>1.27</td>
</tr>
</tbody>
</table>

Note. The lower the score, the higher the agreement with the statement that the child has a learning disability.

be tested are specified before data collection, as they were in the present study. Thus, planned orthogonal contrasts (Glass & Hopkins, 1984) were used to compare performance on the standard score condition with that of grade
equivalent and percentile conditions. Significant differences were obtained in both comparisons (p’s < .025) indicating that respondents were more likely to perceive an LD when test results were presented as grade equivalents or as percentiles than when they were presented as standard scores.

**Ratings of Specific Disabilities**

Subjects responded to 5 questionnaire items (items 6 - 10) designed to assess their perceptions of specific disability areas. A MANOVA was conducted with the responses to the five questionnaire items used as dependent variables and the 3 levels of type of test score used as the independent variables. The analysis yielded a significant overall effect \( F = 5.17, p < .001 \). The mean ratings for each type of score were compared using univariate ANOVAs in order to determine the effect of type of test score on the responses to each question. Significant effects were followed by Tukey post hoc analyses (Glass & Hopkins, 1984) (see Table 4). Results indicated that perceived intelligence, as measured by ratings to item 6, was judged to be significantly lower in the grade equivalent condition than in the standard score condition \( F (2, 63) = 3.45, p < .05 \). There were no significant differences in intelligence ratings between the standard score and the percentile conditions nor between the grade equivalent and percentile conditions. Reading achievement, as measured by ratings to item 7, was rated significantly lower in the grade equivalent and percentile conditions \( F (2, 63) = 22.8, p < .01 \), than in the standard score condition. Mean percentile and grade equivalent ratings were not significantly different from each other. General information (item 10) was also rated significantly lower when presented as grade equivalents and as percentile ranks \( F (2, 63) = 8.57, p < .01 \), than when presented as standard scores.
There was no significant difference between the grade equivalent and the percentile conditions. There were no significant effects for items 8 and 9 (spelling and mathematics) in any of the three conditions.

Table 4
Means and Summary of Analysis of Variance of Parents’ Perceptions of Specific Disability Areas

<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>SS n = 22</th>
<th>P n = 21</th>
<th>GE n = 23</th>
<th>F</th>
<th>P</th>
<th>SMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Intelligence</td>
<td>2.95</td>
<td>2.57</td>
<td>2.48</td>
<td>3.45</td>
<td>.04</td>
<td>.453</td>
</tr>
<tr>
<td>7. Reading</td>
<td>3.86</td>
<td>2.05</td>
<td>1.96</td>
<td>22.80</td>
<td>.01</td>
<td>.748</td>
</tr>
<tr>
<td>8. Spelling</td>
<td>4.45</td>
<td>4.48</td>
<td>4.04</td>
<td>1.57</td>
<td>.22</td>
<td>.653</td>
</tr>
<tr>
<td>9. Mathematics</td>
<td>4.55</td>
<td>4.52</td>
<td>4.13</td>
<td>1.87</td>
<td>.16</td>
<td>.573</td>
</tr>
<tr>
<td>10. Information</td>
<td>3.23</td>
<td>2.19</td>
<td>1.74</td>
<td>8.57</td>
<td>.01</td>
<td>.871</td>
</tr>
</tbody>
</table>

Note. SS = Standard Score; P = Percentile; GE = Grade Equivalent; SMD = Significant Mean Differences of Tukey HSD test.

Ratings of LD Characteristics

Questionnaire items 2 through 5 were designed to assess parents’ beliefs regarding learning disabilities. These items centred around the need for educational assistance and the permanency of any perceived LD. Table 5 shows the frequencies and proportions of ratings of items 2 through 5.
Table 5

Frequencies and Proportions of Parents' Ratings of Items

<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>Test Score</th>
<th>n</th>
<th>Agreea</th>
<th>Not Sureb</th>
<th>Disagreec</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>f (%)</td>
<td>(%)</td>
<td>(%)</td>
</tr>
<tr>
<td>Special Education</td>
<td>GE</td>
<td>23</td>
<td>9 (39)</td>
<td>7 (30)</td>
<td>7 (30)</td>
</tr>
<tr>
<td></td>
<td>Standard</td>
<td>22</td>
<td>4 (18)</td>
<td>8 (36)</td>
<td>10 (45)</td>
</tr>
<tr>
<td>Future Special</td>
<td>GE</td>
<td>23</td>
<td>9 (39)</td>
<td>12 (52)</td>
<td>2 (9)</td>
</tr>
<tr>
<td></td>
<td>Standard</td>
<td>22</td>
<td>3 (14)</td>
<td>15 (68)</td>
<td>4 (18)</td>
</tr>
<tr>
<td>Future Problems</td>
<td>GE</td>
<td>23</td>
<td>9 (39)</td>
<td>11 (48)</td>
<td>3 (13)</td>
</tr>
<tr>
<td></td>
<td>Standard</td>
<td>22</td>
<td>4 (18)</td>
<td>13 (59)</td>
<td>5 (23)</td>
</tr>
<tr>
<td>Outgrow Problems</td>
<td>GE</td>
<td>23</td>
<td>5 (22)</td>
<td>14 (61)</td>
<td>4 (17)</td>
</tr>
<tr>
<td></td>
<td>Standard</td>
<td>22</td>
<td>7 (32)</td>
<td>12 (55)</td>
<td>2 (9)</td>
</tr>
</tbody>
</table>

Notes.
Special Education = This child is presently eligible for special education services.
Future Special Education = This child will need special education services in the future.
Future Problems = This child will show future learning problems.
Outgrow Problems = This child will outgrow any learning problems he has now.

aAgree is a rating of 1-2 on the questionnaire.
bNot Sure is a rating of 3 on the questionnaire.
cDisagree is a rating of 4-5 on the questionnaire.
df = frequency of responses, (%) = percent of responses.
As can be seen for item 2, parents in the percentile and grade equivalent groups agreed most often with the statement that the child requires special education services, whereas parents in the standard score group disagreed most often with this statement. These results are consistent with the finding that parents in the percentile and grade equivalent groups were also more likely to rate the child as LD than were parents in the standard score group. For items 3 through 5, "not sure" was the most frequent response for each of the 3 items across all 3 groups of parents. These questionnaire items pertained to whether the child would continue to experience learning difficulties and would have future need for special education services. As is evident from their ratings, parents hesitated to make prognoses regarding LD.

Utility and Readability of the Report

Three items on the questionnaire were designed to determine perceived utility of the report. Fifty-six percent of respondents agreed with item 11 which stated that the report was useful for addressing the reason for referral. Sixty-one percent agreed with item 12 and felt that the report would be helpful for knowing what expectations a parent should have about the child portrayed in the report. Of the 26 respondents who did not agree that the report was helpful, 3 commented that there may be factors affecting performance other than those tested, (e.g. attention, physical, social and emotional factors), 3 commented that the report did not tell how the child can be helped, 4 felt that the results were not specific enough, 4 stated that a parent would need to know if the child could do better with more one-to-one help, and 3 felt that one-to-one testing did not necessarily reflect achievement in class. Sixty-four percent of respondents agreed with item 13 which stated that the report would be helpful
for knowing what expectations a teacher should have about the child. Comments made by those who did not agree were very similar to comments made on the previous item regarding parent expectations.

Three additional items addressed the readability of the report. Seventy-three percent found the report easy to understand, as indicated by their agreement with item 14. Of the 18 respondents who did not agree, 4 commented that the report did not say very much, 4 felt that there was not enough detail about what the tests mean or how to interpret the scores, and 3 felt that the report was too vague and did not confirm if a disability was present. Most respondents (86%) indicated on item 15 that they felt confident they understood the report and, on item 16, 68% did not find the language used in the report too technical or complicated.

When the responses to the above items 11 through 16 were examined by type of score, it was found that similar proportions of parents in each of the three groups (standard score, percentile rank, and grade equivalent) responded similarly to each of the items.
Two central questions were addressed in the present study: First, does the type of norm-referenced score used to communicate psychoeducational assessment results have an effect on parents' interpretation of these results? Second, given that such a relationship exists, is it associated with parental experience with psychoeducational reports?

The results of this study suggest that parents' interpretation of assessment results was influenced by type of score. As hypothesized, they were more likely to perceive, erroneously, the presence of a learning disability when viewing either percentiles or grade equivalent scores than when viewing standard scores. As discussed in Chapter 2, percentiles and grade equivalent scores can be open to misinterpretation because of characteristics such as unequal intervals between scores and the tendency to exaggerate small differences in performance at different points along the scales (Salvia & Ysseldyke, 1985; Sattler, 1988). These characteristics can lead to a score slightly below the mean resulting in a grade equivalent one or two years below a child's grade placement, or a percentile rank change of 20 points. Thus, despite the fact that all achievement scores in this study were within one standard deviation of the mean, and were not significantly discrepant from the IQ scores, parents were likely to overestimate the magnitude of the discrepancy when achievement scores were presented as percentiles or grade equivalent scores. In contrast, parents presented with standard scores made judgments consistent with the IQ and achievement test data. They tended to interpret the scores more accurately and did not perceive a learning disability where the portrayed profile did not justify it.
Another factor that could account for these findings is the inclusion of an "average score range" in the standard score condition but not in the percentile rank or grade equivalent conditions. It was important to provide a mean and standard deviation in the standard score condition because the numbers by themselves provide no reference point from which to compare scores. Grade equivalents and percentile ranks, on the other hand, are perceived to be straightforward and easy to understand. Sattler (1988) notes that the advantages to using grade equivalents are that the scores "place performance in a developmental context, provide information that is easily understood by parents and the public, and reduce misinterpretations" (p. 21).

It was also reasoned that an average score range would not be included for grade equivalents because there is no universal average range for this type of score. For example, the average range on the mathematics subtest of the PIAT-R for a 9 year 3 month old child equals a grade equivalent range of 3.0 to 4.5, whereas the average range for the reading comprehension subtest equals a grade equivalent range of 2.8 to 5.6 for the same child. Thus, it is difficult to define what is average across subtests, even within the same test.

Percentile ranks are also described as being "readily understood by professionals, parents, and children" (Salvia & Ysseldyke, 1985, p. 91). Average ranges for percentiles could have been included in the fictitious report in this study, however, in light of the results of Huebner's (1989) study, it seems likely they are not commonly reported given that school psychologists themselves misinterpret percentiles.

In terms of the specific achievement test scores, parents in the percentile and
grade equivalent conditions rated scores that "appeared" low to be significantly lower than the corresponding standard scores. For example, reading scores presented as one to one and one-half years below grade level or at percentile ranks of 25 and 30 were rated significantly lower than when they were presented as standard scores of 90 and 92. Similarly, general information scores were judged to be significantly lower when depicted as one and one-half years below grade level or at a percentile rank of 23 than when presented as a standard score of 89. These findings provide support for the contention that because small differences in performance are exaggerated near the mean of the distribution, percentile and grade equivalent score values can be misleading to consumers of reports (Huebner, 1989).

One unexpected finding of this study was that parents in the grade equivalent condition also rated overall intelligence lower than did parents in the standard score condition. This was not true for those receiving percentile rank scores. Given that IQ was represented as standard scores in all three conditions, it seems that parents' perceptions of intellectual ability were coloured by their perceptions of achievement when achievement scores were presented in grade equivalents. That is, parents may have generalized lower achievement to mean lower intelligence.

The results of this study provide some support for Huebner's (1988, 1989) findings that readers of psychoeducational reports are more likely to misinterpret assessment results when they are presented as percentiles. While that author hypothesized similar effects when scores were presented as grade equivalents and, given that both types of scores represent ordinal data, this was not supported by his findings. He reasoned that this could be
due to the subjects', teachers and school psychologists, sensitivity to the problems inherent in interpreting grade equivalent scores which, in turn, led them to interpret this type of score more cautiously. It is likely that the parents in the present study were unfamiliar with the psychometric properties of norm-referenced scores in general and, therefore, overestimated the size of the discrepancy between intelligence scores and achievement scores presented as grade equivalents in addition to those presented as percentiles.

With regard to parents' beliefs about learning disabilities, parents in the percentile and grade equivalent groups who were significantly more likely to rate the child in the fictitious report as learning disabled also tended to believe that the child was eligible for special education services. Consistent with this, parents in the standard score condition who were less likely to rate the child as learning disabled tended to not see the need for special education services. Parents in all three groups were reluctant to say what could be expected in terms of the child's need for special education in the future or in terms of whether the child will have learning problems in the future.

The second research question asked whether prior experience with psychoeducational assessment reports would influence parents' perceptions. The findings of this study did not support the hypothesis that parents benefit from prior experience in terms of how well they understand test scores. Experienced parents responded similarly to non-experienced parents across all three types of scores. Given that all of the 29 experienced parents in this study had received a copy of their child's assessment report, 90% had attended a meeting where the results were explained to them, and 97% felt that they understood the assessment results, it was hoped that they would have more
knowledge about what the test scores mean. However, in light of previous research findings which indicate that teachers and school psychologists have difficulty interpreting results accurately, it is not surprising that even experienced parents would have similar difficulty.

With regard to how parents viewed the utility of the report itself, most responded positively. They agreed that it was useful for addressing the referral question, and for helping teachers and parents know what expectations they should have about the child portrayed in the report. However, comments made by respondents who did not find the report helpful indicated that they had concerns about the thoroughness of the assessment (e.g. What factors other than those tested could affect performance? Does testing reflect actual school achievement?) and the lack of suggestions for helping the child. Because of the nature of the research questions, the fictitious report was deliberately designed so as to omit information that would confound the interpretation of test scores themselves. For example, a recommendations section was not included because it would influence the parents' interpretation of the test scores. Parents may respond even more positively to actual reports which usually include much of the information that they indicated they were looking for in a report.

Most parents found the report and the language used in it easy to understand. Furthermore, despite the finding that parents in the percentile and grade equivalent conditions tended to misinterpret the reported scores, most respondents felt confident that they understood the report. This could be cause for concern because it implies that parents may erroneously believe they understand actual reports written about their own children and may not
recognize when they should seek clarification from a school psychologist.

This study has focused on trying to understand more about how parents interpret test scores communicated in a psychoeducational report. By understanding which types of norm-referenced scores best represent assessment results, we will be able to communicate these results more effectively. Presenting assessment results in a way that facilitates parental understanding is critical if parents are to participate in making educational decisions on behalf of their children and to follow through on recommendations made by professionals. In an actual assessment carried out in a school setting, parents would typically attend a meeting in which assessment results were discussed. It has been demonstrated that parents tend to misunderstand or selectively perceive information discussed at such meetings (Hoff et al., 1978) and fail to accurately recall the test results presented (Dirks, Bushkuhl, & Marzano, 1983). Because of this, it is imperative that school psychologists ensure that parents understand the accompanying report for parents view the written report as important (Dembinski & Mauser, 1977) and they may rely on written results to eliminate misconceptions and to help them recall orally presented information.

A major implication of the present study is that school psychologists need to exercise caution when using and explaining percentiles and grade equivalent scores. They need to guard against the potential for parents creating a self-fulfilling prophecy for their children if test scores are perceived to be low. Lowered expectations could lead to lowered performance by children (Kaplan, 1991). This phenomenon could be particularly damaging if parents take the apparently low achievement scores to mean low intellectual ability as did the
parents in the present study when achievement results were presented as grade equivalent scores. Conversely, children could be subjected to unrealistic expectations and pressures to achieve higher when, in fact, they may be working at a level commensurate with their ability and are not performing below average academically. In view of the current findings, it may be preferable to report standard scores as they seem to be more readily understood by parents, or to provide information that aids in more accurate interpretation of grade equivalents and percentile ranks.

One limitation of the present study is that it used an analogue format. While this permitted a higher level of internal validity as it controlled for variables which could have affected parents' interpretation of the test scores themselves, it does raise concerns about the generalizability of the results. The fictitious report was artificial in that it was not as detailed as a real report and the recommendations section was entirely excluded. Furthermore, parents typically would attend a school conference to discuss assessment results in addition to receiving a copy of the written report, as the experienced parents in this study had. One wonders if parents would respond the same way if they were involved in the complete assessment procedure and the report they were reading was about their own child.

There is a scarcity of research investigating understanding of psychoeducational assessment reports in general, and even less investigating parental understanding. This preliminary study highlights the importance of further investigation aimed at delineating the particular aspects of report writing that would advance better communication of results.
REFERENCES


Appendix A

Psychoeducational Assessment Report
PSYCHOEDUCATIONAL ASSESSMENT REPORT

NAME: Jamie
DATE OF BIRTH: August 2, 1984
AGE: 9 years 3 months
GRADE: 4.2
SCHOOL: ABC Elementary
DATES OF ASSESSMENT: November 10 & 12, 1993
DATE OF REPORT: November 20, 1993

REASON FOR REFERRAL

Jamie was referred for assessment by his teacher because of academic difficulties. She reports that he does not complete assignments, learns slowly, and reads and spells poorly. He demonstrates some difficulty sustaining attention in class. His teacher has also noted that Jamie's parents have concerns about his progress at school.

BACKGROUND

Background information was obtained from Jamie's parents. Jamie lives with his parents, older sister, age 12, and younger brother, age 7. Mother reports a normal pregnancy and delivery. Health history is unremarkable. Hearing and vision have been tested within the past year and results were normal. Developmental milestones were reached on time. Parents report that Jamie gets along well with other children and is generally well-behaved.

Jamie has attended ABC Elementary since he began kindergarten at age 5. School report cards indicate that he has always had difficulty completing his reading and writing assignments. He has been receiving learning assistance for extra help in these areas and is making continuous progress. Teachers have noted that he produces noticeably better work in a one-to-one situation than he does in a classroom. His teacher reports that Jamie has good reasoning skills and does well verbally.

PREVIOUS ASSESSMENTS

None

TEST BEHAVIOUR

Jamie was friendly and cooperative throughout the testing. He was attentive and worked hard. He sometimes tended to give up when the tasks became difficult for him, however, he usually completed the items when encouraged to do so. Overall, Jamie appeared to be giving his best effort. In view of his test behaviour, the results may be considered valid indicators of the abilities measured.
TEST RESULTS

Intellectual

The Wechsler Intelligence Scale for Children-Third Edition (WISC-111) is a test of general cognitive ability. The average range is 90 to 109. Jamie's scores were compared to the scores of same age peers.

- Verbal Scale IQ = 98
- Performance Scale IQ = 96
- Full Scale IQ = 91-103

Academic

The Peabody Individual Achievement Test-Revised was used to assess Jamie's academic achievement. His scores were compared to the scores of same age peers.

Grade Equivalent*

- Reading Recognition: 3.2
- Reading Comprehension: 2.8
- Spelling: 3.8
- Mathematics: 3.8
- General Information: 2.9
- Total Test: 3.2

* Grade equivalent is the average level of test performance for students at that grade level. For example, a grade equivalent of 3.5 means that a student is functioning at the average of students who are in the fifth month of grade 3.

DISCUSSION

Jamie is a pleasant, cooperative 9 year old boy in a grade 4 placement. He had no difficulty focusing his attention and efforts throughout these one-to-one testing sessions. His performance on measures of general intellectual ability yields an overall score in the 91-103 range. Results on tests of academic achievement range from grade equivalents of 2.8 to 3.8, with a total test grade equivalent of 3.2.
TEST RESULTS

Intellectual

The Wechsler Intelligence Scale for Children-Third Edition (WISC-111) is a test of general cognitive ability. The average range is 90 to 109. Jamie's scores were compared to the scores of same age peers.

Verbal Scale IQ = 98
Performance Scale IQ = 96
Full Scale IQ = 91-103

Academic

The Peabody Individual Achievement Test-Revised was used to assess Jamie's academic achievement. His scores were compared to the scores of same age peers.

<table>
<thead>
<tr>
<th>Standard Score*</th>
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</thead>
<tbody>
<tr>
<td>Reading Recognition</td>
</tr>
<tr>
<td>Reading Comprehension</td>
</tr>
<tr>
<td>Spelling</td>
</tr>
<tr>
<td>Mathematics</td>
</tr>
<tr>
<td>General Information</td>
</tr>
<tr>
<td>Total Test</td>
</tr>
</tbody>
</table>

* Standard score is a normalized score with a mean of 100 and a standard deviation of 15 for each test for each age group.

DISCUSSION

Jamie is a pleasant, cooperative 9 year old boy in a grade 4 placement. He had no difficulty focusing his attention and efforts throughout these one-to-one testing sessions. His performance on measures of general intellectual ability yields an overall score in the 91-103 range. Results on tests of academic achievement range from standard scores of 89 to 99, with a total test score of 91.
TEST RESULTS

Intellectual

The Wechsler Intelligence Scale for Children-Third Edition (WISC-III) is a test of general cognitive ability. The average range is 90 to 109. Jamie’s scores were compared to the scores of same age peers.

Verbal Scale IQ = 98
Performance Scale IQ = 96
Full Scale IQ = 91-103

Academic

The Peabody Individual Achievement Test-Revised was used to assess Jamie’s academic achievement. His scores were compared to the scores of same age peers.

Percentile Rank*

<table>
<thead>
<tr>
<th>Test</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Recognition</td>
<td>30</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>25</td>
</tr>
<tr>
<td>Spelling</td>
<td>47</td>
</tr>
<tr>
<td>Mathematics</td>
<td>45</td>
</tr>
<tr>
<td>General Information</td>
<td>23</td>
</tr>
<tr>
<td>Total Test</td>
<td>27</td>
</tr>
</tbody>
</table>

* Percentile rank indicates the percentage of age peers scoring at or below the child’s obtained score.

DISCUSSION

Jamie is a pleasant, cooperative 9 year old boy in a grade 4 placement. He had no difficulty focusing his attention and efforts throughout these one-to-one testing sessions. His performance on measures of general intellectual ability yields an overall score in the 91-103 range. Results on tests of academic achievement range from the 23rd to the 47th percentile, with a total test score at the 27th percentile.
Appendix B

Questionnaire
QUESTIONNAIRE

Please indicate to what extent you agree or disagree with the following statements based on what you have read in the preceding report.

1. This child has a learning disability.
   Agree Not Sure Disagree
   1 2 3 4 5

2. This child is presently eligible for special education services.
   Agree Not Sure Disagree
   1 2 3 4 5

3. This child will need special education services in the future.
   Agree Not Sure Disagree
   1 2 3 4 5

4. This child will show future learning problems.
   Agree Not Sure Disagree
   1 2 3 4 5

5. This child will outgrow any learning problems he has now.
   Agree Not Sure Disagree
   1 2 3 4 5

6. In terms of overall intellectual ability, how would you say this child compares to others of his age? (please circle number)
   1 Quite a lot lower than most children
   2 Somewhat lower than most children
   3 Right about the middle
   4 Somewhat higher than most children
   5 Quite a lot higher than most children

7. Results of testing show that this child has a significant delay in reading.
   Agree Not Sure Disagree
   1 2 3 4 5

8. Results of testing show that this child has a significant delay in spelling.
   Agree Not Sure Disagree
   1 2 3 4 5

9. Results of testing show that this child has a significant delay in mathematics.
   Agree Not Sure Disagree
   1 2 3 4 5

10. Results of testing show that this child has a significant delay in general information.
    Agree Not Sure Disagree
    1 2 3 4 5

11. The assessment report is useful for addressing the reason for referral.
    Agree Not Sure Disagree
    1 2 3 4 5
12. The information in the report would be helpful for knowing what expectations a parent should have about the child.

Agree Not Sure Disagree
1 2 3 4 5

If you answer 3, 4, or 5, please explain briefly. ____________________________

13. The information in the report would be helpful for knowing what expectations a teacher should have about the child.

Agree Not Sure Disagree
1 2 3 4 5

If you answer 3, 4, or 5, please explain briefly. ____________________________

14. The report of test results is easy to understand.

Agree Not Sure Disagree
1 2 3 4 5

If you answer 3, 4, or 5, please explain briefly. ____________________________

15. You are confident that you understood the report.

Agree Not Sure Disagree
1 2 3 4 5

If you answer 3, 4, or 5, please explain briefly. ____________________________

16. The language used in the report was too technical/complicated.

Agree Not Sure Disagree
1 2 3 4 5

In addition, please answer the following questions.

How many children do you currently have in the school system? ______
Does your child or children receive special education services? ______
Have any of your children been diagnosed as having a learning disability? ______
Have any of your children had a psycho-educational assessment? ______
   If yes: In what school year ______
   In School District #27 (Cariboo-Chilcotin) ______ Other ____________
   What was the reason for referral for assessment? ______________________
   Did you receive a copy of the report? ______
   Did you participate in a school meeting about assessment results? ______
   Did you feel you understood the assessment results? ______
Have you ever read a psycho-educational assessment report before? ______
Are you male? ______ or female? ______
In your household, what is the highest level of education attained by you or your spouse/partner?
   Grade 11 or less ______
   Grade 12 (high school graduation or equivalent) ______
   Some post-secondary ______
   2 year diploma ______
   4 year degree ______
   Some post-graduate, including advanced degree ______