

Development and Preliminary Validation of Learning Disability Scale: A Parent, Teacher Report Screening Measure

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Abstract: *The present study was conducted to develop a valid and reliable screening measure e.g scale for assessment of Learning Disabilities. The study is a pilot study for the original tool, which is divided in two phases. In Phase I a culturally relevant item pool was generated through a review of literature and conducting interviews with primary school teachers, parents of primary school children, school counselors and school psychologists, and existing scales of learning disabilities. In phase II, psychometric properties e.g Reliability and Validity of the scale were established on a sample of 30 students and seven constructs of the scale were explored. These seven factors were reading, writing, arithmetic, spatial ability, social functioning which consisted of social cognitions, memory etc, Attention/concentration, and anxiety. The scale demonstrated good internal consistency, as indicated by a respectable Cronbach's alpha coefficient of ($\alpha = 0.986$) for the total scale. The test-retest reliability analysis for the parent version of the scale yielded an exceptionally high interclass coefficient of 0.999. Similarly, the teacher version of the scale showed good reliability with an interclass coefficient of 0.962, suggesting consistent ratings from teachers over time. The inter-rater reliability analysis revealed a substantial level of agreement between parent and teacher ratings of the child on the Learning Disability Scale, as indicated by a kappa value of 0.860. The study holds useful implications for teachers, parents, school counselors and clinicians.*

Keywords: learning disabilities, assessment, reading ability, writing ability arithmetic, spatial ability, social functioning, attention/concentration

1. Introduction

Learning disabilities is a broad term that refers to a varied group of disabilities manifested by important difficulties in the acquisition and use of listening, speaking, reading, writing, spelling, reasoning or mathematical abilities, processing and organizing information, which affects a person's academic performance (Hammill, Leigh, McNutt, & Larsen, 1988). Learning disabilities develop at a very young age and children from all racial, economic and cultural backgrounds are affected.

According to DSM-V (2013), 'Specific learning disorder' is diagnosed when there are specific insufficiencies in an individual's ability to recognize information precisely. This neurodevelopmental disorder manifests during the years of early schooling and is characterized by persistent and impairing difficulties with learning foundational academic skills in reading, writing, and/or math.

Specific learning disorder may occur in individuals identified as intellectually gifted and become obvious only when the learning demands or assessment procedures (e.g., timed tests) pose barriers that cannot be overcome by their innate intelligence and compensatory strategies. For all individuals, specific learning disorder can produce lifelong damages in activities dependent on the skills, including occupational performances (DSM-V, 2013).

Waber (2005) has differentiated between learning disabilities and disorders by stating that; a *learning disorder* is a diagnostic and medical term, therefore, a *learning disability* can be considered as more of an official term

employed by education departments that identify the line past which a school is required to make special measures to help a child learn. This means that a child might have a learning *disorder*, but if it is not shown to adequately impact his school performance, the school will not consider it to be a learning *disability*, and will not consider him eligible for special services (Waber, 2005).

Similarly, the main difference between learning disorders and learning disabilities was identified by Stock (2009) when he defined 'learning disorder' as a condition as it relates to the diagnostic criteria used in the Diagnostic and Statistical Manual. As a diagnostic guide for mental health disorders professionals all over the globe use DSM that influence learning. The three primary types of learning disorders are reading, writing and math disorders. Reading disorders are often referred to as dyslexia; math disorders as dyscalculia, and writing disorders as Dysgraphia (Stock, 2009).

The DSM-IV TR (2000) diagnostic criteria for learning disorders states: "Learning Disorders are diagnosed when the individual's achievement measured by individually administered standardized tests, is substantially below that expected for age, schooling, and level of intelligence. The learning problems significantly affect academic achievement or activities of daily life that require reading, mathematical, or writing skills" (DSM - IV TR, 2000, p.49). The psychologists who are evaluating the individuals are given freedom to determine if the level of disability caused by the condition exceeds the limits defined in the diagnostic criteria.

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SLD refers to a heterogeneous group of disorders where significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical skills are present. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the life span. Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not, by themselves, constitute a learning disability (Shaw et al., 1995).

The study was divided into two parts; in part one an item pool was generated for Learning Disabilities Scale (LDS), this was piloted. Part two concerned the psychometric properties and validation of the new scale

2. Methodology

Generation of Item Pool, determining reliability and validity of the scale.

This part comprised of two phases:

- Generation of item pool for development of indigenous scale of learning disabilities and its instructions. Finalizing the items on likert type scale.
- Determining reliability and validity of the scale and its constructs.

Phase I: Generation of item pool for Learning Disabilities Scale (LDS)

Sample

The sample for generating item pool consisted of primary school teachers and parents of primary school children, school counselors. The sample size was 30. The sample was obtained from p schools of Delhi.

In the second step of phase I, ratings were taken from five experts in the field of Psychology, Neurology and Psychiatry. They were approached to evaluate the items regarding: Relevance to content, clarity of concept, comprehensibility & redundancy of items of the scale. At the end of this phase a sample was selected for pilot testing. Pilot testing was done after taking expert ratings on scale, the sample consisted of 30 children; 15 boys and 15 girls, from private schools of Delhi. The age range of the sample was from 7 to 11 years ($M = 8.10$, $SD = 2.4$). Additionally, the scale was administered on the pilot sample to assess face validity and item appropriateness. Newly constructed Scale was used as a tool of assessment of learning disabilities.

In phase I of study, relevant domains of learning disabilities were selected on the basis of review of the relevant literature; selecting most frequently researched/ reported domains. Then, an item pool was generated by following rational reviewing and selecting items from previously developed scales of learning disabilities. In addition, diagnostic criteria for Learning disabilities in DSM-IV-TR (2000) and DSM-V (2013) were also reviewed.

Moreover, a sample was contacted and interviewed in order to generate culturally relevant domains of learning disabilities and culturally relevant items for the scale. In the

first step of phase I, pool of 103 items was generated. These items were presented to the five experts for evaluation regarding relevance to content, clarity of concept, and comprehensibility & redundancy of items. Then pilot testing was conducted.

After pilot testing and expert ratings on learning disabilities scale, many items were eliminated from the scale due to overlapping, weak clarity of concept and redundancy. Few similar items were also collated. After pilot study and expert ratings, 73 items were selected out of 103 items for reliability and validity.

Phase II: Establishing reliability and validity of the scale and its constructs. Participants

The sample comprised of 30 children both boys ($n = 15$) and girls ($n = 15$) with an age between 7 to 11 years ($M = 8.9$) were approached in various schools of New Delhi, using a purposive sampling strategy. Hence further teachers and school's class teachers, parents and counselors were approached in order to identify children facing learning problems in class and at home.

Procedure

Permission was obtained from school authorities and parents before collecting data, informed consent was signed by teachers and parents, after which the Learning Disabilities Scale was presented to the class teachers of grade 1 to grade 6 to rate children of their respective classes. Teachers were asked to identify students who were scoring below the average level and facing learning problems. After teacher's screening, parents of those children were contacted and were given the learning disability scale for rating.

3. Results

The data collected was analyzed using SPSS software and the results are presented using tables. The reliability of a Likert-type constructed scale was assessed using internal consistency measures, specifically Cronbach's alpha coefficient. Cronbach's alpha is a commonly used statistic to evaluate the reliability of scales or questionnaires, indicating the extent to which the scale items measures the same construct.

The scale was designed in objective type items by the researcher to assess the functioning in the following eight domains: reading, writing, arithmetic, attention/hyperactivity, anxiety, social functioning included social cognitions, spatial ability and memory. and It was a two form scale (parent and teacher) report screening measure. Parents and teachers were required to answer each question on five point likert scale with following options: (never -1, rarely-2, sometimes-3, often-4, always-5). The Cronbach's alpha coefficient ranges from 0 to 1, with higher values indicating greater internal consistency. Generally, a Cronbach's alpha above 0.70 is considered acceptable, while values above 0.80 are considered good and values above 0.90 are considered excellent.

This part of study included determining Construct Validity of Learning Disabilities Scale (LDS) using the method of

contrasted groups. Anastasi (1997) defines construct validity as “The construct validity of a test is the extent to which the test may be said to measure a theoretical construct or trait”.

Descriptive of the sample are shown in Table 1. The

descriptive statistics table provides an overview of the variables in the dataset, including the number of observations (N), range, minimum and maximum values, sum, mean, and standard deviation.

Table 1

Descriptive Statistics

Table 2: Reading

| N | | Range | Minimum | Maximum | Sum | Mean | Std. Deviation |
|--------------------|----|-------|---------|---------|---------|---------|----------------|
| AGE | 30 | 4.00 | 7.00 | 11.00 | 260.00 | 8.6667 | 1.32179 |
| GRADE | 30 | 3.00 | 2.00 | 5.00 | 97.00 | 3.2333 | .93526 |
| GENDER | 30 | 1.00 | 1.00 | 2.00 | 44.00 | 1.4667 | .50742 |
| PreviousTermAvg | 30 | 20.00 | 41.00 | 61.00 | 1523.00 | 50.7667 | 5.76962 |
| Birthorder | 30 | 3.00 | 1.00 | 4.00 | 82.00 | 2.7333 | .82768 |
| Valid N (listwise) | 30 | | | | | | |

Reliability Statistics

Table 3: Reading

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .907 | .909 | 11 |

Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Reading 1 | 33.6000 | .47766 | .691 | .896 |
| Reading 2 | 33.6667 | 49.747 | .481 | .907 |
| Reading 3 | 33.8333 | 48.764 | .633 | .900 |
| Reading 4 | 33.5667 | 48.806 | .467 | .904 |
| Reading 5 | 33.6333 | 49.068 | .606 | .901 |
| Reading 6 | 33.5000 | 48.879 | .601 | .902 |
| Reading 7 | 33.5000 | 46.397 | .662 | .899 |
| Reading 8 | 33.3000 | 47.459 | .765 | .894 |
| Reading 9 | 33.6333 | 45.206 | .837 | .889 |
| Reading 10 | 33.3667 | 46.447 | .708 | .896 |
| Reading 11 | 33.4000 | 46.248 | .624 | .902 |

For Reading construct the reliability statistics provide information about the internal consistency or reliability of a scale or set of items. In this case, Cronbach's Alpha coefficient was calculated to assess the reliability of the scale with 11 items. In this case, the calculated value of 0.907 suggests a high level of internal consistency, indicating that the items in the scale are strongly correlated with each other. The value of 0.909 suggests a similarly high level of internal consistency when the items are standardized. Overall, these results indicate that the scale

with 11 items has a high degree of internal consistency, meaning that the items are measuring the same underlying construct consistently, as shown in table 2 and 3.

Table 4: Writing Reliability Statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .889 | .894 | 6 |

Table 5: Writing Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------------|
| WRITING1 | 15.7000 | 20.976 | .785 | .857 |
| WRITING2 | 15.4667 | 21.085 | .623 | .885 |
| WRITING3 | 14.9667 | 22.861 | .678 | .875 |
| WRITING4 | 15.7000 | 20.976 | .785 | .857 |
| WRITING5 | 15.7000 | 20.976 | .785 | .857 |
| WRITING6 | 15.4667 | 21.085 | .623 | .885 |

For Writing construct, in this case, the calculated value of 0.889 suggests a high level of internal consistency, indicating that the items in the scale are strongly correlated with each other. The Cronbach's Alpha Based on Standardized Items is a variant of Cronbach's Alpha that is based on the standardized scores of the items. The value of

0.894 suggests a similarly high level of internal consistency when the items are standardized, as shown in table 4 and 5.

Overall, these results indicate that the scale with 6 items has a high degree of internal consistency, meaning that the items are measuring the same underlying construct consistently.

Table 6: Arithmetic Reliability Statistics

| | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .870 | .875 | 7 |

Table 7: Arithmetic Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------------|
| ARTHIMETIC1 | 18.9000 | .786 | . | .836 |
| ARTHIMETIC2 | 19.4000 | .667 | . | .850 |
| ARTHIMETIC3 | 19.3333 | .363 | . | .886 |
| ARTHIMETIC4 | 19.6333 | .660 | . | .850 |
| ARTHIMETIC5 | 18.9000 | .786 | . | .836 |
| ARTHIMETIC6 | 19.4000 | .667 | . | .850 |
| ARTHIMETIC7 | 19.6333 | .660 | . | .850 |

For Arithmetic construct, the calculated value of 0.870 suggests a high level of internal consistency, indicating strong correlations between the items in the scale.

variant of Cronbach's Alpha that is based on the standardized scores of the items. The value of 0.875 indicates a similarly high level of internal consistency when the items are standardized as shown in table 6 and 7.

The Cronbach's Alpha Based on Standardized Items is a

Overall, these results suggest that the scale with 7 items demonstrates a high degree of internal consistency, indicating that the items are consistently measuring the same underlying construct.

Table 8: Spatial Ability Reliability Statistics

| | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .948 | .949 | 5 |

Table 9: Spatial Ability Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------------|
| SPATIALABILITY1 | 12.1000 | .896 | .879 | .929 |
| SPATIALABILITY2 | 11.9333 | .867 | .890 | .933 |
| SPATIALABILITY3 | 11.8333 | .804 | .896 | .945 |
| SPATIALABILITY4 | 11.9667 | .861 | .927 | .935 |
| SPATIALABILITY5 | 11.6333 | .865 | .913 | .934 |

For spatial ability construct, the value of 0.949 indicates a similarly high level of internal consistency when the items are standardized as shown in table 8 and 9.

These results suggest that the scale with 5 items demonstrates a very high degree of internal consistency, indicating that the items are consistently measuring the same underlying construct.

Table 10: Social Functioning Reliability Statistics

| | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .926 | .923 | 21 |

Table 11: Social Functioning Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|-----------------------------------|----------------------------------|
| SOCIALFUNCTIONING1 | 64 | 0.899 | 0.985 |
| SOCIALFUNCTIONING2 | 64.1667 | 0.848 | 0.986 |
| SOCIALFUNCTIONING3 | 64.2333 | 0.918 | 0.985 |
| SOCIALFUNCTIONING4 | 64.1 | 0.913 | 0.985 |
| SOCIALFUNCTIONING5 | 64.2 | 0.878 | 0.986 |
| SOCIALFUNCTIONING6 | 64.3333 | 0.934 | 0.985 |
| SOCIALFUNCTIONING7 | 64.2667 | 0.918 | 0.985 |
| SOCIALFUNCTIONING8 | 64 | 0.907 | 0.985 |
| SOCIALFUNCTIONING9 | 64.2333 | 0.818 | 0.986 |
| SOCIALFUNCTIONING10 | 64.3 | 0.914 | 0.985 |
| SOCIALFUNCTIONING11 | 64.2667 | 0.871 | 0.986 |

| | | | | |
|---------------------|---------|---------|-------|-------|
| SOCIALFUNCTIONING12 | 64.0667 | 367.444 | 0.903 | 0.985 |
| SOCIALFUNCTIONING13 | 64.0667 | 369.168 | 0.822 | 0.986 |
| SOCIALFUNCTIONING14 | 64.1667 | 368.695 | 0.824 | 0.986 |
| SOCIALFUNCTIONING15 | 64.3 | 361.528 | 0.906 | 0.985 |
| SOCIALFUNCTIONING16 | 64.2667 | 359.72 | 0.915 | 0.985 |
| SOCIALFUNCTIONING17 | 64.2333 | 364.944 | 0.805 | 0.986 |
| SOCIALFUNCTIONING18 | 64.1333 | 368.947 | 0.84 | 0.986 |
| SOCIALFUNCTIONING19 | 64.1667 | 368.902 | 0.85 | 0.986 |
| SOCIALFUNCTIONING20 | 64.2333 | 373.082 | 0.862 | 0.986 |
| SOCIALFUNCTIONING21 | 64.2667 | 365.237 | 0.856 | 0.986 |

For social functioning construct the calculated value of 0.926 suggests a high level of internal consistency, indicating strong correlations between the items in the scale.

variant of Cronbach's Alpha that is based on the standardized scores of the items. The value of 0.923 indicates a similarly high level of internal consistency when the items are standardized as shown in table 10 and 11.

The Cronbach's Alpha Based on Standardized Items is a

These results suggest that the scale with 21 items demonstrates a high degree of internal consistency, indicating that the items are consistently measuring the same underlying construct.

Table 12: Anxiety Reliability Statistics

| | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .828 | .825 | 9 |

Table 13: Anxiety Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------------|
| ANX1 | 25.7667 | .547 | . | .809 |
| ANX2 | 25.8333 | .153 | . | .851 |
| ANX3 | 25.3333 | .793 | . | .782 |
| ANX4 | 25.0333 | .697 | . | .794 |
| ANX5 | 25.5333 | .682 | . | .791 |
| ANX6 | 25.3333 | .793 | . | .782 |
| ANX7 | 25.5333 | .682 | . | .791 |
| ANX8 | 25.5000 | .133 | . | .847 |
| ANX9 | 25.4667 | .370 | . | .829 |

For Anxiety construct the calculated value of 0.828 suggests a moderate level of internal consistency, indicating some degree of correlation between the items in the scale.

variant of Cronbach's Alpha that is based on the standardized scores of the items. The value of 0.825 indicates a similar level of internal consistency when the items are standardized as shown in table 12 and 13.

The Cronbach's Alpha Based on Standardized Items is a

These results suggest that the scale with 9 items demonstrates a moderate level of internal consistency, indicating that there is some correlation between the items in measuring the same underlying construct.

Table 14: ATT Reliability Statistics

| | | |
|------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .841 | .839 | 9 |

Table 15: ATT Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item- Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------------|
| ATT3 | 26.1333 | .279 | . | .849 |
| ATT4 | 25.6667 | .775 | . | .802 |
| ATT5 | 26.4000 | .596 | . | .819 |
| ATT6 | 26.1667 | .643 | . | .814 |
| ATT7 | 26.1667 | .643 | . | .814 |
| ATT8 | 25.6667 | .775 | . | .802 |
| ATT9 | 26.1000 | .335 | . | .847 |
| ATT10 | 26.1333 | .279 | . | .849 |
| ATT11 | 25.9667 | .682 | . | .811 |

For Attention/concentration construct the calculated value of 0.841 suggests a moderate level of internal consistency, indicating some degree of correlation between the items in the scale.

The Cronbach's Alpha Based on Standardized Items is a variant of Cronbach's Alpha that is based on the

standardized scores of the items. The value of 0.839 indicates a similar level of internal consistency when the items are standardized as shown in table 14 and 15.

These results suggest that the scale with 9 items demonstrates a moderate level of internal consistency, indicating that there is some correlation between the items in measuring the same underlying construct

Table 16: Final items Reliability Statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .986 | .986 | 73 |

Table 17: Final items Item-Total Statistics

| Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| READING1 | 232.4333 | .2989.633 | .363 | .986 |
| READING2 | 232.5000 | .2999.638 | .241 | .987 |
| READING3 | 232.6667 | .2991.264 | .349 | .986 |
| READING4 | 232.4000 | .2991.283 | .314 | .987 |
| READING5 | 232.4667 | .2980.051 | .468 | .986 |
| READING6 | 232.3333 | .2961.333 | .648 | .986 |
| READING7 | 232.3333 | .2960.368 | .547 | .986 |
| READING8 | 232.1333 | .2968.947 | .596 | .986 |
| READING9 | 232.4667 | .2981.154 | .402 | .986 |
| READING10 | 232.2000 | .2974.166 | .455 | .986 |
| READING11 | 232.2333 | .2960.461 | .512 | .986 |
| WRITING1 | 232.8333 | .2962.626 | .614 | .986 |
| WRITING2 | 232.7667 | .2933.771 | .717 | .986 |
| WRITING3 | 232.6333 | .2924.792 | .736 | .986 |
| WRITING4 | 232.9000 | .2944.645 | .674 | .986 |
| WRITING5 | 232.8333 | .2952.695 | .618 | .986 |
| WRITING6 | 232.7667 | .2938.185 | .681 | .986 |
| ARITHMETIC1 | 232.1667 | .2934.282 | .824 | .986 |
| ARITHMETIC2 | 232.4667 | .2922.257 | .763 | .986 |
| ARITHMETIC3 | 232.4333 | .2933.082 | .772 | .986 |
| ARITHMETIC4 | 232.4333 | .2928.668 | .787 | .986 |
| ARITHMETIC5 | 232.1667 | .2933.454 | .863 | .986 |
| ARITHMETIC6 | 232.4333 | .2913.909 | .787 | .986 |
| ARITHMETIC7 | 232.1000 | .2943.128 | .841 | .986 |
| ARITHMETIC8 | 232.5000 | .2917.776 | .802 | .986 |
| ARITHMETIC9 | 232.2333 | .2944.392 | .663 | .986 |
| ARITHMETIC10 | 232.5333 | .2907.223 | .849 | .986 |
| SPATIALABILITY1 | 232.9667 | .2939.551 | .750 | .986 |
| SPATIALABILITY2 | 232.8000 | .2934.097 | .725 | .986 |
| SPATIALABILITY3 | 232.7000 | .2915.941 | .840 | .986 |
| SPATIALABILITY4 | 232.8333 | .2947.523 | .664 | .986 |
| SPATIALABILITY5 | 232.5000 | .2914.397 | .848 | .986 |
| SOCIALFUNCTIONIN G1 | 232.3333 | .2917.540 | .894 | .986 |
| SOCIALFUNCTIONIN G2 | 232.5000 | .2935.500 | .739 | .986 |
| SOCIALFUNCTIONIN G3 | 232.5667 | .2917.978 | .854 | .986 |
| SOCIALFUNCTIONIN G4 | 232.4000 | .2917.559 | .830 | .986 |
| SOCIALFUNCTIONIN G5 | 232.5000 | .2939.776 | .773 | .986 |
| SOCIALFUNCTIONIN G6 | 232.6667 | .2913.126 | .814 | .986 |
| SOCIALFUNCTIONIN G7 | 232.5667 | .2922.185 | .798 | .986 |
| SOCIALFUNCTIONIN G8 | 232.3333 | .2919.264 | .855 | .986 |
| SOCIALFUNCTIONIN G9 | 232.5667 | .2949.357 | .726 | .986 |
| SOCIALFUNCTIONIN G10 | 232.6333 | .2914.654 | .853 | .986 |
| SOCIALFUNCTIONIN G11 | 232.6000 | .2940.662 | .823 | .986 |
| SOCIALFUNCTIONIN G12 | 232.4000 | .2930.662 | .901 | .986 |
| SOCIALFUNCTIONIN G13 | 232.4000 | .2948.317 | .703 | .986 |
| SOCIALFUNCTIONIN G14 | 232.5000 | .2953.017 | .650 | .986 |
| SOCIALFUNCTIONIN G15 | 232.6333 | .2922.999 | .830 | .986 |
| SOCIALFUNCTIONIN G16 | 232.6000 | .2919.490 | .827 | .986 |

| | | | | | |
|----------------------|----------|----------|------|---|------|
| SOCIALFUNCTIONIN G17 | 232.5667 | 2925.978 | .789 | . | .986 |
| SOCIALFUNCTIONIN G18 | 232.4667 | 2942.464 | .769 | . | .986 |
| SOCIALFUNCTIONIN G19 | 232.5000 | 2947.569 | .727 | . | .986 |
| SOCIALFUNCTIONIN G20 | 232.5667 | 2947.426 | .851 | . | .986 |
| SOCIALFUNCTIONIN G21 | 232.6000 | 2938.800 | .732 | . | .986 |
| ANX1 | 232.7333 | 2946.547 | .680 | . | .986 |
| ANX2 | 232.6333 | 2961.620 | .624 | . | .986 |
| ANX3 | 232.5000 | 2951.638 | .688 | . | .986 |
| ANX4 | 232.1667 | 2922.213 | .878 | . | .986 |
| ANX5 | 232.5667 | 2925.564 | .814 | . | .986 |
| ANX6 | 232.4667 | 2952.326 | .701 | . | .986 |
| ANX7 | 232.6000 | 2923.007 | .821 | . | .986 |
| ANX8 | 232.5667 | 2980.599 | .482 | . | .986 |
| ANX9 | 232.5667 | 2946.185 | .757 | . | .986 |
| ATT1 | 232.1000 | 2934.231 | .862 | . | .986 |
| ATT2 | 232.6000 | 2935.283 | .637 | . | .986 |
| ATT3 | 232.5667 | 2994.047 | .317 | . | .986 |
| ATT4 | 232.1000 | 2934.231 | .862 | . | .986 |
| ATT5 | 232.8333 | 2938.695 | .719 | . | .986 |
| ATT6 | 232.6000 | 2935.283 | .637 | . | .986 |
| ATT7 | 232.5333 | 2931.637 | .668 | . | .986 |
| ATT8 | 232.1000 | 2934.231 | .862 | . | .986 |
| ATT9 | 232.5333 | 2964.878 | .511 | . | .986 |
| ATT10 | 232.5667 | 2994.047 | .317 | . | .986 |
| ATT11 | 232.4000 | 2953.903 | .650 | . | .986 |

For final items of the scale, Both Cronbach's Alpha and Cronbach's Alpha Based on Standardized Items have a high value of 0.986, indicating a strong level of internal consistency for the scale. This suggests that the items in the scale are highly correlated with each other, and the scale is reliable in measuring the construct of interest.

Having a high Cronbach's Alpha value indicates that the items in the scale are measuring the same underlying construct consistently. This high level of internal

consistency is desirable, as it suggests that the scale is reliable and can be used to accurately assess the construct. With a large number of items (73), achieving such a high Cronbach's Alpha value is impressive. It indicates that the items in the scale are functioning well together, showing strong intercorrelations and measuring the construct consistently.

Overall, this scale appears to be highly reliable and suitable for measuring the intended construct as shown in table 16 and 17.

Table 18: Validity

| | | |
|-----------|---------------------|--------|
| READING1 | Pearson Correlation | .193 |
| | Sig. (2-tailed) | .307 |
| | N | 30 |
| READING2 | Pearson Correlation | .074 |
| | Sig. (2-tailed) | .696 |
| | N | 30 |
| READING3 | Pearson Correlation | .272 |
| | Sig. (2-tailed) | .145 |
| | N | 30 |
| READING4 | Pearson Correlation | .210 |
| | Sig. (2-tailed) | .265 |
| | N | 30 |
| READING5 | Pearson Correlation | .366* |
| | Sig. (2-tailed) | .047 |
| | N | 30 |
| READING6 | Pearson Correlation | .620** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| READING7 | Pearson Correlation | .569** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| READING8 | Pearson Correlation | .596** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| READING9 | Pearson Correlation | .297 |
| | Sig. (2-tailed) | .112 |
| | N | 30 |
| READING10 | Pearson Correlation | .406* |

| | | |
|------------------|---------------------|--------|
| | Sig. (2-tailed) | .026 |
| | N | 30 |
| READING11 | Pearson Correlation | .401* |
| | Sig. (2-tailed) | .028 |
| | N | 30 |
| WRITING1 | Pearson Correlation | .621** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| WRITING2 | Pearson Correlation | .819** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| WRITING3 | Pearson Correlation | .794** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| WRITING4 | Pearson Correlation | .673** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| WRITING5 | Pearson Correlation | .617** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| WRITING6 | Pearson Correlation | .790** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| SPATIAL ABILITY1 | Pearson Correlation | .753** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| SPATIAL ABILITY2 | Pearson Correlation | .698** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| SPATIAL ABILITY3 | Pearson Correlation | .913** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| SPATIAL ABILITY4 | Pearson Correlation | .654** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| SPATIAL ABILITY5 | Pearson Correlation | .900** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC1 | Pearson Correlation | .828** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC2 | Pearson Correlation | .832** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC3 | Pearson Correlation | .774** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC4 | Pearson Correlation | .765** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC5 | Pearson Correlation | .875** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC6 | Pearson Correlation | .841** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC7 | Pearson Correlation | .815** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC8 | Pearson Correlation | .775** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC9 | Pearson Correlation | .675** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ARITHMETIC10 | Pearson Correlation | .884** |
| | Sig. (2-tailed) | <.001 |

| | | |
|-----------------------------|---------------------|--------|
| | N | 30 |
| SOCIAL FUNCTIONING1 | Pearson Correlation | .798** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING2 | N | 30 |
| | Pearson Correlation | .618** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING3 | N | 30 |
| | Pearson Correlation | .798** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING4 | N | 30 |
| | Pearson Correlation | .752** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING5 | N | 30 |
| | Pearson Correlation | .719** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING6 | N | 30 |
| | Pearson Correlation | .738** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING7 | N | 30 |
| | Pearson Correlation | .761** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING8 | N | 30 |
| | Pearson Correlation | .725** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING9 | N | 30 |
| | Pearson Correlation | .633** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING10 | N | 30 |
| | Pearson Correlation | .813** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING11 | N | 30 |
| | Pearson Correlation | .741** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING12 | N | 30 |
| | Pearson Correlation | .819** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING13 | N | 30 |
| | Pearson Correlation | .539** |
| | Sig. (2-tailed) | .002 |
| SOCIAL FUNCTIONING14 | N | 30 |
| | Pearson Correlation | .520** |
| | Sig. (2-tailed) | .003 |
| SOCIAL FUNCTIONING15 | N | 30 |
| | Pearson Correlation | .775** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING16 | N | 30 |
| | Pearson Correlation | .764** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING17 | N | 30 |
| | Pearson Correlation | .703** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING18 | N | 30 |
| | Pearson Correlation | .681** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING19 | N | 30 |
| | Pearson Correlation | .581** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING20 | N | 30 |
| | Pearson Correlation | .800** |
| | Sig. (2-tailed) | <.001 |
| SOCIAL FUNCTIONING21 | N | 30 |
| | Pearson Correlation | .592** |
| | Sig. (2-tailed) | <.001 |
| ANX1 | N | 30 |
| | Pearson Correlation | .653** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |

| | | |
|----------------------|---------------------|--------|
| ANX2 | Pearson Correlation | .637** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ANX3 | Pearson Correlation | .709** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ANX4 | Pearson Correlation | .831** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ANX5 | Pearson Correlation | .830** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ANX6 | Pearson Correlation | .754** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ANX7 | Pearson Correlation | .852** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ANX8 | Pearson Correlation | .385* |
| | Sig. (2-tailed) | .035 |
| | N | 30 |
| ANX9 | Pearson Correlation | .694** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT1 | Pearson Correlation | .839** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT2 | Pearson Correlation | .784** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT3 | Pearson Correlation | .263 |
| | Sig. (2-tailed) | .160 |
| | N | 30 |
| ATT4 | Pearson Correlation | .839** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT5 | Pearson Correlation | .705** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT6 | Pearson Correlation | .784** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT7 | Pearson Correlation | .799** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT8 | Pearson Correlation | .839** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| ATT9 | Pearson Correlation | .526** |
| | Sig. (2-tailed) | .003 |
| | N | 30 |
| ATT10 | Pearson Correlation | .263 |
| | Sig. (2-tailed) | .160 |
| | N | 30 |
| ATT11 | Pearson Correlation | .762** |
| | Sig. (2-tailed) | <.001 |
| | N | 30 |
| TOTAL PARENTS | Pearson Correlation | 1 |
| | Sig. (2-tailed) | |
| | N | 30 |

Table 19: Intraclass Correlation Coefficient

| Intraclass Correlation ^b | | 95% Confidence Interval | | F Test with True Value 0 | | |
|-------------------------------------|-------------------|-------------------------|-------------|--------------------------|-----|-----|
| | | Lower Bound | Upper Bound | Value | df1 | df2 |
| Single Measures | .999 ^a | .997 | .999 | 1517.009 | 29 | 29 |
| Average Measures | .999 ^c | .999 | 1.000 | 1517.009 | 29 | 29 |

The ICC measures the agreement or consistency between different measurements or raters. A coefficient of .999 indicates an exceptionally high level of agreement and consistency in the test- retest scores of scale when administered to parents over the time period for parent’s version as shown in table 19.

Table 20: Intraclass Correlation Coefficient

| Intraclass Correlation ^b | | 95% Confidence Interval | | F Test with True Value 0 | | |
|-------------------------------------|-------------------|-------------------------|-------------|--------------------------|-----|-----|
| | | Lower Bound | Upper Bound | Value | df1 | df2 |
| Single Measures | .927 ^a | .853 | .965 | 26.403 | 29 | 29 |
| Average Measures | .962 | .920 | .982 | 26.403 | 29 | 29 |

The test-retest reliability analysis of the Teachers' version of the Learning Disability scale yielded an ICC interclass coefficient of .962. This coefficient indicates a high level of consistency and agreement in the responses provided by teachers over time as shown in table 20.

Table 21: Symmetric Measures

| Value | | Asymptotic Standard Error ^a | Approximate T ^b | Approximate Significance |
|----------------------------|------|--|----------------------------|--------------------------|
| Measure of Agreement Kappa | .860 | .064 | 21.495 | <.001 |
| N of Valid Cases | 30 | | | |

A kappa value of .860 for parent and teacher ratings of the child on the Learning Disability Scale suggests a substantial level of agreement between parents and teachers in their assessments of the child's learning disabilities. Kappa is a statistical measure of inter-rater agreement that takes into account the agreement that can occur by chance.

A kappa value ranges from -1 to 1, with 1 indicating perfect agreement, 0 indicating agreement no better than chance, and negative values indicating disagreement beyond chance. In this case, a kappa value of .860 indicates a substantial level of agreement beyond chance as shown in table 21.

Reliability:

In order to determine the internal consistency of the scale reliability analysis using Cronbach’s Alpha coefficient was employed to assess the reliability of the total scale and the subscales of learning disability scale. The reliability of the total scale was .764, which is considered respectable as per the ranges given by DeVellis (1991). He recommends an alpha below .60 is as unacceptable; .60—.65 undesirable; .65—.70 minimally acceptable; .70—.80 respectable; .80—.90 very good; and if much above .90 excellent. Moreover, according to DeVellis (1991) scales that will be used for diagnostic, employment, academic placement, or other important purposes should have higher reliabilities, in the .90s. Furthermore, test length also factors into the reliability estimate. Simply, longer tests yield higher estimates of reliability (Crocket & Algina, 1986; Mehrens & Lehman, 1991; Gregory, 1992).

Reliability of Learning disability subscales; as indicated by cronbach’s alpha coefficient of 0.907, in reading construct, writing 0.889, in arithmetic 0.870, spatial ability 0.948, social functioning 0.926, anxiety 0.828, Attention/concentration 0.841. The results of reliability analysis are presented in Table. Hence, all the items in all 7 constructs are reliable.

Test Retest Reliability:

The ICC measures the agreement or consistency between different measurements or raters. A coefficient of .999 indicates an exceptionally high level of agreement and consistency in the test- retest scores of scale when administered to parents over the time period for parent’s version.

Similarly, The test-retest reliability analysis of the Teachers' version of the of Learning Disability scale yielded an interclass coefficient of .962. This coefficient indicates a high level of consistency and agreement in the responses provided by teachers over time.

Inter rater reliability:

A kappa value of .860 for parent and teacher ratings of the child on the Learning Disability Scale suggests a substantial level of agreement between parents and teachers in their assessments of the child's learning disabilities. Kappa is a statistical measure of inter-rater agreement that takes into account the agreement that can occur by chance.

A kappa value ranges from -1 to 1, with 1 indicating perfect agreement, 0 indicating agreement no better than chance and negative values indicating disagreement beyond chance. In this case, a kappa value of .860 indicates a substantial level of agreement beyond chance.

Validity and Item Scale Correlation of the Scale

The 73 items Learning Disabilities Scale was subjected to Item scale correlation analysis. Item scale correlation ranged from .57 to .85 and was found to be significant. The criteria for the retention of the items was that each item correlation with the total score should be .361 at 0.05* level and .463 and above at 0.01** level. Out of 73 items, 68 items correlated significantly with the total score of their respective subscales and thus were retained in the final version of the scale Learning disability scale.

The Pearson correlation coefficient was calculated to examine the relationships between variables in the Learning Disabilities Scale. The obtained correlation values were compared to threshold values based on the degrees of freedom (df) and significance levels.

For the significance level of 0.05 (denoted as 0.05*), the threshold value for df=28 was 0.361. It was found that several item numbers, including Reading 5, 10, and 11, and Anxiety 8, had correlation coefficients higher than this threshold value. This indicates a significant positive correlation between these items and the total score of their respective subscales. These findings suggest that these items are strongly associated with the construct of learning disabilities.

Moreover, for the significance level of 0.01 (denoted as 0.01**), the critical value for df=28 was 0.463. It was observed that multiple item numbers exceeded this threshold value. Specifically, Reading 6, 7, and 8; Writing 1, 2, 3, 4, 5, and 6; Arithmetic 1 to 10; Spatial ability 1 to 5; Social functioning 1 to 11 and 12; Anxiety 1 to 7 and 9; and Attention/concentration 1, 2, 4, 5, 6, 7, 8, 9, and 11. These items showed a strong positive correlation with the total score of their respective subscales, indicating their significance in assessing learning disabilities.

The obtained Pearson correlation coefficients higher than the threshold values demonstrate a statistically significant association between the variables. This implies that the majority of the items in the Learning Disabilities Scale is valid and has a strong relationship with the construct they aim to measure. However, it is worth noting that a few items did not reach significance, suggesting the need for further examination or potential revision of those specific items.

Overall, the Pearson correlation analysis provides evidence for the construct validity of the Learning Disabilities Scale, supporting its ability to accurately measure the intended theoretical construct of learning disabilities in children.

The correlation coefficient, which ranges from -1 to +1, quantifies the degree and direction of the linear link between the variables. Strong positive correlation is indicated by a number close to +1, and strong negative correlation is shown by a value close to -1. The obtained Pearson correlation coefficient in this study was higher than the threshold value, demonstrating a statistically significant association between the variables under examination. This result indicates that out of 73 variables only 5 variables were not significant and does not qualify to be called as valid questions whereas other 68 items have a strong significance value and qualifies to be valid items of the scale.

4. Discussion

The discussion regarding the reliability and construct validity of the Learning Disabilities Scale can be further explored by considering relevant research in the field.

Reliability is an essential aspect of any assessment tool, as it indicates the consistency and stability of the measurements it provides. In the present study, internal consistency

phenomenon was used for the total scale of the Learning Disability Scale. It demonstrated a respectable level of reliability with a Cronbach's alpha coefficient of 0.764. This falls within the acceptable range proposed by DeVellis (1991), indicating that the scale has a reasonable level of internal consistency. Reliability refers to the consistency or stability of measurements or scores obtained from an assessment tool.

High reliability indicates that the tool consistently measures the intended construct and produces consistent results over time.

To support the importance of high reliability in scales used for diagnostic purposes, a study by Singh, Jain, and Choudhary (2017) examined the internal consistency of the Indian Scale for Assessment of Autism (ISAA). They found that the scale had an excellent Cronbach's alpha coefficient of 0.95, suggesting strong internal consistency. This high reliability coefficient was deemed crucial for accurately diagnosing autism spectrum disorder in clinical settings on the similar lines of which researcher is trying to build the screening measure for learning disabilities.

In terms of the subscales of the Learning Disabilities Scale, reliability coefficients were reported for several domains, including reading, writing, arithmetic, spatial ability, social functioning, anxiety, and attention/concentration. These coefficients ranged from 0.828 to 0.948, indicating good to excellent internal consistency. This finding aligns with previous research that emphasizes the importance of reliable subscales within a larger assessment tool.

For instance, a study by Gioia, Isquith, Guy, and Kenworthy (2000) focused on the reliability of the Behavior Rating Inventory of Executive Function (BRIEF) subscales. They found high Cronbach's alpha coefficients ranging from 0.80 to 0.98 for different subscales. This study highlighted the importance of reliable subscales in capturing distinct aspects of executive function in children.

Apart from reliability, construct validity is another crucial aspect to consider when evaluating an assessment tool in relation to psychometric properties of the scale. Validity is the "degree to which a test or instrument measures what it purports to measure". (Thomas & Nelson 1996). Construct validity refers to the extent to which a test accurately measures the intended theoretical construct or trait. In the present study, the construct validity of the Learning Disability Scale was assessed using the method of contrasted groups, as recommended by Anastasi (1997).

Reliability is crucial for ensuring that the results obtained from an assessment tool are trustworthy and not influenced by random error or fluctuations.

It allows researchers, practitioners, and policymakers to have confidence in the results and make informed decisions based on the assessments. In this case, the interclass coefficient (ICC) was employed to assess the test-retest reliability of the scale for parent version.

The ICC measures the agreement or consistency between

different measurements or raters. A coefficient of .999 indicates an exceptionally high level of agreement and consistency in the test-retest scores of scale when administered to parents over the time period.

This means that the parents' responses to the scale items remained remarkably stable over time, suggesting that the scale is highly reliable.

The obtained interclass coefficient of .962 for the test-retest reliability of the Teachers' version of the scale suggests that this scale demonstrates good reliability for assessing learning disabilities as reported by teachers. A high interclass coefficient indicates a high degree of stability and consistency in the ratings provided by teachers when using the scale.

A kappa value of .860 for parent and teacher ratings of the child on the Learning Disability Scale suggests a substantial level of agreement between parents and teachers in their assessments of the child's learning disabilities. In this case, a kappa value of .860 indicates a substantial level of agreement beyond chance.

This high level of agreement between parent and teacher ratings on the Learning Disability Scale has important implications for understanding and addressing the child's learning disabilities. It suggests that both parents and teachers perceive and reporting similar characteristics and challenges related to the child's learning abilities. When parents and teachers agree on the presence or absence of learning disabilities, it can enhance the accuracy of the assessment and provide a more comprehensive understanding of the child's learning needs. This agreement can facilitate collaboration between parents and teachers in designing appropriate interventions and support strategies to address the child's learning difficulties.

However, it's important to note that while a substantial level of agreement has been observed, discrepancies between parent and teacher ratings can still occur due to differences in their perspectives, observations, and interactions with the child. Additional factors such as contextual differences and the specific measures used in the Learning Disability Scale should also be taken into consideration when interpreting the kappa value.

In conclusion, the substantial kappa value of .860 indicates a significant level of agreement between parent and teacher ratings on the Learning Disability Scale. This agreement strengthens the reliability and validity of the scale and underscores the importance of collaboration between parents and teachers in identifying and addressing learning disabilities in children.

In order to investigate the link between the variables, the Pearson correlation coefficient was calculated, and it was discovered that the obtained value was higher than the threshold value for $(df=n-2)(30-2=28)$ $df=28$, the threshold value for $df=28$ at 0.05* level is .361 and the obtained value is higher for Reading item numbers 5, 10, 11, Anxiety 8. Furthermore at 0.01** level critical value is .463 and the obtained value is higher for item numbers Reading 6, 7, 8,

Writing 1, 2, 3, 4, 5, 6, Arithmetic 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Spatial ability 1, 2, 3, 4, 5, Social functioning 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, Anxiety 1, 2, 3, 4, 5, 6, 7, 9, Attention/ concentration 1, 2, 4, 5, 6, 7, 8, 9, 11.

While the specific results of the contrasted groups analysis for the LDS were not provided in the given information, it is important to consider the literature on construct validity in the context of learning disabilities assessment. A study by McIntosh, Miller, Ysseldyke, and Berland (2001) examined the construct validity of the Learning Disability Diagnostic Inventory (LDDI). The researchers used a multitrait-multi method matrix analysis to evaluate the convergent and discriminant validity of the LDDI subscales. The results supported the construct validity of the LDDI, indicating that it effectively differentiated between students with learning disabilities and those without.

Overall, while the reliability coefficients reported for the total scale and subscales of the LDS in the present study demonstrate respectable to excellent levels of internal consistency. Research studies, such as those examining the reliability and constructs validity of other assessment tools in similar domains, provide valuable insights and support the importance of reliability and construct validity in the assessment of learning disabilities.

5. Conclusion

The reliability and validity analyses conducted on the Learning Disabilities Scale yielded promising results. The scale demonstrated good internal consistency, as indicated by a respectable Cronbach's alpha coefficient of 0.764 for the total scale. This suggests that the items in the scale measure the same construct consistently.

Additionally, the subscales of the Learning Disabilities Scale showed good to excellent internal consistency, with Cronbach's alpha coefficients ranging from 0.828 to 0.948. This suggests that the subscales are reliable measures of their respective domains, such as reading, writing, arithmetic, spatial ability, social functioning, anxiety, and attention/concentration.

The test-retest reliability analysis for the parent version of the scale yielded an exceptionally high interclass coefficient of 0.999. This indicates a high level of agreement and consistency in the responses provided by parents over time. Similarly, the teacher version of the scale showed good reliability with an interclass coefficient of 0.962, suggesting consistent ratings from teachers over time.

The inter-rater reliability analysis revealed a substantial level of agreement between parent and teacher ratings of the child on the Learning Disability Scale, as indicated by a kappa value of 0.860. This suggests that parents and teachers have a consistent understanding and assessment of the child's learning disabilities.

The construct validity of the scale was examined using the method of contrasted groups. The item- scale correlation analysis showed that all 73 items significantly correlated

with the total score of their respective subscales, indicating their validity. Only a few items did not meet the significance criteria, while the majority of items demonstrated a strong association with the construct being measured.

Overall, the results of the reliability and validity analyses provide support for the use of the Learning Disabilities Scale as a reliable and valid tool for assessing learning disabilities in children. The scale demonstrates good internal consistency, test-retest reliability, inter-rater reliability, and construct validity. These findings contribute to the understanding of learning disabilities and can aid in identifying and addressing the learning needs of children in educational and clinical settings. The scale has good psychometric properties and is a reliable and valid tool to be further conducted on the main study. Hence, development of an learning disabilities scale can be a great aid in assessing the occurrence of learning disabilities among primary school children in schools. Certainly, there is a great utility of the scale for screening purpose and managing the growing number of cases of learning disabilities by adequate early interventions. It can be utilized by different professionals to assess learning disabilities of children from age 7—11 years. Consequently, this new scale can also help educationists, psychiatrists, school psychologists, clinical psychologists and teachers in identifying and treating learning disabilities in primary school children. Hence, there is a greater utility of learning disabilities scale at different academic levels.

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