International Journal of Multidisciplinary Research and Development

IJMRD 2015; 2(3): 500-505
www.allsubjectjournal.com
Impact factor: 3.672
Received: 05-03-2015
Accepted: 23-03-2015
E-ISSN: 2349-4182
P-ISSN: 2349-5979

N. Dhanya
Assistant Professor
Department of Home Science
St. Teresa's College
Ernakulam – 682 035
Kerala, India

Jyothi. S
Post Graduate Student
M. Sc in Child Development
Department of Home Science
St. Teresa's College
Ernakulam – 682 035.
Kerala, India

Correspondence:
N. Dhanya
Assistant Professor
Department of Home Science
St. Teresa's College
Ernakulam – 682 035
Kerala, India

Formulation of a spelling tool in Malayalam for identifying learning disabilities in children

N. Dhanya, Jyothi. S

Abstract
Learning to spell can become a motivating contributor to a child's understanding of how print works. Spelling is an instructional tool that can help students understand the alphabetic writing system and its relationship to spoken language. Beginning spelling is an ideal method for strategically integrating the reading of big ideas of phonemic awareness and alphabetic understanding. Though spelling is often defined as recognizing or reproducing a correct sequence of letters in an oral or written form, the actual process of spelling involves the critical integration of phonological and alphabetic skills of beginning reading. Learning difficulties not only present problems in coping with academic requirement but has serious repercussions. Teachers and parents label children by their behaviour without knowing that reasons are at the root of the problem. According to researchers, learning difficulties can cause emotional distress. Children with learning disabilities may have higher levels of depression, anxiety, loneliness and low self-esteem than children with no disabilities. Children with learning difficulties are frequently criticized by teachers and parents and they may also be rejected by peers. As they fall further and further behind they develop a picture of themselves as deficient, different, hopeless and unsuccessful, unless special steps are taken to attend to these issues. During the early years, up to class IV, that efforts at diagnosing learning difficulties and addressing remedial work in language and mathematics must be directed for good results. Standardized tools for testing are not easily available in India, nor are indigenous tools for identification of processing deficits, intelligence testing and testing for proficiency in reading and writing available. So far the process of identification is largely confined to children enrolled in urban schools with English as the medium of instruction. The language of the testing instruments is occasionally unsuitable to Indian students who may not be proficient in English. Language based tests are not yet fully developed in Kerala which will be very useful for the identification of learning disabled children. Thus the objective of this study was to prepare a spelling tool in Malayalam for the identification of learning disabled children and evaluate its effectiveness.

Keywords: Malayalam, disabilities, children

1. Introduction

"When a man does all he can, though it succeeds not well, blame not him that did it."
George Washington, 1st President of USA, problem with reading and writing

Learning is acquisition of new knowledge, skills or attitude. Children during their early years of development learn to understand the spoken language first and then learn to speak. Subsequently during their school years they learn to read, write and do arithmetic according to their age and intellectual capacity. But some children may not be able to learn one or more of these skills as per their age and intellectual capacity. There are some children, who, in spite of having normal intellectual capacity and unimpaired visual, hearing or physical abilities are unable to acquire one or more age appropriate language and/or arithmetic skills, even when adequate opportunities for learning are provided. These children have Specific Learning Disorder (SpLD) or Learning Disability. Interestingly, inability to learn certain skills is not restricted only to reading, writing and arithmetic. Children may have difficulty in understanding and expressing age appropriate communication due to which they may not be able to abstract the meanings of phrases or tell a story in an organized manner. These children may face difficulties in one or several areas of academics such as reading, arithmetic, spelling, and writing. These children are described by a wide variety of labels such as dyslexics, learning disabled, slow learners, minimally brain damaged and educationally handicapped. (Reddy & Ramar, 2006)

According to the 23rd Annual Report to Congress, U.S. Department of Education, (2001), in India, out of 250 million school going children, about 12.5 million (1.25 crore)

children suffering from learning disorder. (http://etd.uasd.edu/ft/th8654.pdf). Language acquisition and use, as well as the child's awareness of language (metalinguistics) are increasingly identified as factors that relate or contribute to learning difficulty. A substantial number of children diagnosed with speech and language impairments including delayed speech- language acquisition, articulation and fluency disorders in the preschool years are later identified as learning disability.

Background of the Problem

The assessment and identification of children with learning disability has been a major area of debate and disagreement. In the mid- twentieth century, under the educational approach to learning disability, children were identified as having learning difficulty, if in the absence of any other cause they lagged behind their peers in scholastic performance by two or more years. This formula, known as the discrepancy formula, necessitated the development and use of standardized, psychometric norm referenced tests. These assessment procedures range from the formal to the informal and cover aspects such as the student's instructional needs in phonics, reading comprehension, writing and arithmetic. They also include assessment of reading rate, accuracy word recognition, comprehension, vocabulary and spelling. In countries like India, the difficulties in identification are compounded by other factors such as parental illiteracy and lack of adequate exposure to literacy related skills in the home environment. Identification at school is often poor because of low awareness among teachers and/or low teacher-student ratio. It was also apparent that there is a near total lack of awareness and information pertaining to the identification and management of the learning disabled in the Indian context. There have hardly been any epidemiological studies of learning disabilities in India. However, over the last decade or so there has been an increase in the identification of individual children with learning disability and a consequent demand for services. So far this process is largely confined to children enrolled in urban schools with English as the medium of instruction and seems to support the eastern viewpoint on reading disorders. However, the identification of large numbers of children with learning disabilities even in rural areas in ongoing epidemiological studies in states such as Kerala, lend support to the larger viewpoint of learning disability as a widely prevalent, lifespan disorder contributed to by more than difficulties in sound to script matching.

1.2 Relevance of the Study

Standardized tools for testing are not easily available in India, nor are indigenous tools for identification of processing deficits, intelligence testing and testing for proficiency in reading and writing available. Over the past decade there has been an increase in the identification of individual children with learning disability and a consequent demand for services. So far the process of identification is largely confined to children enrolled in urban schools with English as the medium of instruction. The language of the testing instruments is occasionally unsuitable to Indian students who may not be proficient in English. Language based tests are not yet fully developed in Kerala which will be very useful for the identification of learning disabled children. Thus preparing a spelling tool in Malayalam for the identification of learning disabled children is very relevant in the present scenario.

Aim of the Study

The aim of the present investigation was to evolve and evaluate a spelling tool in Malayalam for identifying learning disabilities in children.

Objectives

The main objectives of the present investigation were

- To evolve a spelling tool in Malayalam for identifying learning disabilities in children.
- To evaluate the effectiveness of the spelling tool prepared.

Methodology

Area

The area selected for the present study was Ernakulam district. Around ten percent of students in every school in Ernakulam district are learning disabled. Earlier the people living in Ernakulam district were quite unfamiliar with the term 'Learning Disability'. But today, most of the people are aware of this and many parents have started realizing the importance of identifying learning disability and giving appropriate remedial measures. The increase and focus given on resource rooms in schools at Ernakulam may also be an indicator of the rate of learning disabled children to a large extent.

Sample

The sample selected for the present study included sixty school going girls in the age range of six to fifteen years from St. Antony's Convent School, Ernakulam at the preparatory stage of the tool. Wide age range of sample was selected because earlier there was no identification tool available in Malayalam for finding Learning Disability in children. Teachers and parents were not aware of the fact that scholastic backwardness of children may also be due to disability in learning. Hence there is a great need for developing such a tool so that disability may be identified atleast at a later stage.

The sample was selected using stratified random sampling. In this method, the population is sub-divided into homogenous groups or strata and from each stratum, random sample is drawn. From each class six students were selected in such a manner that it consisted of two above average, two average and two below average students classified on the basis of their academic records. Twenty learning disabled students studying at Vigyan Valley Learning Centre, Kaloor of eigth to tenth classes were also selected as sample for evaluating the finalized tool.The sample was selected using purposive sampling. According to Krishnaswami and Ranganatham (2009), this method means deliberate selection of sample units that conform to some pre-determined criteria. It involves selection of cases which is judged as the most appropriate ones for the given study.

Determination of the Size of the Sample

The population proportion of Learning Disabled children were calculated using the test of population proportion.

Population proportion = 10%
Confidence = 95%
Error (d) = 8%

$n > Z^2 PQ/d^2$ = $n > .1*.9\ (1.96)^2/.0064$ = $n > 54$

Where Z is the Confidence Coefficient, P is the Population Proportion, d the difference between estimated value and true value and n the sample size.

The calculated value is less than the sample size. So the selected sample size is appropriate for the present study.

Tool Construction

A spelling tool in Malayalam for the identification of learning disabled children between the age range of six to fifteen years was constructed by the researcher. The procedure involved in the tool construction is explained under the following phases.

Phase 1- Identification of Gaps in Existing Tools of Learning Disability

Phase 2- Preparation of the Tool

Phase 3- Field Testing of the Constructed Tool

Phase 4- Finalisation of the Tool

Phase 5- Evaluation of the Tool

Phase 1- Identification of Gaps in Existing Tools of Learning Disability

Dearth of a proper tool in the regional language for identifying students with learning disability in schools instigated the researcher to develop a tool. Most of the tests used in India for identification of learning disability are either Western tools or adaptations of Western tools. The language of the testing instruments is occasionally unsuitable to Indian students who may not be proficient in English. Although there are several tests developed for the identification of learning disability in India, there are no such identification tools in Malayalam. Language-based tests are not yet fully developed in Kerala which will be very useful for the identification of learning disabled children. Preparing a spelling tool in Malayalam for the identification of learning disabled will be really useful for the special educators also to find the area of disability and to give appropriate intervention programmes as early as possible.

Information pertaining to the topic was collected by referring to various books, journals, periodicals, newspapers which provide lots of information and knowledge on various topics.

Phase 2- Preparation of the Tool

The researcher referred the Malayalam text books of Kerala State Syllabus of first to tenth standard for preparing the tool. Three hundred commonly used words were selected at the first stage of tool development. The initial item pool consisting of three hundred items was further put through detailed scrutiny and selection. Elimination of items which were so difficult to the user is the inclusion/exclusion criteria of the items. By applying the inclusion/exclusion criteria, one hundred and twenty words (120/300) were rejected outright due to their difficulty. Hence a total number of one hundred and eighty words were included into the main pool of the tool which begin with two letter words and ends with difficult high school words. The words were then arranged in their order of difficulty with the help of a Malayalam teacher. Consonant – vowel combination words were selected for the primary class students as they are considered the simplest words and the starting point of many phonics programs. For first, second and third standard students words according to their writing ability level were only included in the tool.

The prepared tool was named as Informal Spelling Assessment Tool-Malayalam (InSAT-M).The InSAT-M initially consisting of one humdred and eighty items were administered to a total of twenty students of one to tenth standard of St.Antony's Convent School, Ernakulam as a pilot study. The pilot study helped in finalizing the structure and sequencing of items. It also helped to familiarize with the administration of the tool.

Phase 3- Field Testing of the Constructed Tool

Consent was obtained from the Principal, St. Antony's Convent School, Ernakulam and the respective class teachers by approaching and explaining them about the purpose of the study. Help was solicited from the class teacher throughout the field testing. The background information of the children were collected using a self constructed questionnaire which is given in the Appendix. Before administering the test, it was explained that this is a test of spelling and they should do their best to spell all the words that were read out. They were also informed that they may find some words to be easy but that some much harder words have been included deliberately. Some of these are words which even very good spellers sometimes get wrong, so they should not be concerned if they find parts of the test difficult. The students were then made to sit comfortably and were requested to write down the dictation. The researcher called out the words one by one. The students wrote the words on a sheet of paper. The students of classes' first to third standard were given words only according to their ability level. An extra time was also given to students who did not finish. Papers were collected and corrected for identifying and analyzing their writing errors.

Phase 4- Finalisation of the Tool

The number of students who made errors for each words in a class were tabulated. The words which were correctly written by all the students were finalized for the inclusion in the tool. The words correctly written by upto three students out of six students were also included in the tool. Finally the tool consisted of one hundred and twenty three words.

Phase 5- Evaluation of the Tool

One hundred and twenty three Malayalam words which were included in the tool were given to twenty learning disabled children of eight to ten classes studying in Vigyan Valley Learning Centre at Kaloor for evaluation. Higher number of errors were made in Secondary school level words by Learning Disabled students.

The items included in the InSAT-M were categorised under primary, middle and secondary school sections. The primary section consisted of forty nine items, middle section consisted of thirty three items and forty one items for secondary school section. A copy of the prepared tool is given in the results and discussion section.

Analysis of the Data

The data was analysed using Chi-Square test for goodness of fit. Reliability and Validity of the prepared tool was also found out and is given in the results and discussion section.

Results and Discussion

The results obtained on analysis of the data along with the discussion are presented in four sections.

- Socio-Economic Background of the Respondents
- Description of the Tool

- Comparison of Number of Errors made by the Respondents using Chi- square Test
- Evaluation of Informal Assessment Tool- Malayalam (InSAT-M)
- Reliability and Validity of the Constructed Tool

Socio-Economic Background of the Respondents

Table 1. Socio-Economic Background of the Respondents

Sl.No	Statements	Responses	
		N=60	%
1	**Age in Years**		
	6-15 Years	60	100
2	**Ordinal Position**		
	First	28	47
	Second	25	42
	Third	6	10
	Fourth	1	1
3	**Type of Family**		
	Joint	4	7
	Nuclear	56	93
4	**Family Size**		
	Small	56	93
	Medium	3	5
	Large	1	2
5	**Place of Residence**		
	Rural	8	13
	Urban	52	87
6	**Religion**		
	Hindu	25	42
	Christian	21	35
	Muslim	14	23
7	**Total Family Income (In Rupees)**		
	Low (10,000-20,000)	10	17
	Middle (20,001-30,000)	30	50
	High (30,001-40,000)	20	33
8	**Academic Status**		
	Above Average	20	33
	Average	20	33
	Below Average	20	33

As regards the ordinal position of the selected sample, it is clear from Table.1 that nearly half of them (47%) were first born followed by 42 percent who were second. Respondents who were third born constituted just around ten percent and only one child was fourth born.

Majority of the respondents (93%) hailed from nuclear families as compared to joint families. As both the parents are working today, parental guidance is less in academics of children. Also, as most of the children are living in nuclear families they do not get help in their studies from other elders in the family. Concerning family size, about fifty six percent were from small sized, three percent from medium sized and only two percent were from large sized families. Most of the respondents (87%) were from urban area when compared to rural area (13%). Majority of the respondents (42%) were Hindus followed by Christians (35%) and Muslims (23%).

Regarding their economic status, half of the respondents (50%) belonged to middle income group and thirty three percent were from high income group. While only seventeen percent of the respondents were from the low income category. Ahmeduzzaman (1992) reported that family income was the chief variable associated with different dimensions of father's involvement with children. An equal number of average, above average and below average respondents were drawn for the purpose of the study. Students labeled as having a learning disability are by the codified federal definition of a learning disability deemed intellectually superior or privileged compared to their peers because they are reported to have average or above intelligence, which sets them aside from students identified with developmental disabilities, who are reported to have significantly lower levels of intellectual ability (National Dissemination Center for Children with Disabilities (NICHCY), 2009)

Description of the Tool

The InSAT-M (Informal Spelling Assessment Tool - Malayalam) is a spelling tool developed in Malayalam for the identification of Learning Disabled children. The tool is designed to be used for children aged between six to fifteen years. The tool consist of one hundred and twenty three words which begin with two letter words and ends with difficult high school words.

An initial item pool of three hundred commonly used words in Malayalam were selected at the first stage of tool development. The words were selected by referring Malayalam text books of Kerala State Syllabus of first to tenth standard. The range of words started from the simplest consonant-vowel combinations to most difficult ones. The initial item pool consisting of three hundred items was further put through detailed scrutiny and selection. Elimination of items which were so difficult to the user was the inclusion/exclusion criteria of the items. By applying the inclusion/exclusion criteria, one hundred and twenty words (120/300) were rejected outright due to their difficulty. Hence a total number of one hundred and eighty words were included into the main pool of InSAT-M.

The InSAT-M initially consisting of one humdred and eighty items were administered to a total of twenty students of one to tenth standard of St.Antony's Convent School, Ernakulam as a pilot study. The pilot study helped in finalizing the structure and sequencing of items. It also helped to familiarize with the administration of the tool.

The InSAT-M consisting of one hundred and eighty items was then administered to sixty school going girls in the age range of six to fifteen years from St.Antony's Convent School, Ernakulam. From each class six students were selected in such a manner that it consisted of two above average, two average and two below average students. The sample was selected using stratified random sampling. The items which were correctly written by all the students were finalised for inclusion in the tool. The items correctly written by upto three students out of six students were also included in the tool. Finally, the tool consisted of one hundred and twenty three items.

One hundred and twenty three Malayalam words which were included in the tool were given to twenty Learning Disabled children of eight to ten classes studying in Vigyan Valley Learning Centre at Kaloor. Higher number of errors were made in Secondary school level words by Learning Disabled students.

The items included in the InSAT-M were categorised under primary, middle and secondary school sections. The primary section consisted of forty nine items, middle section consisted of thirty three items and forty one items for secondary school section. For first, second and third standard students items according to their writing ability level should be administered. From fourth to tenth standard students all items should be

administered. Printed or photocopies of the InSAT-M can be used for subsequent assessments. Results are likely to be misleading unless test conditions are observed. It is important, therefore, that tests are completed without discussion, collaboration or copying. The spelling tool can be administered to any number of children at one time. However, smaller numbers are preferable so that the tester can further assess the learner through observation. The children must write their names at the top of the page and should be asked to write the words vertically, one word per line. The administration of the tool should always begin with the first words on the spelling tool. Reasons for this are that some students can spell longer, more difficult words but have difficulty with simple two or three letter words. Grade levels are indicated on the test only as a suggestion and may vary from school to school.

Comparison of Number of Errors made by the Respondents using Chi- square Test

Table 2. Comparison of Number of Errors made by the Respondents using Chi-square test.

	Observed Frequency O	Expected Frequency E	O-E	$(O-E)^2/E$
Primary School Students	**526**	**761**	**-235**	**72.568**
Middle School Students	**1051**	**761**	**290**	**110.512**
High School Students	**707**	**761**	**-54**	**3.831**
Total				**186.91**

The collected data were compiled for the number of mistakes committed by primary, middle and secondary students taken under study and for drawing inferences, Chi-square test for goodness of fit was employed. For testing the observed frequency data, the apt test is Chi-square test. Calculated value of $X^2 = (O-E)^2/E = 186.91$ has degrees of freedom 'two'. The calculated value of X^2 is highly significant ($P<.001$) indicating that there is significant difference in number of mistakes committed by primary, middle and secondary students. Significantly lower number of mistakes were observed in primary school children and significantly higher number of mistakes were observed in middle school children. One reason for the higher number of error may be due to difficulty in attempting the secondary school level words. Slight disability in the field of learning can also be suspected as higher number of errors are made in simple primary school words by middle school children. Therefore, it is necessary to review the words in the middle school. After removing difficult terms in the middle school, a retest may be conducted which will lead to a future study.

Evaluation of Informal Assessment Tool- Malayalam (InSAT-M)

Table 3. Evaluation of Informal Assessment Tool- Malayalam (InSAT-M)

Particulars	N=20	No. of errors made by Learning Disabled Children
Primary School Level Words	20	263
Middle School Level Words	20	327
Secondary School Level Words	20	500

The results obtained from Table 3 show that writing errors were more prevalent in secondary school level words followed by middle school level words. Even simplest consonant combination two letter words were wrongly written by the respondents. It was observed that most of the respondents made errors with the consonant blend words. Comparitively less number of errors were made in primary school level words. Among the children with high level of difficulties, they showed symptoms of inversions and reversals an indication of severe Learning Disability. The difficulty in spelling can be improved by giving appropriate intervention at the right time. A study by Graham et.al (2008) indicated that instruction in spelling had a positive impact on children's ability to write sentences.

Reliability and Validity of the Constructed Tool

Table.4 Reliability and Validity of the Constructed Tool

Group	Mean	Standard Deviation SD	Coefficient of Variation CV
Normal children	55.55	242.13	435.87
Learning Disabled children	57.3	249.76	435.89

Coefficient of Variation-
Allows meaningful comparisons between two or more magnitudes of variation, even if they have different means or different scales of measurement.
Correlation Coefficient-
A measure that determines the degree to which two variable's movements are associated.
Coefficient of Determination-Measure of how well a statistical model is likely to predict future outcomes.

Inter Rater Reliability-Degree to which the ratings of different observers are proportional when expressed as deviations from their means.
Predictive Validity-Validity of a test or a measurement tool that is established by demonstrating the ability of a test or measure to predict the results of an analysis of the same data made with another test instrument or measurement tool.

Reliability means consistency and consistency is compared by calculating the Coefficient of Variation, C.V = SD/mean*100. The coefficient of Variation for normal children and the learning disabled children are almost equal indicating that inter rater reliability is more or less same between the groups. Predictive validity was measured by coefficient of correlation r which is 1 and coefficient of determination r^2. Correlation means degree of association between two variables x and y. correlation can be positive or negative. As one variable increases the other variable also increases, correlation is positive, as one variable decreases the correlation is negative. Maximum value for correlation is +1 and minimum value is -1. When r is +1 or -1, it means perfect correlation. When the variables are correlated, predictive equations can be formulated called regression equations which is used for predicting the value of another variable. Here, as the scores of normal children increases the scores of learning disabled children also increases. Hence, there is perfect correlation between the scores of normal children and learning disabled children. Coefficient of determination, $r^2 = 1^2 = 1$, there is 100% validity between the two groups, which shows that all the points in the scattered diagram lie on the same line.

References

- Ahmeduzzaman, M. (1992). Socio-demographic Factors, Functioning, Style, Social Support and Fathers' Involvement in Preschoolers in African-American Families. *Journal of Marriage and Family. Vol 54,* 699-707.
- Krishnaswami, O. R and Ranganatham, M. (2009). Methodology of Research in Social Sciences. Mumbai: Himalaya Publishing House.
- Reddy, G. L and Ramar, R. (2006). Learning Disabilities: A Practical Guide to Practitioners. New Delhi: Discovery Publishing House.
- http://etd.uasd.edu/ft/th8654.pdf.