

**DEVELOPMENT OF A GROUP SCREENING TOOL FOR  
IDENTIFYING STUDENTS AT RISK OF DYSLEXIA- A STUDY**

**A thesis submitted to the**

**Tilak Maharashtra Vidyapeeth, Pune**

**For the Degree of Doctor of Philosophy (Ph.D) in Education Subject**

**Under the board of Education Studies**

**Researcher**

**Ms. Gayatri Reddy**

**Under the guidance of**

**Dr. Smita Phatak**

**July 2017**

## DECLARATION

I hereby declare that the dissertation titled, “Development of a group screening tool for identifying students at risk of Dyslexia-A study” submitted for the award of degree of Doctor Of Philosophy ( Ph.D) in Education is my original work and this dissertation has not formed the basis for the award of any degree, associate ship, fellowship or any other similar titles for anyone else.

Place : Pune

Date:

Ms. Gayatri Reddy  
(Researcher)

## CERTIFICATE

This is to certify that the dissertation titled, “*DEVELOPMENT OF A GROUP SCREENING TOOL FOR IDENTIFYING STUDENTS AT RISK OF DYSLEXIA - A STUDY*” is the bonafide research work carried out by Ms. Gayatri Reddy, during the academic year 2014-2016 in Pune. It is submitted to the Tilak Maharashtra Vidyapeeth in the partial fulfillment of the requirement for the award of degree of Doctor of Philosophy in Education.

Place : Pune

Dr Smita Phatak

Date :

(Guide)

## ACKNOWLEDGEMENT

The researcher wishes to express gratitude to God almighty without whose blessings nothing is possible. Thank you Ganapati Bappa! Thanks are due to my mentor and guide Dr. Smita Phatak Ma'am, without whose expert guidance this dissertation would not have been completed. Time and again , she hand held me through this tedious process of collecting the data , analyzing it and then getting the dissertation writing underway. Without her grace and blessings and guidance I would not have been able to complete this research at all.

The researcher is profoundly grateful to my husband Colonel Eshwar Reddy for showing extreme patience, sympathetic understanding and benevolent tolerance during the different phases of my research.

The researcher is grateful to Dr Sharmila Pradhan of the Department of Statistical Research, Delhi University and a dear friend who kept on guiding and encouraging me.

Thanks and gratefulness are due, to all the school principals, staff and students who have helped her by providing valuable data for the research. All the non-teaching staff who helped me in getting the data also deserve a kind mention.

Last but not the least I thank my family, especially my daughters for their unstinted support and help during the study.

A word of thanks to my dad , my source of inspiration who kept on motivating me to write and finish this research work and submit the thesis on time and motivated me. Thank you all!

Ms. Gayatri Reddy (Researcher)

## **LIST OF ABBREVIATIONS**

LD- Learning Disability

ADHD- Attention Deficit Hyperactivity Disorder

ADD - Attention Deficit Disorder

NIMH- National Institute of Mental Health, Hyderabad

NIMHANS- National Institute of Mental Health and Neurological Sciences, Bengaluru

IDEA – Individuals with Disabilities Act, 2002

RTE- Right to Education ,2002

RCI- Rehabilitation Council Of India, New Delhi

## TABLE OF CONTENTS

<b>DECLARATION</b>	<b>I</b>
<b>CERTIFICATE</b>	<b>II</b>
<b>ACKNOWLEDGEMENT</b>	<b>III</b>
<b>ABBREVIATIONS</b>	<b>IV</b>
<b>LIST OF TABLES</b>	<b>V</b>
<b>LIST OF GRAPHS</b>	<b>VII</b>
<b>APPENDICES</b>	<b>VIII</b>

### CHAPTER – I

<b>S.NO</b>	<b>CONTENTS</b>	<b>PAGE</b>
<b>1.1</b>	<b>Introduction</b>	<b>1</b>
<b>1.1a</b>	<b>International Definition of “Learning Disability”(LD)</b>	<b>2</b>
<b>1.1b</b>	<b>National Definition of “Learning Disability”(LD)</b>	<b>3</b>
<b>1.2</b>	<b>National Special Education Scenario</b>	<b>4</b>
<b>1.3</b>	<b>Integrated Education for the Disabled (IED) Under Sarva Shiksha Abhiyan</b>	<b>5</b>
<b>1.4</b>	<b>Theoretical Basis of the Study</b>	<b>6</b>
<b>1.5</b>	<b>Factors causing Learning Disability</b>	<b>8</b>
<b>1.6</b>	<b>The Manifestations of General Learning Disability in School</b>	<b>10</b>
<b>1.7</b>	<b>Types of Learning Disability</b>	<b>12</b>
<b>1.8</b>	<b>Definition of Reading Disability</b>	<b>14</b>
<b>1.9</b>	<b>Signs of Reading Disability</b>	<b>16</b>
<b>1.10</b>	<b>Impact of Reading Disability on all aspects of a student’s life</b>	<b>16</b>
<b>1.11</b>	<b>Rationale of the Study</b>	<b>17</b>

<b>1.12</b>	<b>Difficulties in using the Individualized Assessment Tests</b>	<b>18</b>
<b>1.13</b>	<b>Advantages of a Group Screening Test</b>	<b>19</b>
<b>1.14</b>	<b>Curriculum based Screening group test versus Individual testing</b>	<b>19</b>
<b>1.15</b>	<b>Significance of the Research</b>	<b>21</b>
<b>1.16</b>	<b>Objectives of the Study</b>	<b>22</b>
<b>1.17</b>	<b>Title of the Study</b>	<b>22</b>
<b>1.18</b>	<b>Statement of the Research Problem</b>	<b>23</b>
<b>1.19</b>	<b>Conceptual Definitions</b>	<b>23</b>
<b>1.20</b>	<b>Operational Definitions</b>	<b>24</b>
<b>1.21</b>	<b>Assumptions</b>	<b>25</b>
<b>1.22</b>	<b>Research Questions</b>	<b>25</b>
<b>1.23</b>	<b>Scope of the Study</b>	<b>26</b>
<b>1.24</b>	<b>Limitations</b>	<b>26</b>
<b>1.25</b>	<b>Delimitations</b>	<b>26</b>
<b>1.26</b>	<b>Methodology of the Research study</b>	<b>27</b>

## **CHAPTER - II**

<b>S.NO</b>	<b>CONTENTS</b>	<b>PAGE</b>
<b>2.1</b>	<b>Introduction</b>	<b>31</b>
<b>2.2.</b>	<b>Importance of review of literature in research study</b>	<b>33</b>
<b>2.3</b>	<b>Objectives of the literature review</b>	<b>34</b>
<b>2.4</b>	<b>Organization of the present review of related literature</b>	<b>35</b>
<b>2.5</b>	<b>Theoretical research reviews on Learning Disabilities</b>	<b>37</b>

<b>2.6</b>	<b>Review of related research in development of assessment tools</b>	<b>43</b>
<b>2.7</b>	<b>Review of related literature on research on screening tools</b>	<b>49</b>
<b>2.8</b>	<b>Research articles on Learning disability, assessment tools and tests in Journals</b>	<b>55</b>
<b>2.9</b>	<b>Review of related literature on usability testing</b>	<b>58</b>
<b>2.10</b>	<b>Objective-wise conclusion of literature review</b>	<b>60</b>

### **CHAPTER- III**

<b>3.1</b>	<b>Introduction</b>	<b>67</b>
<b>3.2</b>	<b>Types of Research</b>	<b>68</b>
<b>3.3</b>	<b>Research Methodology</b>	<b>69</b>
<b>3.4</b>	<b>Objective-wise Research Methodology of the present study</b>	<b>70</b>
<b>3.5</b>	<b>Types of Research methodology</b>	<b>71</b>
<b>3.6</b>	<b>Steps in the present research</b>	<b>74</b>
<b>3.6.1</b>	<b>Defining the objectives for the group-based screening tool</b>	<b>75</b>
<b>3.6.2</b>	<b>Preliminary considerations for making a screening tool</b>	<b>76</b>
<b>3.6.3</b>	<b>Review of objectives by experts</b>	<b>76</b>
<b>3.6.4</b>	<b>Selection of measures from standardized individual reading tests</b>	<b>76</b>
<b>3.6.5</b>	<b>Selection of Areas of Reading to Develop the Tool</b>	<b>79</b>
<b>3.6.6</b>	<b>Component skills in reading</b>	<b>79</b>
<b>3.6.7</b>	<b>Finding HFW (High Frequency Words)</b>	<b>80</b>
<b>3.6.8</b>	<b>Procedure for finding the HFW</b>	<b>80</b>
<b>3.6.9</b>	<b>Item Writing and inclusion of the items for testing</b>	<b>81</b>
<b>3.6.10</b>	<b>Assessment of content validity</b>	<b>81</b>
<b>3.6.11</b>	<b>Revision of the test items after validity testing</b>	<b>81</b>
<b>3.6.12</b>	<b>Pilot test</b>	<b>81</b>



<b>3.6.13</b>	<b>Test item revision</b>	<b>81</b>
<b>3.6.14</b>	<b>Test assembly</b>	<b>81</b>
<b>3.6.15</b>	<b>Selection of a final standard</b>	<b>82</b>
<b>3.6.16</b>	<b>Re- test administration</b>	<b>82</b>
<b>3.6.17</b>	<b>Preparation of teacher’s manual</b>	<b>82</b>
<b>3.6.18</b>	<b>Preparation of Usability testing</b>	<b>82</b>
<b>3.7</b>	<b>Population</b>	<b>83</b>
<b>3.8</b>	<b>Sample of the study</b>	<b>83</b>
<b>3.9</b>	<b>Sampling Technique</b>	<b>83</b>
<b>3.10</b>	<b>Timeline of the study</b>	<b>84</b>
<b>3.11</b>	<b>Determining content and construct validity of the screening tool</b>	<b>86</b>
<b>3.11.1.</b>	<b>Content validity through expert validation</b>	<b>87</b>
<b>3.11.2</b>	<b>Construct Validity through item discrimination index (D Value)</b>	<b>87</b>
<b>3.12</b>	<b>Determining the reliability of the group screening tool</b>	<b>88</b>
<b>3.13</b>	<b>Construction of the final group screening tool</b>	<b>88</b>
<b>3.14</b>	<b>Selection of the usability testing method</b>	<b>89</b>
<b>3.14.1</b>	<b>Expert Validation of the questionnaire</b>	<b>89</b>
<b>3.14.2</b>	<b>Pilot Study of the usability questionnaire</b>	<b>90</b>
<b>3.14.3</b>	<b>Selection of the informants of the usability test</b>	<b>90</b>
<b>3.14.4</b>	<b>Identification of the target audience for the usability test</b>	<b>90</b>
<b>3.14.5</b>	<b>Administration of the test</b>	<b>90</b>
<b>3.14.6</b>	<b>Data analysis for usability questionnaire</b>	<b>91</b>
<b>3.15</b>	<b>Data Collection method</b>	<b>91</b>
<b>3.16</b>	<b>Inferential analysis of research data</b>	<b>92</b>
<b>3.17</b>	<b>Data Analysis tools</b>	<b>93</b>
<b>3.18</b>	<b>Summary</b>	<b>94</b>

## CHAPTER - IV

4.1	Introduction	99
4.2	Descriptive statistics	99
4.2.1	Inferential Statistics	100
4.3	Data collection	101
4.4	Objective 1 data analysis and interpretation	103
4.4.1	Expert Validation and qualitative analysis	103
4.4.2	Finding HFW (High Frequency Words) From the “Balbharti” Grade 4	103
4.4.3	Procedure of Finding HFW (High Frequency Words) Or Sight Words	104
4.4.4	Item Analysis and Reliability Test of the Final Draft of the Screening Tool	105
4.5	Data Collection of the Pilot Test of the Group Screening Tool	107
4.6	Data Analysis and Interpretation for Objective 2	107
4.6.1	Descriptive Statistics and Reliability of the Group Test Items After Pilot Study	107
4.7	Test- Retest Reliability table among the ten subscales	109
4.8	The Level II- Reading Probe	110
4.9	School wise data of the field administration of the final developed group screening tool	112
4.10	Selection of the Schools for Conducting the Final Study of the Screening	113
4.11	Low performers in Screening tool testing	114
4.12	Data on school wise student performance	116
4.13	Data on marks scored in different subscales by the students	117

<b>4.14</b>	<b>Data on Level II reading probe test for failed students</b>	<b>119</b>
<b>4.15</b>	<b>Gender wise and Marks wise scores of Low Performing Students in Group Screening Test</b>	<b>120</b>
<b>4.16</b>	<b>Final Administration Summary of Screening Tool</b>	<b>122</b>
<b>4.17</b>	<b>Data Analysis on the fulfilment of Objective 3 - Analysis of Usability Test of the Screening Tool</b>	<b>123</b>
<b>4.17.1</b>	<b>Component 1- Understandability</b>	<b>125</b>
<b>4.17.2</b>	<b>Analysis of the usability quality component II- Learnability</b>	<b>129</b>
<b>4.17.3</b>	<b>Analysis of the usability quality component III- Objective Achievement</b>	<b>132</b>
<b>4.17.4</b>	<b>Analysis of the usability quality component IV- Operability</b>	<b>134</b>
<b>4.17.5</b>	<b>Analysis of the usability quality component V- User Satisfaction</b>	<b>137</b>
<b>4.17.6</b>	<b>Analysis of the usability quality component VI – Applicability</b>	<b>139</b>
<b>4.17.7</b>	<b>Overall Qualitative feedback about Usability</b>	<b>143</b>
<b>4.17.8</b>	<b>Conclusions of the data about the usability of the screening tool to identify</b>	<b>143</b>
<b>4.18</b>	<b>Fulfillment of Research Objectives</b>	<b>147</b>

## CHAPTER -V

<b>5.1</b>	<b>Summary of the study</b>	<b>149</b>
<b>5.2</b>	<b>Significance of the Research</b>	<b>151</b>
<b>5.3</b>	<b>Objectives of the Study</b>	<b>152</b>
<b>5.4</b>	<b>Title of the study</b>	<b>152</b>
<b>5.5</b>	<b>Statement of the research problem</b>	<b>152</b>
<b>5.6</b>	<b>Operational Definitions</b>	<b>153</b>
<b>5.7</b>	<b>Assumptions</b>	<b>154</b>
<b>5.8</b>	<b>Research Questions</b>	<b>154</b>
<b>5.9</b>	<b>Scope of the Research</b>	<b>154</b>
<b>5.10</b>	<b>Limitations</b>	<b>155</b>
<b>5.11</b>	<b>Delimitations</b>	<b>155</b>
<b>5.12</b>	<b>Method of Research</b>	<b>155</b>
<b>5.13</b>	<b>Need and importance of the study</b>	<b>156</b>
<b>5.14</b>	<b>Review of related literature</b>	<b>157</b>
<b>5.15</b>	<b>Findings of Research for Objective 1</b>	<b>158</b>
<b>5.16</b>	<b>Findings of Research for Objective 2</b>	<b>160</b>
<b>5.17</b>	<b>Conclusions of the research for Objective 1</b>	<b>161</b>
<b>5.18</b>	<b>Conclusions of the research for Objective 2</b>	<b>166</b>
<b>5.19</b>	<b>Suggestions for further research</b>	<b>167</b>
<b>5.20</b>	<b>Educational significance of the research</b>	<b>167</b>
<b>5.21</b>	<b>Possible Knowledge Contributes</b>	<b>168</b>
<b>5.22</b>	<b>Bibliography</b>	<b>170</b>

## DECLARATION

I hereby declare that the dissertation titled, “Development of a group screening tool for identifying students at risk of Dyslexia-A study” submitted for the award of degree of Doctor Of Philosophy ( Ph.D) in Education is my original work and the dissertation has not formed the basis for the award of any degree, associate ship, fellowship or any other similar titles.

Place : Pune

Date:

Ms. Gayatri Reddy

(Researcher)

## CERTIFICATE

This is to certify that the dissertation titled, "*DEVELOPMENT OF A GROUP SCREENING TOOL FOR IDENTIFYING STUDENTS AT RISK OF DYSLEXIA - A STUDY*" is the bonafide research work carried out by Ms. Gayatri Reddy, during the academic year 2014-2016 in Pune. It is submitted to the Tilak Maharashtra Vidyapeeth in the partial fulfillment of the requirement for the award of degree of Doctor of Philosophy in Education and that the dissertation has not formed the basis for the award of any degree, diploma, associate ship, fellowship or any other similar title.

Place : Pune

Dr Smita Phatak

Date :

(Guide)

## ACKNOWLEDGEMENT

The researcher wishes to express gratitude to God almighty without whose blessings nothing is possible. Thank you Ganapati Bappa! Thanks are due to my mentor and guide Dr. Smita Phatak Ma'am, without whose expert guidance this dissertation would not have been completed. Time and again, she hand held me through this tedious process of collecting the data, analyzing it and then getting the dissertation writing underway. Without her grace and blessings and guidance I would not have been able to complete this research at all.

The researcher is profoundly grateful to my husband Colonel Eshwar Reddy for showing extreme patience, sympathetic understanding and benevolent tolerance during the different phases of my research.

The researcher is grateful to Dr Sharmila Pradhan of the Department of Statistical Research, Delhi University and a dear friend who kept on guiding and encouraging me.

Thanks and gratefulness are due, to all the school principals, staff and students who have helped her by providing valuable data for the research. All the non-teaching staff who helped me in getting the data also deserve a kind mention.

Last but not the least I thank my family, especially my daughters for their unstinted support and help during the study.

A word of thanks to my dad, my source of inspiration who kept on motivating me to write and finish this research work and submit the thesis on time and motivated me. Thank you all!

Ms. Gayatri Reddy (Researcher)

## **LIST OF ABBREVIATIONS**

LD- Learning Disability

ADHD- Attention Deficit Hyperactivity Disorder

ADD - Attention Deficit Disorder

NIMH- National Institute of Mental Health, Hyderabad

NIMHANS- National Institute of Mental Health and Neurological Sciences, Bengaluru

IDEA – Individuals with Disabilities Act, 2002

RTE- Right to Education ,2002

RCI- Rehabilitation Council Of India, New Delhi



## LIST OF TABLES

S.NO	TABLE	PAGE
1.1	Examples of some cognitive manifestations of learning disabilities	10
2.1	Books/Researches on the theoretical aspects of Learning Disability	38
2.2	Review of related research in development of assessment tools	43
2.3	Review of related literature on research on screening tools	49
3.1	Objective-wise research methodology	70
3.2	Selection of Measures From Standardized, Individual Reading Tests Using The Reliability And Validity Scores	77
3.3	Timeline in developing a screening tool for dyslexia (Reading Disability)	80
3.4	Statistical tools used	88
4.1	Sample Composition for Screening Tool Data Collection	95
4.2	Reading measures for testing	97
4.4	Item score analysis table of the final draft of the screening tool	102
4.5	Sample composition of the pilot study	103
4.6	Descriptive Statistics and Reliability of the Group Test Items After Pilot Study	104
4.7	Test- Retest Reliability table among the ten subscales	105
4.8	Qualitative Changes after Pilot Testing	107
4.9	Gender –wise and Region wise Sample Composition for data collection	108
4.10	Final administration of Screening Tool	110
4.11	Low performers in Screening tool testing	110
4.12	School wise student performance	112
4.13	Total marks scored by students in different subscales	114
4. 14	Test results of Level II reading probe for at risk students	115
4.15	Scores Obtained Gender wise and Marks wise by Low Performing Students in Group Screening Test	116
4.16	Component-wise number of questions	120

4.17	Screening tool to identify students at risk of dyslexia is easy to understand and follow	120
4.18	Were you able to understand the principles on which the screening tool tests the reading ability of the students?	121
4.19	Was the phonetic principles of reading easy to understand in the screening tool?	121
4.20	Did you go through the teachers manual and procedure well before starting?	122
4.21	Do you think that the steps given in the screening tool are easy to follow and implement in a class	122
4.22	Do you think it was easy for the students to go through the various parts in the screening test?	122
4.23	Is the teachers Manual given along with the test self explanatory?	123
4.24	Was the screening tool able to measure the learning levels of the students in English reading and writing?	123
4.19	Was the phonetic principles of reading easy to understand in the screening tool?	121
4.20	Did you go through the teachers manual and procedure well before starting?	122
4.21	Do you think that the steps given in the screening tool are easy to follow and implement in a class	122
4.22	Do you think it was easy for the students to go through the various parts in the screening test?	122
4.23	Is the teachers Manual given along with the test self explanatory?	123
4.24	Was the screening tool able to measure the learning levels of the students in English reading and writing?	123
4.25	Were you able to achieve the objectives of identifying students with a reading disability?	124
4.26	Do you think it will be helpful to you in developing a remedial program for the students that fail the screening test?	125

4.27	Have the objectives for identifying students with problems in English reading been achieved with this Screening tool?	126
4.28	Have the objectives of identifying students with a reading disability been achieved?	127
4.29	Is the sequence of questions in the group screening tool in appropriate order?	128
4.30	Was it easy to score and interpret?	129
4.31	After going through the testing process do you think it is possible to successfully identify students with a reading disability and start extra remedial teaching for them?	130
4.32	Do you think that the screening tool will be a handy tool in the hands of the teachers in a classroom setting?	131
4.33	Did you like the overall presentation of the screening tool to identify students at risk of dyslexia?	131
4.34	Do you think that the target audience which is the students will benefit from the screening tool in the end?	132
4.35	Can such a screening tool be applied for other subjects like Mathematics and Marathi etc?	133
4.36	After reading the instructions and the teacher's manual, do you think that this screening tool can be effectively used and adopted by other schools for early identification of students with reading disability?	135
4.37	User Group responses in percentages of the usability of the group screening tool for Dyslexia (Reading Disability)	136
4.38	Fulfillment of Research Objectives	139

#### **LIST OF FIGURES & GRAPHS**

Fig 2.3	Classification of the present review of related literature	37
Fig4.2	A Small Sample of High Frequency Words for the Test Construction	101
Gr 4.1	Sample Composition of the pilot Study	103
4.2	Low performers in Screening tool testing	111
4.3	Total marks scored by students in different subscales	114

4.4	Average % scores of “At Risk” students in level II test	117
4.5	Administration of screening tool summary	118
4.6	Were you able to achieve the objectives of identifying students with a reading disability?	124
4.7	Is it helpful in designing a remedial lesson plan?	125
4.8	Have the objectives of identifying students with a reading disability been achieved?	126
4.9	Does the tool hold good in goal achievement of teaching effectively?	127
4.10	Is the sequence of questions in the group screening tool in appropriate order?	128
4.11	Was it easy to score and interpret?	129
4.12	After going through the testing process do you think it is possible to successfully identify students with a reading disability and start extra remedial teaching for them?	130
4.13	Did you like the overall presentation of the screening tool to identify students at risk of dyslexia?	132
4.14	Can such a screening tool be applied for other subjects like Mathematics and Marathi etc?	133
4.15	After reading the instructions and the teacher’s manual, do you think that this screening tool can be effectively used and adopted by other schools for early identification of students with reading disability?	134
4.16	Percentage Usability factor Summation Graph	138

## ANNEXURES

- I. Permission Letter
- II. School Certificates
- III. Minimum Learning Levels (MLL) English Grade IV
- IV. Expert Validation Certificates
- V. Rough Screening Tool
- VI. List of High Frequency words
- VII. Final Screening tool, levels I & II with CD
- VIII. Usability questionnaire
- IX. Sample Remedial lessons for “at risk” students

- X. Some SPSS raw score sheets
- XI. Photos

## ABSTRACT

The phenomena of school students , who despite average and above average IQ exhibit low or very low academic achievement has always been an area of concern for most educationists across the board. Out of these children most of them have specific reading, writing and mathematical problems and are central to the issue of learning disabilities or LD. In recent years; the attention in the field of learning disabilities has broadened and research on tools to find children with LD and the making of Individualized Education Plans for children with learning disabilities has gained momentum. Yet in our country 14 % of school going children shows signs of LD. (Source- Basic Education and Health Report Of Primary School Children In India by WHO; 2011) .The aim of this research is to empower the teachers to use this screening tool in their classrooms and then by assessing their performance and their lacunae be able to provide specific Learning Disability remedial teaching to them.

A screening tool differs from an assessment test and as it is specifically made to screen out “at risk” students from the rest of the large group of students; who can then be selected to receive remedial education.

There are several reasons why such a screening tool is more useful than an assessment test. There are many standardized assessments tests like IQ test, Memory Test, Academic (WRAT) test, neurological test, etc that may not be possible to be conducted by the school itself. Hence, the child does not get the required accommodation that could be provided to him/her in the form of texts on tape, oral exams or remedial teaching. Screening tool saves the time and expense involved in a full assessment and allows the teacher to begin remedial teaching based on screening test and questionnaire results thus saving valuable time and effort. An indication of Learning Disabilities based on a screening test could be used as a rationale for providing the remedial teaching to the students.

Given the constraints of resources, many students are left out of the fray of the special education and services in school teaching because they are never “found out” ie to say that teachers and parents never know that they have a specific learning disability.

However, if an individual is aware of specific limitations such as Reading and Comprehension problems; the screening test results could be followed by academic testing only in that specific area and accommodation based on the latter results could be provided. In this way, a full psycho-educational assessment might be avoided; thus saving time and money for the student and the service provider (school authority in most cases).

Thus the development of the Reading Disabilities screening test would therefore seem to be a very useful and important undertaking. For most effective resource management reducing the stress of both the students and teachers and reducing false negative learning disability classification later on in life. Thus the aim of this research was to make such a useful and comprehensive screening tool to find out students with reading disabilities in class 4 itself so

that remedial teaching and intervention can begin as early as possible. Keeping this in mind and the lack of any such specific Learning Disability group screening tool the research went ahead to construct a tool to identify the students “at risk” of Dyslexia and also conducted comprehensive testing across 13 schools and over 1000 students to check the usability of the tool. After expert advice, pilot testing and actual school testing and the running of the usability test the screening tool was found to be effective in identifying students at risk of dyslexia using this group screening tool.

### The Group Screening Tool

The tool thus constructed after careful deliberation and step by step analysis is a teacher administered and scored test and the items in the screening tool are as per the Minimum Learning Levels in English in Grade 4 that have been accepted by the National Council for Educational Research and Training (NCERT) and the Dave, S. committee report (1986). It can be given to the entire class or a group of students and is extremely easy to score and interpret. The total number of questions are small yet sufficient to detect the possibility of a student suffering from reading disability. It is especially helpful to detect the weak areas in reading /writing of English to help begin remedial education. ( *Rozario, Joe, 2004, Handbook of Dyslexia, Sage Publications, Delhi*)

### Scoring

The scoring is extremely simple , 1 marks for every right answer and the total scores are then interpreted. It is followed by a level 2 and checklist to be able to know the exact weak areas of reading in English.

### Standardization

The Group screening tool was administered to a sample of 1045 students of grade 4 in English medium Maharashtra State Secondary Certification (SSC) Board schools in Pune city and usability testing was carried out with teachers from over ten different schools. The test-retest reliability of the tool at a gap of one month is .87 and its Cronbach’s Alpha score is a at a high of .97 and the Usability average score is 95.33%.

# **Chapter 1**

## **1.1 Introduction**

**a) International Definition of “Learning Disability”(LD)**

**b) National Definition of “Learning Disability”(LD)**

## **1.2 National Special Education Scenario**

## **1.3 Integrated Education for the Disabled (IED) Under Sarva Shiksha Abhiyan**

## **1.4 Theoretical Basis of the Study**

## **1.5 Factors causing Learning Disability**

## **1.6 The Manifestations of General Learning Disability in School**

## **1.7 Types of Learning Disability**

## **1.8 Definition of Reading Disability**

## **1.9 Signs of Reading Disability**

## **1.10 Impact of Reading Disability on all aspects of a student’s life**

## **1.11 Rationale of the Study**

## **1.12 Difficulties in using the Individualized Assessment Tests**

## **1.13 Advantages of a Group Screening Test**

## **1.14 Curriculum based Screening group test versus Individual testing**

## **1.15 Significance of the Research**

## **1.16 Objectives of the Study**

## **1.17 Title of the Study**

## **1.18 Statement of the Research Problem**

## **1.19 Conceptual Definitions**

## **1.20 Operational Definitions**

## **1.21 Assumptions**

## **1.22 Research Questions**

## **1.23 Scope of the Study**

## **1.24 Limitations**

## **1.25 Delimitations**

## **1.26 Methodology of the Research study**



# CHAPTER I

## INTRODUCTION OF THE RESEARCH

### 1.1 Introduction

Educational psychology and Special education are the corner stone's of understanding how children learn and what are the areas in which they need, some extra help and hand-holding. With the introduction of the Inclusive education principle in the **RTE** (Right To Education Law 2009) it has become imperative that teachers too must understand and appreciate the needs of the '*differently abled*' students who are to be included in the mainstream of education. The meaning of 'special needs education' under, inclusive education means that; students with special needs have to be taught in such a way that their individual differences and needs are taken care of adequately in a regular standardroom and they too can be at par with regular students. Ideally, this process involves planning, arranging and teaching designed in such a way so as to help learners with special needs to achieve a higher level of personal self-sufficiency and success in school and community through standardroom education.

Common special needs that have to be taken care of in a regular standardroom under **Inclusive Education** principle (*Refer to RTE manual by Government of India on iCBSE 2010*) includes students with learning disabilities and emotional and cognitive behavioral problems; which require additional educational services such as different approaches to teaching, the use of technology specifically made for students like VKAT (Visual-Kinesthetic-Tactile-Audio) technology, a specifically adapted teaching area, and or a trained remedial teacher who can deal successfully with all the issues of special needs children. The main aim of education is the overall development of a child. As a teacher and a facilitator, our aim is to encourage children to gather as much knowledge as possible and help them tap their unused potential. But, in today's competitive age a student is in a constant race to excel in whatever he does. Our schools have now become centers which induce a child in this 'human race'. Everything from admission in college to courses selected at college level, depend on the raw score obtained by a student in one exam or another. In such a scenario students with reading or writing disabilities even with above average IQ tend to be left behind or lag and this causes serious emotional and academic problems.

The following study aims to identify students who might show early signs of this special problem so that if these students are screened early they can be given remedial teaching and sent for further certification. Once the student has been recognized, he/she can be sent for further testing and remedial teaching can begin so that time is not lost in helping these students to cope up with their academic pursuits. **“Learning disabilities are distinct from intellectual deficiencies and this distinction is important.**

(Edmund H. Frank ,*The Language of Learning Disability* ,Pg 2)

### **1.1 a) International Definition of “Learning Disability”(LD)**

The term Learning Disability was first coined by Dr Samuel Kirk in 1963 when he was addressing a seminar of psychologists in Chicago as he had worked with students who failed academically despite repeated teaching and yet were not “retarded” in a conventional sense of the word. He observed that these academically backward students could however be helped when they were taught in a different manner like using various objects etc.

(DD Hammil , “*On Defining Learning Disabilities -A consensus*”, 1999,pg 74)

Finally in the year , 2000 the American Special Education Law and the Individuals with Disabilities Education Act (**IDEA, 2002**) accepted this definition and defined a specific learning disability as:

*“... any disturbance or disorder involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. However, learning disabilities do not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.”*

Apart from this, the definition further outlines two important aspects to keep in mind while defining a person with special needs as a person with LD (Learning Disability)

**The learning disabled students show a discrepancy between achievement and intelligence.** A discrepancy is any difference between two findings, which means that although they are intelligent yet they do not show equivalent academic achievement.

**There are no physical or mental handicaps such as mental retardation, visual and hearing impairment and emotional/ behavioural etc., despite good** environment, adequate exposure to language, educational opportunities and other sensory conditions the child still displays signs of LD.

### **1.1 b) National Definition of “Learning Disability”**

The most universally accepted **definition** of LD as per the Rehabilitation Council of India (RCI) Manual of Remediation of Specific Learning Disability 2010, is: *“Learning disabilities is a neurobiological disorder, genetic in origin seen in children with or without physical impairment, that inhibits their processes related to perceiving, thinking, remembering or learning, thus affecting academic achievement and several areas of their life.”*

Unfortunately, there is no national policy on Learning Disability and in the lack of a standardised definition; most commonly accepted definition is that given by the Rehabilitation Council of India.

Its key elements are:-

- Learning disabilities affect learning in individuals who otherwise demonstrate at least average mental abilities and may or may not have physical impairment.
- Learning disabilities result in academic underachievement
- Learning disabilities range in severity and may affect any or several areas of life
- Learning disabilities are lifelong and genetic in origin
- Learning Disabilities are neuro-biological in nature

Rehabilitation Council of India, New Delhi, is the apex body of rehabilitation of people with disabilities in India.

## 1.2 National Special Education Scenario

In India, the Persons with Disabilities Act,( PWD), 1995 has been landmark legislation for the disabled in general. Unfortunately, learning disability has not got its due in this Act and has been mentioned only in its bylaws under the amendments in March 2014. However, the scheme of Integrated Education of Disabled persons (IED) of Ministry of Human Resource Development (HRD),2014 has included learning disability in its scope. Though Specific Learning Disabilities (SLD) is yet to be recognized by legislations, a beginning has been made by Rehabilitation of India (RCI) by conducting B.Ed. (Special Education) in learning disabilities thus giving us hope that soon those children with SLD will be given their due place to realize *education for all*, in its true sense.

According to the 2014-15 Education Report of **UDISE** (United Nations Developmental Institute on Studies in Education, London) along with **CRDP** (Centre for Research and Policy in Disability, New Delhi) and activist Radhika Alkazi , *“In 2014-15, the dropout percentage of children with learning disabilities is sharp and more than half of the total dropouts in a year in India suffer from some or the other form of learning disability . From secondary to higher education , very few (5% only) students survive in the educational system, the rest all drop out. Nearly three fourths of children with special needs/disabilities fall through the cracks in education from standard 8 to 10”*.  
(Pages 14-15 UDISE Report,2014-15)

Thus, learning disabilities need to be tackled head on and there is a need to create more inclusion in our standardroom so that children with learning disabilities do not drop out of the school system .As such, learning disabilities under the Right to Education (RTE) Act refers “to a number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information in children and therefore calls for educational interventions and remedial teaching.”

( Nakra Onita and Murthy G, 2001)

### **1.3 Integrated Education for the Disabled (IED) Under Sarva Shiksha Abhiyan (SSA)**

The Sarva Shiksha Abhiyan (SSA) is a mission initiated by Union Government in 2009 along with the RTE ACT. It aims at providing quality elementary education to all children belonging to the age group 6 to 14 years by 2020. It focuses to ensure that every differently abled child, irrespective of kind, category or degree of disability must become a part of the educational process (*Statute 9.b- 14-18*) One of the important aspects of SSA is *“identification, enrolment and retention of the children from all categories of disability and focus on elementary education of satisfactory quality with emphasis on education for life in a regular school set up.”* This is now a law and includes in its fray children with Learning Disability (LD) blindness, deaf, dumb and handciapped students.

If Education For All (EFA) which is another objective of the Sarv Shikhsha Abhyan (SSA) has to become a reality; then children with special needs are a reality. In Inclusive education it is the responsibility of one and all to help Children with Special Needs (CWSN) to study in the same standardroom and there be a cooperative endeavour between school management, teachers and fellow students.

#### **Provisions under the RTE Act (2009) for Learning disabilities**

Inclusive education is brought about by having all children of society to become students of the same school irrespective of their learning differences and difficulties. Here the school needs to adapt in order to include all of its students to be a part of it. So, inclusive education as per the **RTE ACT (Right to education, 2009 ; Section 1 a)** means, *“the act of ensuring that all children despite their differences, receive the opportunity of being part of the same standardroom as other children of their age, and in the process get the opportunity of being exposed to the curriculum to their optimal potential”*. Inclusive education is about how we develop and design our schools,

standardrooms, programs and activities so that all students learn and participate together this includes Children with Special Needs (CWSN). Inclusion in education is an approach to educating Children with Special Needs (CWSN) along with students who are economically, regionally or socially backward with regular students. Under the inclusion model, students with above needs spend most or all of their time with normal students. By contrast, inclusion is about the child's right to participate and the school's duty to accept and educate such a child.

As per **Para 28 of Section 3** of RTE ACT 2009, "*Inclusion rejects the use of special schools or standardrooms to separate students with disabilities from students without disabilities.*" A premium is placed upon full participation by students with disabilities and upon respect for their social, civil, and educational rights. Inclusion gives students with disabilities skills they can use in and out of the standardroom.

Inclusive education talks about integrating students with different needs " Section 3 of the right of children to free and compulsory education Act, 2009 includes children with Learning Disabilities and **Para 29 of Section 3** states that "*schools will take all measures to ensure the all round development of the physical and mental faculties, through learning activities ,discovery and exploration in a child friendly and child centered manner understanding the needs of the students of learning Disabilities. All these facilities are to be provided to children in an effort to bring inclusion in a regular school.*"

#### **1.4 Theoretical Basis of the study**

No research can be undertaken unless we understand the theoretical basis of the study , which in this case is the in-depth understanding of how children learn and what is the process of learning, so that as a researcher can help understand Learning Disability in detail and only than is it possible to create a screening tool to identify children who are at risk of developing a disorder of reading called dyslexia. The first step in this process is to understand the learning process of a child.

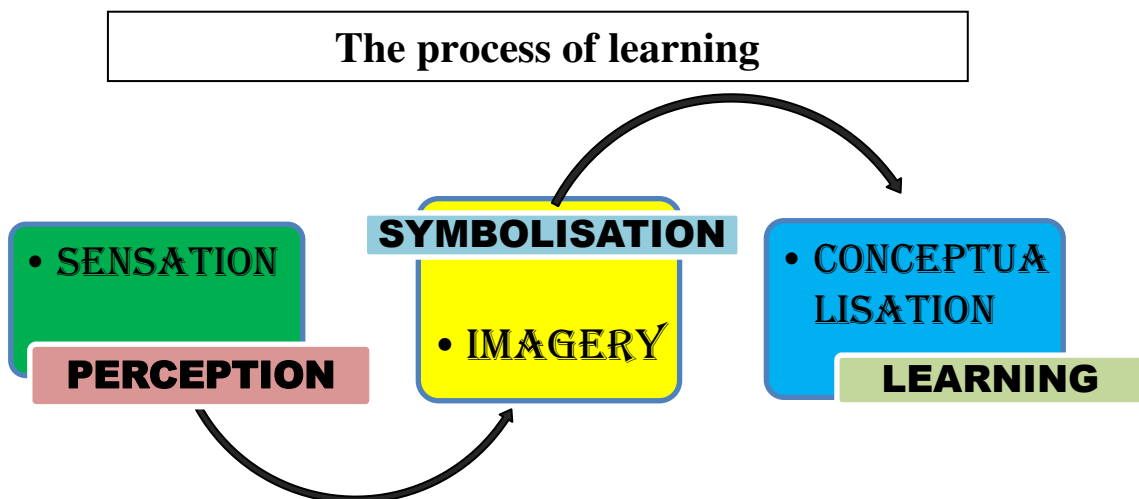
## The Learning Process and Learning Disability

In order, to understand Learning Disability (LD) and why students fail academically despite average or above average mental abilities, teachers need to understand how learning takes place in a person's brain. Research has shown that in human beings, there is a relationship between information processing and functioning of the nervous system that enables a student to learn.

As a teacher we have the responsibility to ensure that every student in our standard learns. This information will enable teachers to understand the different stages of the learning process so that teachers may identify the deficit in a particular area of learning and help in remediation.

The focus here is on identifying the error pattern in a student's performance and correct it so that he can improve in the specific area of difficulty in academics *this is only possible when the teacher knows the process of learning .*

*(Garber and Steiner, 2008)*



Learning requires the integration of processes called sensation, attention, perception, imagery, symbolization and conceptualization. A breakdown at any of these levels will have an impact on a student's ability to perceive external stimulus and information.

**In learning disability any one or more of these abilities are impaired and hence they cause learning disruption in children.**

*(Spick and Kramer , 2000, Pg 45, “Brain impairment and learning disability – a Correlational study” )*

Careful diagnosis and subsequent remediation programmes need to be carried out if one wants to assist a student with learning disabilities to learn.

### **1.5 Factors causing Learning Disability**

Factors that affect the brain are many and varied, and include the effect of damage resulting from, toxic substances such as drugs, alcohol, certain minerals, early deprivation, poor nutrition and oxygen starvation. These can affect in the prenatal, and postnatal stages. Unfortunately, no single factor or group of factors has been identified as directly causing Learning Disability. Since no clearly defined causes have been identified therefore it is important to focus on associated factors leading to the said disability. However, the following have been cited as the many different causes related to a learning disability.

#### **i ) Prenatal, Natal factors**

Learning disability results from a minimal brain damage or neurological dysfunction. If any injury happens to the foetus between the fourth and the fourteenth week of gestation, the most critical period for the development of the nervous system, it may be the likely cause of learning disability. Research has shown that a group of children with reading difficulties were products of pregnancies with complications such as toxemia, bleeding, pre-maturity and low birth weight, prolonged labour, radiation or chemotherapy, drugs, alcohol and anorexia were also reported to be conditions leading to learning disability (LD).

*(Refer Krikpatrick and Merss “A longitudinal study of foetal injuries and learning disability in kids,2012)*



## ii) **Postnatal Factors**

Children who experienced post-birth trauma, head injury, lead poisoning, causing neurological damage, seizures, chronic ear infections, intracranial infections such as encephalitis or meningitis and those who inhale or ingest neurotoxins, severe malnutrition and conditions producing a sustained fever may also be the factors causing Learning Disability. (*Refer RCI Manual on Learning Disability ,2009, Vol I,Pg 112*)

## iii) **Genetic factors**

There seems to be a strong genetic pattern seen in learning disability. It is not uncommon for a parent to report that they or a close family member had learning problems. Genetic factors seem to operate in large number of cases. There are more boys than girls who have learning disability , research has shown that children are born with this neuro-biological disorder and it is almost always hereditary in nature. (*Refer RCI Training Manual on LD, Pg 324*)

## iv) **Biochemical factors**

Chemicals play an important role as they have a direct impact in the brain. Certain metabolic factors such as hypoglycemia, hypothyroidism is reported to be found in some children with learning disabilities. Researchers believe that there is some relationship between the chemicals such as serotonin/ dopamine and hyperactivity which is closely associated with learning disability. (*Refer RCI Training Manual on LD, Pg 412*)

## v) **Psychological factors**

Children who are emotionally disturbed or are traumatized may exhibit the symptoms of learning disabilities. Children having learning disabilities tend to develop psychological problems as secondary symptoms as they are aware of the disabilities and do not understand how to cope up with them low academic

achievement despite high IQ and well developed power of reasoning. (*Refer RCI Training Manual on LD, Pg 414*)

**vi) Nutritional Deficiencies**

Nutrition plays a very important role in the growing years of a child’s life. Severe malnutrition causes poor biochemical functioning in the brain thus leading to delayed maturation. Maintaining a proper balanced diet will help the child to be alert and acquire basic academic skills. Pregnant mothers too must understand the importance nutrition and provide adequate nutrition for the developing foetus. (*Refer RCI Training Manual on LD, Pg 418*)

Thus, these are some of the utmost commonly accepted causes of learning disability developing in children as accepted by researchers, doctors and educationists around the world. But what is more important is the successful management and remediation of students with specific learning disability in a school setting.

**1.6 The Manifestations of General Learning Disability in School**

**Table 1.1**

**Examples of some cognitive manifestations of learning disabilities**

Some cognitive manifestations of learning disabilities in school in perceiving, thinking , remembering and learning				
Impairments in processes related to:	Perceiving	Thinking	Remembering	Learning
Language Processing	Difficulties in processing sarcasm or understanding when someone is joking. Difficulty taking another’s perspective	Difficulties in understanding long or complex sentence structure and with figures of speech	Difficulties with retrieving vocabulary words and orally presented task demands	Difficulties with new vocabulary and responses to teacher-directed questions

<b>Phonological processing</b>	Sounds in words (e.g. bat/bag) are confused; poor sound sequencing in words; limited automaticity in decoding	Difficulty with comprehension of content caused by lack of fluency in decoding	Difficulty retaining sound/symbol correspondence	Difficulty extracting essential concepts due to focus on decoding
<b>Visual spatial processing</b>	Difficulty with oral or written directions for an activity; perceiving organization of ideas in a text	Difficulty identifying main ideas in a text	Difficulty with left/right; north south, hierarchical structures	Poor integration of sequential information (days of the week, recipe)
<b>Processing speed</b>	Poor social interactions; does not keep up with fast-paced lessons	Few connections between isolated bits of information in texts	Slow linking of new with previously learned information	Less material covered or takes extra time and much effort to cover material
<b>Impairments in processes related to:</b>	<b>Perceiving</b>	<b>Thinking</b>	<b>Remembering</b>	<b>Learning</b>
<b>Memory</b>	Few strategies when trying to remember content or concepts	Difficulty writing since spelling may not be automatically remembered	Difficulty retrieving previously learned information	Forgets spelling words after test; difficulty recalling significant events in history; any new learning is difficult
<b>Attention</b>	Difficulty knowing when to pay attention, Poor reading of social situations; impulsive	Poor concentration when putting ideas together	Little effort expended for remembering	Work may be disorganized; goes off on tangents,

<b>Executive functions (planning or decision making)</b>	Poor recognition of value of planning; impulsive	Difficulty problem solving and understanding consequences of decisions	Difficulty in linking new with previously integrated knowledge; Few strategies	Difficulties in higher levels of learning, but has isolated pieces of knowledge
--	--	--	--	---

*(Refer David Geary, Orea Publication, Cognitive Manifestations in LD )*

*(Refer [www.disabledworld.com/disability/type/cognitive\\_problems/Learningdisabilities](http://www.disabledworld.com/disability/type/cognitive_problems/Learningdisabilities))*

### 1.7 Types of Learning Disability

Learning disability as teachers know, is a generic term, which encompasses a wide range of learning disabilities. These disabilities are:-

- Dyslexia (reading disability),
- Dysgraphia (writing disability)
- Dyscalculia (disability in mathematics and number cognition)
- Dyspraxia (disability in motor planning, spatial judgement and coordination)

#### **Dyslexia (Reading Disability)**

It is a general term for reading disability which involves difficulty in phonetic mapping, where sufferers have difficulty with matching various orthographic representations to specific sounds.

Some claim that dyslexia involves a difficulty with sequential ordering such that a person can see a combination of letters but not perceive them in the correct order.

*(Refer NIMHANS handbook on 'Battery of individual assessment tests in specific learning disability', page 7)*

“Dyslexia is in fact the single biggest cause of academic low achievement in school students.”

*(Good and Benner, 2006, pg 59)*

### **Dysgraphia (writing disability)**

The general term for a disability in physical writing, usually linked to problems with visual motor integration or fine motor skills in persons with no apparent physical handicap is termed as dysgraphia.

*(RCI Handbook of training in Learning Disability, Page 17)*

### **Dyscalculia (disability in mathematics and number cognition)**

More recently, the American Special Education Law, 2010 and the ‘Individuals with Disabilities Education Act’ (IDEA, 2002) defined this mathematical disability as “ the general disability in perception, processing, integration and evaluation of numbers in mathematics may be defined as dyscalculia.”

### **Dyspraxia (disability in motor planning, spatial judgement and coordination)**

The general disability in motor planning, spatial judgement and coordination leading to locomotor and speech disorder such that the individual has difficulty in expressing himself and in receiving what other express to him/her. *(Refer American Psychiatric Association, 2004, Vol II, F81.1/312)*

**The present research study is focussed only on reading disability or dyslexia as its area of concern.**

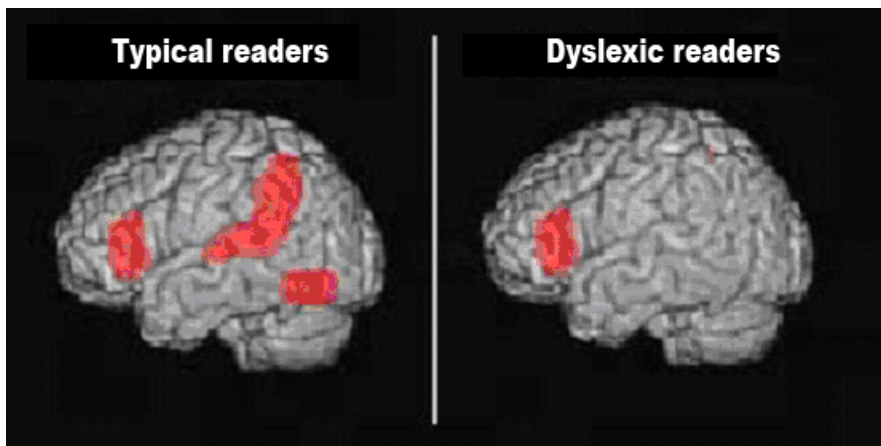
### **Dyslexia (Reading disability)**

Reading is one of the most important skills a child needs to learn. It is the foundation upon which he builds new skills, expands knowledge, and derives great pleasure. The child who is successful in school is generally a good reader. Learning to read is one of the most complex processes a child will experience. To learn this skill and to be able to use it successfully, a child needs help, guidance to and, most of all, understanding. Most school-going children learn to read the way teacher teaches but, for one in ten children, reading does not come

easily. He remains an underachiever academically resulting in low self-worth. Difficulty with reading is known as Dyslexia. Dyslexia is a **Greek Word**, “Dys” means difficulty and “Lexia” means words i.e. difficulty with words or language. At least 15% of children fail to master language skills at the same rate as their peers. This is due to a specific language deficit when they are taught by conventional methods.

### **Fig 1.1 Brain Scans of a regular Reader and a Dyslexic Reader**

The difference between a typical and dyslexic reader’s brain scan can be seen here.



(Photo courtesy Dr Shelly Sharwan, NIMHANS)

In the above picture we can clearly see that certain areas of the posterior cortex of the brain do not work concurrently; which they should in order to read and comprehend words. This dysfunction causes the dyslexic brain to experience difficulty in reading and comprehending words.

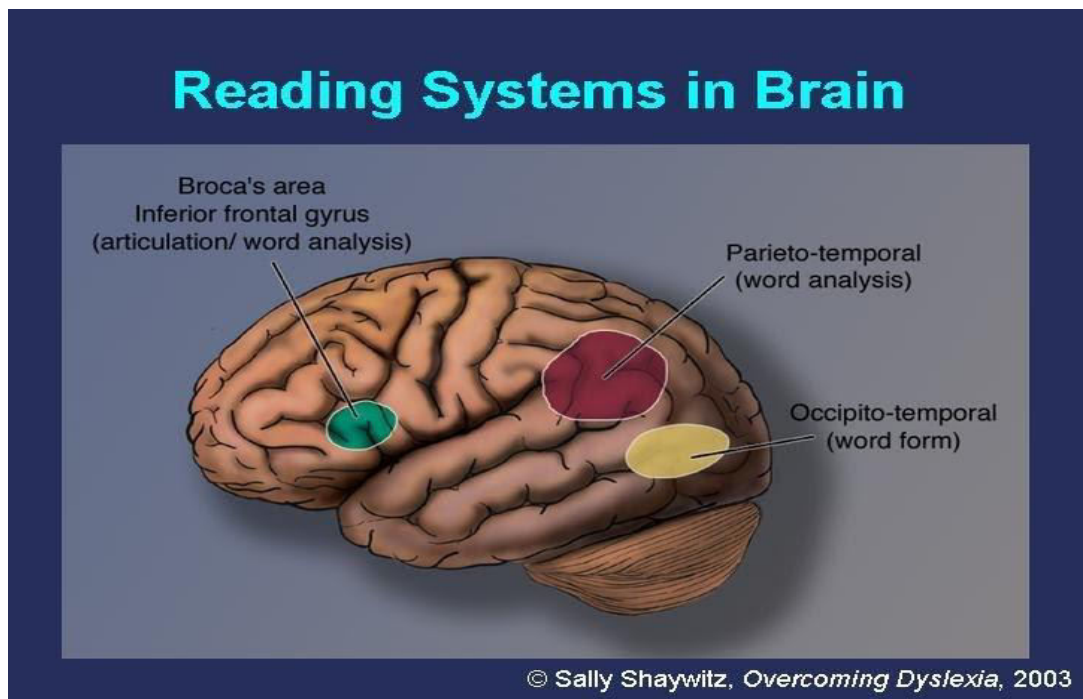
### **1.8 Definition of Reading Disability**

The World Federation of Neurology defines Reading Disability or generally called *Dyslexia* as — “A neuro-genetic deficit disorder manifested by difficulties in learning to read, despite conventional instructions, adequate, intelligence and socio-cultural opportunities; related to reading and spelling processes.”

*(Lazirburg and Mannis ,1968)*

Dyslexia is a neuro-genetic disorder that students are born with and is related to reading and spelling processes. Typically, students standardized as dyslexic are reported to be bright and capable in other intellectual domains. Current research indicates that a majority of students with Dyslexia have phonological core deficit. The severity of the phonological deficits varies across individuals. Students with these deficits have been known to make significantly less progress in basic word reading skills compared to students with equivalent IQ. Without direct instructions in phonemic awareness and sound-symbol correspondence, these students generally fail to attain adequate reading levels.

**Fig 1.2 How the brain reads - Reading systems in the brain**



The figure above clearly indicates the different areas of the brain like pre-frontal gyrus, parieto temporal lobe and occipito-temporal area which all have to work in tandem to make a person read and comprehend the written word. Any dysfunction in any one of the above areas leads to a reading disability. Since dyslexia is a neuro-biological disorder of the functioning of the brain the only solution is to teach in such a way that a student can read and comprehend and activate these areas of the brain through practice and repetition.

## 1.9 Signs of Reading Disability

The following are some common signs of Reading Disability or Dyslexia:

- Dyslexic readers tend to be spatially disoriented, with pronounced **left / right confusion**. This affects the way they perceive words.
- There is frequent reversal of letters [**b-d, flim-film**]; words [**saw- was**], and sometimes entire sentence.
- Sounds are confused [empty- **entry, rate- rat**].
- Concepts are reversed [**floor for ceiling; cake for bread**]
- There may be poor figure ground discrimination visual-motor difficulties.
- He may have untidy writing. The letters are poorly formed, irregular and uneven in formation.
- Reading rate is slow and without much comprehension or understanding.
- Tends to make mistakes in loud reading, laborious reading, reads word by word mispronunciation occurs often.
- Poor reading comprehension
- Omission of letters, syllables, words or word endings, (**calls for called / call, sad / said**)
- Addition of sounds or words in sentences (**ischool / school** )

## 1.10 Impact of Reading Disability on all aspects of a student's life

If *Dyslexia* or reading ability is not given proper remediation and educational intervention , it can deteriorate and affect all aspects of a student's life like education, career, emotional health, self esteem and also mathematical abilities.



**Fig 1.3 Impact of unresolved dyslexia on a student's life**



As seen in the diagram on this page, Dyslexia or reading disability, if not remedied through remedial teaching; can adversely affect all aspects of the students' life. It is not just restricted to only the ability to read and comprehend the written word but moves over to all aspects like psychological and physical well being and eventually career and quality of life. Early identification and intervention is the key to best possible handling of reading disability.

*(Maher and Strobes, 'Demystifying Dyslexia', pg 456)*

### **1.11 Rationale of the Study**

The rationale of the study is defined as the “*justification of doing something*” Diane Shugert (1975) which means why we need to make a screening tool to identify students at risk of a reading disability and the rationale is that all the tests presently available are individualized assessments test that can only be administered by a psychologist and are extremely expensive, time consuming and non accessible to the masses, whereas the researcher aims at making a group screening tool that will help teachers to identify “at risk” students and begin remedial education without waste of time. The few standard **individual tests for identifying reading disability or Dyslexia are as follows:-**

Presented here are the names of the existing standardized Individual Specific Learning Disability Assessment test used by psychiatrists and counselors :

- NIMHANS Battery of Learning Ability testing
- Malin's IQ test adapted for India
- Raven's Standard Progressive Matrices Test (RSPT)
- WRAT (Writing Reading Ability Test , part 1 and 2)
- Dyslexia Assessment Test –NIMH (Hyderabad)
- Draw a Man Test
- RCI Children's Personality Questionnaire
- IOWA Test of Basic Academic Skills Test
- Weschler's Individual Achievement Test (WIAT-1)
- Kathy and Kerr's British Spelling Test

All these tests are **individual tests** and extremely expensive moreover only trained professionals have access to them and can administer and interpret them.

### **1.12 Difficulties in using the Individualized assessment tests**

As discussed earlier all the above tests are extremely difficult to administer and usually a trained psycho analyst has access to them. Moreover they are so complicated in scoring and assessment that it is impossible to use by a parent or teacher even if they do have access to it.

The difficulties of these tests are as follows-

- Only certified and trained counselors, doctors and psychiatrists have access to them.
- They are for individual testing only.
- They are tedious and often take multiple sessions to administer and interpret.
- They are extremely expensive as parents have to pay for the test and also hourly fees for the psycho analyst.
- They are often the last refuge of a student when he is referred to a psychiatrist because he/she shows behavioural problems and his learning disability has become very severe.

- It delays the process of starting up remedial teaching for the student which is detrimental to his development.

### **1.13 Advantages of a Group Screening Test**

A screening test may be defined as an “initial test or tests in a sequence of tests, usually quickly administered by the subject teacher, the results of which are used to determine whether further testing is necessary and possibly to guide the selection of other tests to be administered or begin first step remediation.” (*Refer RCI Manual LD,2008,page 38*)

The advantages of a screening tool are

- It can be administered quickly and evaluated fast.
- It can be individual or a group screening test.
- It is easy to use and extremely user friendly.
- It does not require special training to administer and score
- Subject teachers can make and score a group screening tool
- It helps to broadly and quickly identify those falling below a norm reference ( for e.g- less than 20 out of 100 in this screening test in mathematics shows that the child needs remedial teaching) or it could be criterion referenced (for example all those whose height is less than the standard average are termed as “short-heighted”)
- It is relatively inexpensive and can be widely used.

*(Refer American Psychiatry Association Handbook , VOL III, F-8-112)*

### **1.14 Curriculum based Screening group test versus Individual Diagnostic testing for dyslexia**

Early identification of readers at risk of developing reading and writing difficulties also known as Dyslexia in common parlance, plays an important role in the prevention and provision of appropriate intervention. In India, as in other countries, there are children in schools who are at risk of developing reading and writing difficulties. Many of these children complete school without being identified and without proper and relevant

support and therefore it is also called a “hidden disability “by many researchers .

*(Mann and Shwebs 2000,The implications of unknown adult dyslexia, American Journal of Mental Health 2001,VolXXXV)*

The benefits of a group screening tool over an individual diagnostic test are :

- Contextually relevant, reliable and valid instruments of identification in the form of screening tools are a great help to schools today especially with the concept of inclusive education where students with different learning needs are in one standard itself. It is much cheaper and its aim is to begin remediation and not certify or standardify any student.
- Legally, parental consent is not required for administering a group screening test whereas any other individual, diagnostic psychological testing requires parental consent.
- Diagnostic testing must be conducted by a qualified professional, such as a psychologist, clinician, or educational diagnostician who is licensed to administer psycho-educational batteries, whereas screening tools can be administered by teachers in their standardrooms in a group.
- And thus, because of its ease of use and no need of legal pre-requirements; group screening tool is an excellent method to identify students with dyslexia and hence begin early intervention and remedial teaching in school itself.

This study is aimed at the construction and validation of a group-based screening instrument in the English language for identifying beginning readers at risk of reading difficulties in standard four.

Examples of some well known , standardised and commonly used screening tool are;

- Brant's children anger screening tool
- Evan's screening tool for addiction
- Morris and Kurth's screening tool for juvenile obesity

### **1.15 Significance of the Research**

Since everything from admission in college to the selection of careers ; depends on the raw scores and marks obtained by a student in one or the other exam, it is important that they have good academic performance. In such a scenario students with reading or spelling disabilities or Dyslexia even though endowed with above average IQ tend to be left behind or lag and this causes serious emotional and academic problems.

As we have already seen that individual tests are so expensive and difficult to administer and need specially trained personnel to run them; there is a great need for a basic screening tool which can be run and scored by a teacher in a standardroom setting and help the students to begin remedial learning without waiting for diagnostic assessment.

The following study helps in developing a group screening tool for identifying children who might show early signs of this problem and begin early remedial teaching to improve their lot. In India only individualized screening is available and that too after the problem has reached a stage where the child is unable to cope with the rigors of daily school and is sent to a counselor for behavioral issues.

In such a scenario it is better to screen students early in the standardroom itself and then those that might be showing a tendency towards dyslexia should be sent for remediation. Hence, the pressing need to develop a group screening tool and test its usability in the school to identify and remedy students with dyslexia.

Once the student has been recognized as being "at risk" of dyslexia, intervention can begin in helping these students to cope up with their

studies. The screening tool is beneficial to the student and the teachers in many ways such as:

- Recognize the area of deficiency in reading.
- Help to develop lesson plans to help such students
- Recommend them for further formal, diagnostic testing.
- Organize activities in standard to build a strong reading environment in the standard.
- Equip parents with the required knowledge on LD and make them partners in the child's development process.

Every child that drops out of the school system because of being unable to read and write despite inputs as he/she suffers from a learning disability can be saved and brought back to the school if there is early diagnosis of his learning issues and hence the significance of this group screening tool in bringing back hope to many such students and also in helping teachers to begin remedial teaching.

### **1.16 Objectives of the Study**

- 1) To develop a curriculum based group screening tool in English subject for identifying students at risk of Dyslexia in standard IV.
- 2) To prepare a teacher's manual for the screening tool and test its usability.

### **1.17 Title of the study**

“Development of a group screening tool for identifying students at risk of Dyslexia- A Study”

### **1.18 Statement of the Research Problem**

To develop a curriculum based group screening tool in English subject for identifying students of standard IV at risk of Dyslexia in English Medium schools affiliated to the Maharashtra State Board of Secondary and Higher Secondary Education in Pune city.

### **1.19. Conceptual Definitions**

#### **a) Reading disability or dyslexia**

Is a neurobiological disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. (*Refer RCI Manual LD,2008 page 14*)

#### **b) At Risk**

A probability of threat of damage, injury ,liability or loss or any other negative occurrence caused by internal or external vulnerabilities that may be avoided by preemptive action. ( *Refer Webster’s Dictionary of English words,2015 & Compendium of English words by Oxford, 2016*)

#### **c) Group Screening Tool**

Initial test(s) in a sequence of tests, usually quickly administered by the subject teacher to a group of pupils or students at one time . The results are used to determine whether further testing is necessary and possibly to guide the selection of other tests to be administered. (*Refer RCI Manual LD,2008,page 38*)

#### **d) Student**

A student is any person who is involved in the process of learning and has different names like a student, pupil, scholar etc; especially, one who attends a school, or who seeks knowledge from professional teachers or from books; as, the students of an academy, a college, or a university; a medical student; a high school student. (*Refer Oxford Dictionary 2016*)

### **1.20 Operational Definitions**

#### **a) Group Screening Tool**

In the operational sense of this research a group screening tool means a test or a group of initial test(s) in a sequence of tests, usually quickly administered by the subject teacher to more than one pupil at a time, developed by the researcher . The results are used to determine students who might be at risk of dyslexia in standard IV.

#### **b) Dyslexia**

In this research it means that Dyslexia is a specific learning disability that severely affects language development and impacts reading and other language based development and functioning. It literally means "the impairment of the ability to read" English language in this research.

#### **c) Student**

In this research the term 'student' means a child between 7.5 or 10 years of age studying in standard IV of an English medium school affiliated to the Secondary School Certificate (SSC) Board in Pune.



#### **d) Curriculum based**

In this research the term ‘curriculum’ refers to the English syllabus as given in the textbook ( Balbharti, Edition 2015) and ‘Minimum Learning Levels’ (MLL) expected in standard IV of SSC board as given by the Dr Dave Committee Report 1986 and accepted by the NCERT and Maharashtra Education Dept.

#### **e) Group**

In this research the term ‘group’ means the sample students of standard 4 of State School Certificate (SSC) Board in Pune, who will take the test in their standard.

#### **f) At Risk**

In this research “at risk” means a student of standard IV that might have a probability of developing a reading disability or dyslexia caused by internal or external vulnerabilities which may be avoided by preemptive action like identification and remedial teaching .

### **1.21 Assumptions**

- a) Child does not have any physical ailment or disorder in hearing, seeing or loco motor abilities and normal IQ. (*Refer “ Developmental Delays and Dyslexia”, Dr Sathe. S and Dr Dwyer. A, TataMcGraw Hill, pages 49,57,118)*)
  
- b) Reading Disability or dyslexia is a measurable aspect of a student’s ability. (*Refer “ Developmental Delays and Dyslexia”, Dr Sathe. S and Dr Dwyer. A, TataMcGraw Hill, page 14)*)

### **1.22 Research Questions**

The basic research questions in the research were as follows:

- How can an English language ,curriculum based, group screening tool be developed to identify students with a reading disability?
- How can such a tool be administered in a standardroom setting to identify students “at risk” of Dyslexia?
- What is the usability of the screening tool in the standardroom for the teachers?

### **1.23 Scope of the research**

The scope of the study generally delineates what the researcher will study and how much of it will be impacted by the study. It has two measures, geographical effect or scope of the research and the academic scope of the research .

#### **Geographical Scope**

The geographical scope of this study are all students studying in standard four in Pune city only.

#### **Academic Scope**

The study pertains to the students performance in the subject of English only as taught in Maharashtra Secondary State Certificate (SSC) Board schools.

### **1.24 Limitations**

- It is an informal, teacher made curriculum based screening tool and is not a diagnostic tool.
- It cannot be used to certify a student as reading disabled but can be used to begin remedial teaching.

### **1.25 Delimitations**

- The delimitation of the research is that the results of the screening test are based on the study conducted on 1045 students of standard IV at 13 English medium SSC Board schools in Pune city alone. The research was conducted on children in the age group of 7.5 to 10 years.
- The research was delimited to 13 English medium SSC Board schools in Pune city.
- The research pertained to the academic year 2015-16.

### **1.26 Methodology of the Research Study**

A Multi-method approach to the study has been taken in this research.

- *Objective 1 - Product development*
- *Objectives 2 – Descriptive Survey method.*

The **multi method** approach has been taken because the objective is two-fold here; one to create a screening tool that involves the “Product Development” method and secondly to use it and identify students at risk of a reading disability and also check its usability. Therefore, the approach is different for different objectives.

In this research study the researcher has used **multi method** approach product development method in developing the screening tool and descriptive survey method for identifying the students with reading disability using the screening tool.

Here the methodology is Multi method – two separate methods for product development and for identifications of students with Dyslexia and to check the usability of the tool are used with quantitative assessments.

## References

- Mangal, S.K. (May 2011) – Title : ‘*Advanced Educational Psychology*’, New Delhi.PHI Learning Pvt. Limited. (P.324)
- [http://en.wikipedia.org/wiki/Learning\\_Disability](http://en.wikipedia.org/wiki/Learning_Disability) ,retrieved on 12 th August 2015
- <http://psychology.about.com/od/personalitydevelopment/a/emotionalintell.htm> , retrieved on 31<sup>st</sup> august 2015
- Pandya, Shefali R. (May 2012) “*Educational Research*”, APH Publishing House, Daryaganj, New Delhi
- Kaul, Lokesh. (May 2011) ‘*Advanced Educational Research*’, New Delhi,PHI Learning Pvt. Limited. (P.326)
- [http://en.wikipedia.org/wiki/Operational\\_definition](http://en.wikipedia.org/wiki/Operational_definition), retrieved on 10<sup>th</sup> August 2015
- <http://dictionary.reference.com/browse/dyslexia> retrieved on 12August 2015
- <http://dictionary.reference.com/browse/student>, retrieved on 21<sup>st</sup> September 2015
- <http://dictionary.reference.com/browse/comparison> retrieved on 12th october 2015
- <http://www.thefreedictionary.com/academic+performance> retrieved on 15<sup>th</sup> Oct 2015
- <http://www.ctu.edu.vn/guidelines/scientific/thesis/part1/1.4%20research%20objectives.html> retrieved on 31<sup>st</sup> August 2015
- <http://www.reference.com/motif/Education/what-is-scope-and-limitations-of-research> retrieved on 31st August 2015
- <http://answers.yahoo.com/question/index?qid=20081002032326AAKy8dU> retrieved on 11<sup>th</sup> Jan 2016
- <http://education.astate.edu/dcline/guide/limitations.html> retrieved on 12th September 2015
- [http://en.wikipedia.org/wiki/Sampling\\_\(statistics\)](http://en.wikipedia.org/wiki/Sampling_(statistics)) retrieved on 22 October 2014

- [www. David\\_Geary/publication/cognitive manifestations\\_LD](http://www.David_Geary/publication/cognitive_manifestations_LD) retrieved on November14, 2014
- [www.disabledworld.com/disability/type/cognitive\\_problems/Learning disabilities](http://www.disabledworld.com/disability/type/cognitive_problems/Learning_disabilities) retrieved on November 28,2014
- Morgan, P.L., & Fuchs, D. (2007). Is there a bidirectional relationship between children,s reading skills and reading motivation? *Exceptional Children*, 73(2), Pages 165-183 Orient Paperback.
- B., Caffrey, E., & Hill, L. (2007). Dynamic assessment as responsiveness-to-intervention: A scripted protocol to identify teaching at-risk readers. Printed by The Council for Exceptional Children (2008). *Responsiveness-to-Intervention* (pp. 79-89). Author: Arlington: VA.
- McMastudenter, K.L., Fuchs, D., 2010,Promises and limitations of Peer-assissted learning in *Learning Disabilities: A Contemporary Journal*, 5, (2), 97-112.
- “Paper commissioned for the EFA Global Monitoring Report 2010, Reaching the marginalized special learners of Kenya” retrieved on 24<sup>th</sup> August 2015

**CHAPTER - II**  
**REVIEW OF RELATED LITERATURE**

**2.1 Introduction**

**2.2. Importance of review of literature in research study**

**2.3 Objectives of the literature review**

**2.4 Organization of the present review of related literature**

**2.5 Theoretical research reviews on Learning Disabilities**

**2.6. Review of related research in development of assessment tools**

**2.7 Review of related literature on research on screening tools**

**2.8 Research articles on Learning disability, assessment tools and tests in  
Journals**

**2.9 Review of related literature on usability testing**

**2.10 Objective-wise conclusion of literature review**

## CHAPTER - II

### REVIEW OF RELATED LITERATURE

#### 2.1 Introduction

The literature review is based on the assumption that knowledge accumulates, and that we learn from and build on what others have previously done. The review of literature is done to identify related research and to set the current research on a conceptual and theoretical context.

A familiarity with the literature on the research problem allows the researcher to know; what has been found out, what remains to be solved and what methods are useful to do so.

Review of related literature is a significant aspect of any research work that sets the pace and direction of the research and allows the researchers to find out the tone and tenure of his own research Carter V. Good (1973) observes, *“The key to the vast store house of published literature may open doors to sources of significant problems and explanatory hypothesis and provide helpful orientation of procedure and comparative data for interpretation of results”*.

For research in any field of knowledge, the review of related literature is the first essential step. As J. Best (1986) states “Practically all human knowledge can be found in books and libraries, unlike animals which must start new with each generation, humans build upon the accumulated and recorded knowledge of the past”.

A survey of available research literature is preliminary to problem selection and should be undertaken by the researcher. This would help one to know the relationship between variables and project gaps, which need to be filled. A search of research literature besides creating problem consciousness among researchers also builds up conceptual background that would supply the needed theoretical framework for a research study.

In this chapter, the researcher has attempted to categorize and summarize all the correlated research on the topic that has been undertaken during the course of this research. It deals with the various aspects of Learning Disabilities (LD), researches on reading disability or dyslexia and also the various researches on the construction of screening tools in psychology.

A survey of available literature is preliminary to the problem selection and should be undertaken by a researcher. This would help one to know the established relationship between variables and project gaps which need to be filled through the research. Review of related literature also helps in creating problem consciousness among the researchers and also builds up the conceptual framework for a research study. The process of reading, analyzing, evaluating, and summarizing scholarly materials about a specific topic is called review of related literature. The results of a literature review may be compiled in a report or they may serve as part of a research article, thesis, or grant proposal.

Research literature reviews can be contrasted with more subjective examinations of recorded information. When doing a research review, you systematically examine all sources and describe and justify what you have done. This enables someone else to reproduce your methods and to determine objectively whether to accept the results of the review. Literature review writing is a process that accounts some previously written and published literature on some particular topic.

The literature review is means to fulfill the purpose to convey the answers to these two questions - *What knowledge and ideas have been found on that particular topic? What are the strengths and the weaknesses of the selected topic?*

Literature review writing is defined by a guiding concept i.e. objective of the research, problem or the issue chosen for the discussion or the argumentative thesis. Literature review is not just an example of just a descriptive list of the available information or the set of the summaries collected for the dissertation writing. "In contrast, subjective reviews tend to be idiosyncratic. Subjective reviewers choose articles without justifying why they are selected, and they may give equal credence to good and poor studies. The results of subjective reviews are



often based on a partial examination of the available literature, and their findings may be inaccurate or even false."

There should be clear links between the aims of the research and the literature review, the choice of research designs and means used to collect data, the discussion of the issues, and the conclusions and recommendations. All these must come into clarity through the review of related research.

To summarize, we can say that the review of research related literature should:

- Focus in detail on a specific problem, issue or debate.
- Relate to that problem, issue or debate in terms that show a balance between the theoretical, methodological and practical aspects of the topic.
- Include a clearly stated research methodology based on the existing literature.
- Provide an analytical and critically evaluative stance to the existing literature on the topic. The literature review is itself a research method. It takes raw data (the annotated bibliography) and converts it into information (a critical appraisal).
- The review should be organized around and directly related to a research problem / question you are thinking of developing
- It should be organized and synthesized around the findings of previous researchers into a summary of what is known and what is not.
- It should identify areas of controversy in the literature and it must help to formulate more questions and require further research.

## **2.2. Importance of review of literature in research study**

Review of related literature is extremely important step in the research process.

The following are the ways in which review of literature helps the researcher:-

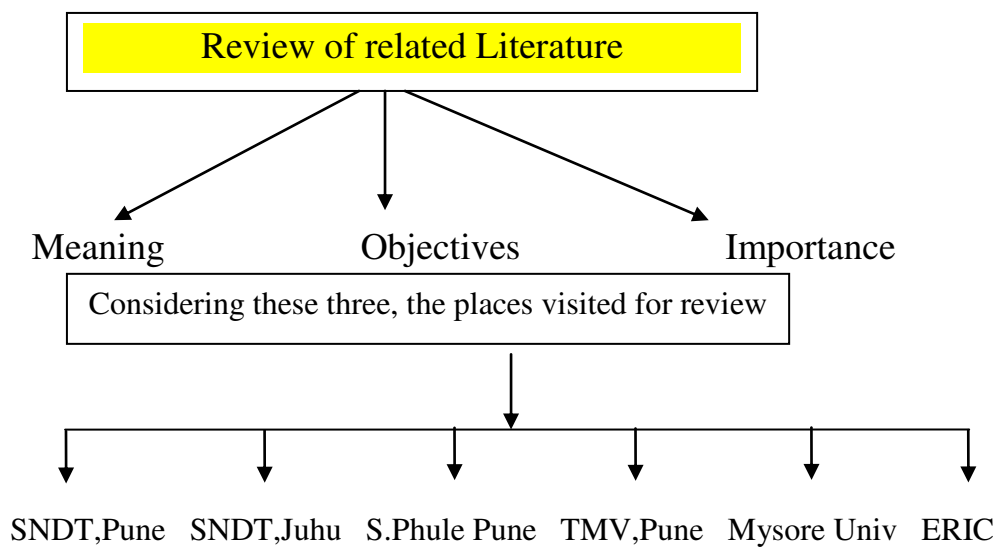
- a. An understanding of what has already been accomplished helps the researcher to select a new problem.

- b. Knowledge of related research enables the investigator to define the frontier or scope of his research field.
- c. An understanding of the theoretical base of the research problem enables the researcher to place his question in the right perspective.
- d. Through studying related research, a researcher learns about procedure and instruments useful and those less promising.
- e. A thorough search through research avoids unintentional replications of previous studies.
- f. The study of related literature places the researcher in a better position, to interpret the significance of his results.
- g. It provides ideas, theories, explanations, hypothesis or methods of research that is valuable in formulating and studying the problem.
- h. It prevents the pointless repetition of research.

### **2.3 Objectives of the literature review**

- One of the foremost objectives was to understand by review of related literature the importance of inclusive education and the work done in the field of learning disability, the national perspective on learning disabilities and the steps taken towards inclusion of children with special needs in the regular school system.
- The next objective was to read theoretical articles on learning disabilities (LD) and especially on dyslexia and also on the process of reading and learning and what challenges are encountered in the process of reading.
- The third objective was to get relevant review of literature on the various types of screening tool and challenges in use and development of screening tools in psychology.
- The fourth objective was to study in detail use of screening tools in Learning disabilities especially in dyslexia and learning disabilities and how to construct such a tool and secure its validity, reliability and usability.

To fulfill the above objectives, the researcher visited various libraries and websites as depicted in the table below.



The research studies and the books read and articles and journals surveyed for the review on related literature has been classified into several subtopics and criteria's such that it is easy to refer to and also guides the research in a systematic way.

#### **2.4 Organization of the present review of related literature**

The review of related literature was done in a systematic way by dividing the entire study in 5 parts- theoretical aspect of learning disability, experimental researches in learning disability, co-relation studies in learning disability, studies on development of screening tools, research journals and ebooks on specific learning disability.

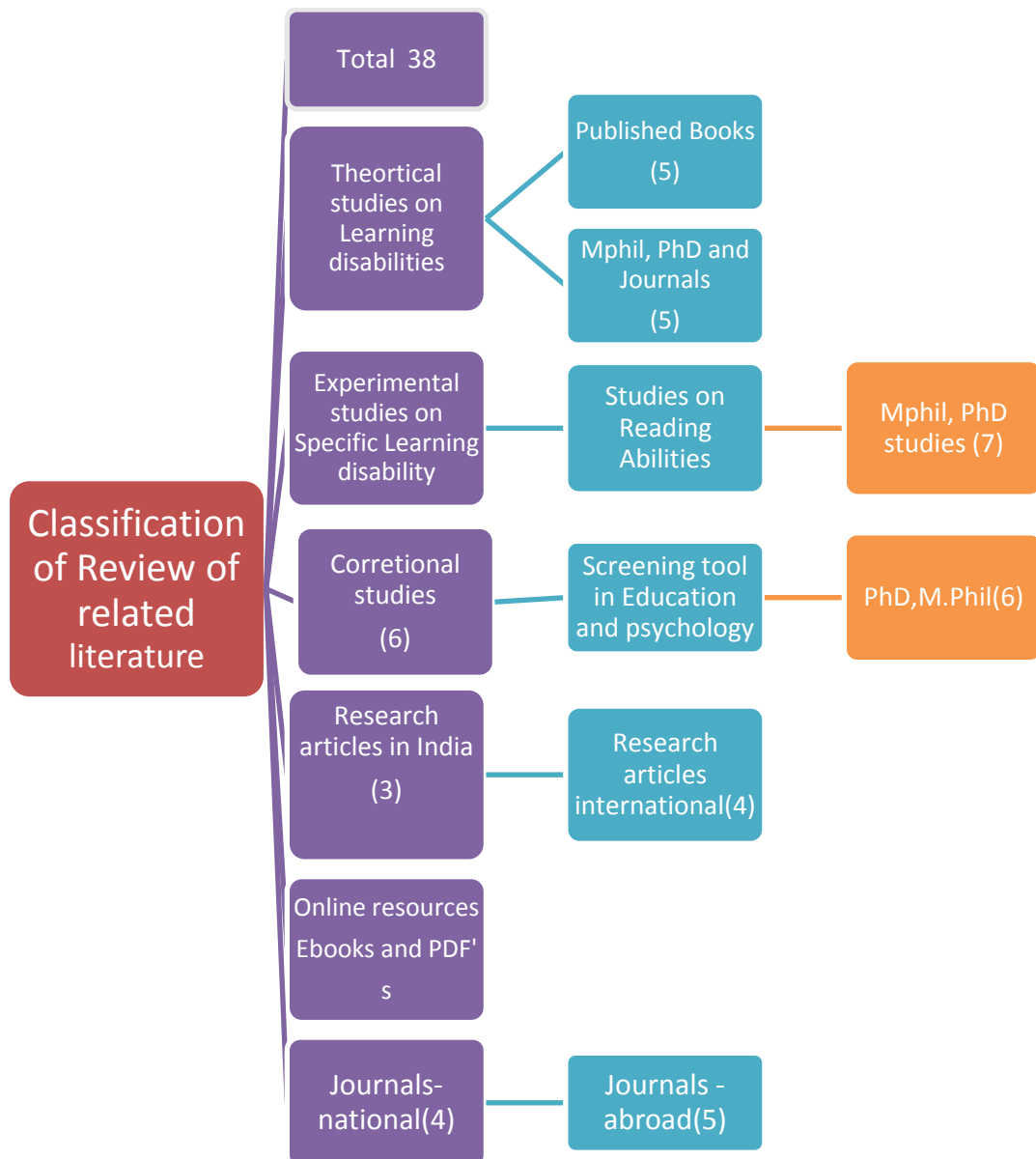
- The theoretical review of various aspects of Learning disability – Books, Journals and PhD thesis (international and national)
- Experimental Research on Specific Learning Disabilities like Dyscalculia, dyslexia, dysgraphia etc- M.Phil, PhD research, Journals (both national and international)

- Co-relational studies of learning disability and screening tools used in education and medicine. PhD, M.Phil researches both Indian and international.
- Researches and studies on development of screening tools and the challenges and use of these tools in education and psychology – M.Phil, PhD studies.
- Research Journals and online e-books on dyslexia and research in assessment of dyslexia , use of standardized individual assessment tests and usability testing in computer programs and educational psychology.

In all the different types of literature reviewed were-

- PhD on Learning Disability- 3
- Books on learning Disability-3
- PhD on development of assessment and screening tools -2
- MPhil research on learning disability – 3
- MPhil research on Learning Disability-3
- Co-relational M.Phil and M.Ed researches on Learning disability and assessment techniques- 3
- Research articles on assessment tool development (National)- 3
- Research articles on assessment tool development (International)-4
- Online journals and theses and website resources- 10
- Books on Learning disability and also on Usability testing - 5
- Hard copy Journals (national)- 4
- Hard Copy Journals (international)- 5

**Fig 2.3 Classification of the present review of related literature**



**2.5 Theoretical research reviews on Learning Disabilities**

The theoretical research on the various aspects of Learning Disability was important so that there can be a clear understanding on the various aspects of learning disabilities and what its causes are and what kind of research and new findings have been done in this field. A clear view of this topic was the key to going further in this field .

It can be summarized in this table before we go any further.

**Table 2.1**

**Books/Researches on the theoretical aspects of Learning Disability**

<b>Books/Researches on the theoretical aspects of Learning Disability</b>	<b>Year and Publication</b>	<b>Abstract</b>
<p>Learning Disability Quickbook -Travis Bradberry</p>	<p>Lapper Publications, Seattle, New Jersey (2009)</p>	<p>The Learning Disability Quickbook is a great starting reference book, filled with great research studies, causes and ways to handle Learning disability. As a bonus, the book includes a checklist which can be used on the web site. The 29 question quiz accurately assesses LD and its symptoms and gives a clear understanding of the disorder. A great book for special educators and parents.</p>
<p>Learning disabilities- Contemporary Viewpoints Bryant J. Cratty and Richard Garter,</p>	<p>TataMc Graw Hill,2012</p>	<p>These collections of lectures from across the world on Learning Disability present cutting-edge information to parents, teachers, university students, and other professionals who deal with learning disabled children on a regular basis. Original content has been edited so that others might profit. A long FAQ is included in a CD form as well.</p>

<b>Books/Researches on the theoretical aspects of Learning Disability</b>	<b>Year and Publication</b>	<b>Abstract</b>
Learning Disability defined and dissected for you! David Gutenberg and Hansely Joseph	Goldman Educational Series, 2012,NZ	This is easily the best book written specifically on the topic of Learning Disability with over 5 million copies in circulation. In fact, it looks at the whole issue of learning disability in a funny and humorous way giving hilarious examples of reading wrongly! It is interspersed with cartoons and drawings that make the book a treat to read . It also talks about parents support groups and Individual Educational Plans in details.
Children with Learning Disability - Onita Nakra	Allied Publishers ( New Delhi, 1999)	This is Onita Nakra's Post doctoral thesis on Learning Disability that has been translated into a book that talks about specific learning disability, its types, its symptoms and how to deal with it.
PhD Research (International)		
<b>Books/Researches on the theoretical aspects of Learning Disability</b>	<b>Year and Publication</b>	<b>Abstract</b>
Current Understanding of the Genetic Basis of Reading and Spelling Disability	Wendy H. Raskind, M.D., Associate Professor of Medicine, University of Washington, 2010	The thesis collected data of certified dyslexics in the past 20 years, increasingly powerful genetic technologies and statistical methodologies have been applied to identify genomic locations for genes involved in this complex heterogeneous

		disorder. This thesis study addresses the genetic contributions to dyslexia making it easier to understand why it happens and gives a complete scientific overview of the reading disability or dyslexia
PhD Research (National)		
A study of socio-economic student background and its correlation with Specific Learning Disability(SLD)	Manish Sabharwal Mysore University (2009)	The researcher conducted a thorough survey of around 800 school children in various districts of Karnataka to see whether specific learning disabilities and socio-economic background of the student have some correlation. The study intended to investigate into the social background and living conditions of these students and also their academic abilities and concluded that there was no such correlation between the two.

**Learning Disability Quickbook: Travis Bradberry  
Lapper Publications, Seattle, New Jersey (2009)**

Seems like anything with “Quickbook” in the title, is worth reading first, that is why the researcher found that it was a good way to start reading extensively about the issue of Learning Disability. The Learning Disability Quickbook is indeed a great starting reference, filled with great real-world examples. As a bonus, the book includes a checklist which can be used on the web site. The 29 question quiz accurately assesses LD and provides a custom PDF with actions for further developing each quality of reading, writing or calculations. It was indeed a great text book on clearly understanding the theoretical aspects of the complex problem of learning disability in children and how to identify it.



**Learning Disability: Defined and Dissected for you! David Gutenberg and Hansely Joseph, Goldman Educational Series, 2012,NZ**

This is easily the best book written specifically on the topic of Learning Disability with over 5 million copies in circulation. In fact, it looks at the whole issue of learning disability in a funny and humorous way giving hilarious examples of reading wrongly! It is interspersed with cartoon and drawings that make the book a treat to read and light on the mind ! Authors **David Gutenberg and Hansely Joseph** pack in a lot of reading into this guide which shows how great people had LD yet have achieved professional, personal, and leadership heights. Many failures and frustrations are experienced by those who believe they can simply “reason out” the equation for a problem. It is important to know that you have a problem and deal with it rather than run away from it.

**Learning Disabilities: Contemporary Viewpoints**

**Bryant J. Cratty and Richard Garter, TataMc Graw Hill,2012**

This book reflects a commitment by the editors to increase public awareness of learning disabilities. Its primary goals are advancement of the frontiers of knowledge and dissemination of contemporary information to parents and professionals. The book essentially contains research lectures given over a three-year period as part of a seminar series at Landmark West School in Encino, California.

These lectures present cutting-edge information to parents, teachers, university students, and other professionals who deal with learning disabled children on a regular basis. Original content has been edited so that others might profit, as leaders in the field interpret current research and provide contemporary clinical insights. Presentations as well as question and answer sessions are included in a CD form.

**Children with Learning Disability: Onita Nakra,  
Allied Publishers , New Delhi, 1999**

A comprehensive book by an Indian author who got her Ph.D in Learning disability from US and is also a parent of a kid with LD . She has painstakingly explained the nuances of LD , its meaning, and characteristics. Apart from that there are separate sections on Assessment, remediation, and a whole lot of resources on reading, writing and mathematics. In fact it is a must-have book for every LD researcher or parent or remedial teacher.

**Current Understanding of the Genetic Basis of Reading and Spelling Disability: Wendy H. Raskind, M.D., Ph.D., Associate Professor of Medicine, University of Washington,2010**

Dyslexia is a common developmental disorder of unknown etiology. The objective of this thesis is to understand the genetic basis of dyslexia. Behavioral and biological studies of dyslexia are complicated by its phenotypic heterogeneity and the lack of uniformly applied diagnostic criteria. The thesis collected data of certified dyslexics in the past 20 years, increasingly powerful genetic technologies and statistical methodologies have been applied to identify genomic locations for genes involved in this complex heterogeneous disorder. This thesis study addresses the genetic contributions to dyslexia making it easier to understand why it happens and gives a complete scientific overview of the reading disability or dyslexia.

#### Major differences and similarities with the present dissertation

Similarities - Both the researchers have focused on the development of reading ability in children

Dissimilarity - The present researcher has focused on informal assessment tool whereas the reviewed research was about and other causes of reading disability that gave a better understanding of the causes of LD.

**A study of socio-economic student background and its correlation with Specific Learning: Sabharwal, Manish, Mysore University (2009)**

The researcher conducted a thorough survey of around 800 school children in various districts of Karnataka to see whether specific learning disabilities and socio-economic background of the student have some correlation. The study intended to investigate into the social background and living conditions of these students and also their academic abilities and whether they showed any signs of a learning disability.

The researcher found no specific correlation between the economic condition of the students and prevalence of any learning disability and hence it was concluded that socio-economic conditions do not enhance or reduce the possibility of a learning disability in children

#### Major differences and similarities with the present dissertation

Similarities - Both the researchers have focused on the study of specific learning disability in children

Dissimilarity - The present researcher has focused on informal assessment tool whereas the reviewed research was about correlation of socio economic status and causes of LD (Learning Disabilities).

## 2.6. Review of related research in development of assessment tools

**Table 2.2**

### Review of related research in development of assessment tools

<b>Experimental researches in specific learning disability and assessment tools</b>	<b>Publication and Year</b>	<b>Abstract</b>
To Develop an Individualized Educational Program	Reddy, Sathya Ramesh, University of	In this thesis, the researcher developed an IEP or Individualized Educational

for Children with Learning Disability in Primary School and study its Impact	Minnesota,  (2006)	Plan that helps each LD child to master the curriculum at his own pace. It uses ways and techniques to develop individual IEP's for children with moderate to severe LD and then studied its impact which was considerable.
<b>Experimental researches in specific learning disability</b>	<b>Publication and Year</b>	<b>Abstract</b>
Development of a Competence based Standardized Assessment Tool to Identify students at risk for Mathematical Disabilities in First Grade.	M. Geethamani, SNDT Mumbai 2009	Assessment also helps in arriving at a diagnosis and making decisions regarding the placement and services to be provided for a child with learning disabilities. In the assessment and remediation of LD, standardized assessment is of the utmost value and this thesis talks about the process of developing and standardizing an assessment test for mathematical disability in first graders.
<b>Experimental research in specific learning disability</b>	<b>Publication and Year</b>	<b>Abstract</b>

<p>Development and validation of a reading-related assessment battery in Malay</p>	<p>Lee LW, School of Educational Studies University Sains Malaysia, Penang, Malaysia. , 2008</p>	<p>Malay is an alphabetic language with transparent orthography. A Malay reading-related assessment battery which was conceptualized based on the International Dyslexia Association definition of dyslexia was developed and validated for the purpose of dyslexia assessment in Secondary school. The battery consisted of ten tests: Letter Naming, Word Reading, Non-word Reading, Spelling, Passage Reading, Reading Comprehension, Listening Comprehension, Elision, Rapid Letter Naming and Digit Span. Content validity was established by expert judgment.</p>
<p>Comparison of School admission process and the awareness of learning disability government norms under the RTE</p>	<p>Uma Unnikrishnan M.Phil Annamalai University(2011)</p>	<p>The research found that the school admission criterion totally neglects the children with learning disability and their needs and therefore in she compared the government guidelines and the class IV admission criteria of 14 public and private school in Bangalore and the impact and utility of sensitising the teachers about Learning Disability.</p>

<b>Experimental researches in specific learning disability</b>	<b>Publication and Year</b>	<b>Abstract</b>
‘Re-searching Secondary Teacher Trainees in Awareness about Learning Disability’	P.Govindam and C.Shekar Rehabilitation Council of India Journal of Research (RCIJR)- 2011 ISSN- 9927-02-79-18-0	A survey was conducted to check the awareness levels of the teachers about Learning Disability spanning over 21 schools in Himachal Pradesh government school and found that only 10 percent of teachers had any idea about Learning Disability .

**To Develop an Individualized Educational Program for Children with Learning Disability in Primary School and study it’s Impact:**

**PhD, Reddy Sathya Ramesh, University of Minnesota, (2006)**

Abstract - In his thesis the researcher talks about the attitude of teachers towards children with disabilities and competencies to handle the children. He argued that the teacher should possess some specific competencies in assessment, planning individualized educational programme apart from guidance and counseling; the teacher should possess thorough understanding about the concept and nature of disabilities with their causes and characteristics. It is also targeted at finding what coping strategies the teachers employ in ensuring that the learners still achieve their potentials.

In this thesis, awareness is defined as having knowledge or being fully aware of or well informed about the concept of disabilities in children, causes and characteristics of children with disabilities, teaching and training methods and guidance and counseling to the children as well as to the parents and the community also it talks about developing an IEP or Individualized Educational Plan that helps each LD child to master the curriculum at his own pace. It teaches ways and techniques to develop

individual IEP's for children with moderate to severe LD and study its impact on these children after 3 months of running the program.

#### Major differences and similarities with the present dissertation

Similarities - Both the researchers have focused on the development of a tool or program to help children with specific learning disability through the Individualized Educational Plan.

Dissimilarity - The present researcher has focused on informal screening tool whereas the reviewed research was about developing an Individualized Education Plan.

#### **Development of a Competence based Standardized Assessment Tool to Identify students at risk for Mathematical Disabilities in First Grade: M.Geethamani, PhD ,SNDT Mumbai 2009**

Assessment is the process by which information is gathered about a student through various sources. It includes the use of tests in the traditional form, but its purview is much larger than that of tests. Evaluation involves the making of judgment about a student while testing by getting numerical information about an individual. The assessment procedure begins with screening in the regular classroom by the teachers who are involved in the teaching learning process. A number of short procedures make up the screening process.

Assessment has manifold purposes especially in the area of special education. We assess to gain insight into the strengths and weaknesses of a student in academic terms. Assessment also helps in arriving at a diagnosis and making decisions regarding the placement and services to be provided for a child with learning disabilities. In the assessment and remediation of LD, standardized assessment is of the utmost value and this thesis talks about the process of developing and standardizing an assessment test for mathematical disability in first graders.

### Major differences and similarities with the present dissertation

Similarities - Both the researchers have focused on the development of an assessment tool for measuring the mathematical abilities of students.

Dissimilarity - The present researcher has focused on an informal teacher made screening tool for reading disability whereas the reviewed research was about developing a standardized tool in detecting Mathematical disability.

### **Development and validation of a reading-related assessment battery in Malay: PhD, Lee LW, , School of Educational Studies, University Sains Malaysia, Pnang, Malaysia,2008**

Malay is an alphabetic language with transparent orthography. A Malay reading-related assessment battery which was conceptualised based on the International Dyslexia Association definition of dyslexia was developed and validated for the purpose of dyslexia assessment in Secondary school. The battery consisted of ten tests: Letter Naming, Word Reading, Non-word Reading, Spelling, Passage Reading, Reading Comprehension, Listening Comprehension, Elision, Rapid Letter Naming and Digit Span. Content validity was established by expert judgment. Concurrent validity was obtained using the schools' language tests as criterion. Evidence of predictive and construct validity was obtained through regression analyses and factor analyses. Phonological awareness was the most significant predictor of word-level literacy skills in Malay, with rapid naming making independent secondary contributions. Factor analysis revealed four factors: phonological decoding, phonological naming, comprehension and verbal short-term memory. In conclusion, despite differences in orthography, there are striking similarities in the theoretical constructs of reading-related tasks in Malay .

### Major differences and similarities with the present dissertation

Similarities- Both the researchers have focused on the development of an assessment tool.



Dissimilarity - The present researcher has focused on informal assessment tool in English whereas the reviewed research was about developing a tool in Malay language.

**Comparison of School admission process and the awareness of learning disability government norms under the RTE :**

**Uma Unnikrishnan, Annamalai University , PhD (2011)**

In this research thesis the researcher Mrs Uma Unnikrishnan; found that the school admission criterion totally neglects the children with learning disability and their needs and therefore in her MPhil thesis she compared the government guidelines and the class IV admission criteria of 14 public and private school in Bangalore and the impact and utility of sensitising the teachers about Learning Disability.

**Re-searching Secondary Teacher Trainees in Awareness about Learning Disability : RCI Journal of Research ,New Delhi ‘ October 2011**

P. Govindam and Shekar. CE wrote a research article titled as ‘Re-searching Secondary Teacher Trainees in Awareness about Learning Disability’ in the Rehabilitation Council of India Journal of Research (RCIJR). The investigation was conducted to check the awareness levels of the teachers about Learning Disability spanning over 21 schools in Himachal Pradesh government school and found that only 10 percent of teachers had any idea about the meaning and implications of Learning Disability, which was tested using a self made questionnaire of about 50 questions on basic learning disability in students.

**2.7 Review of related literature on research on screening tools**

**Table 2.3**

**Review of related literature on research on screening tools**

<b>Research</b>	<b>Publication and Year</b>	<b>Abstract</b>
<b>Learning Disability under-recognized in</b>	Ph.D Amit Karande Behavioural	Disorders like ADHD and SpLD are prevalent in India; however, one of the major obstacles is lack of awareness

<p><b>India- An extensive survey across Tamil-Nadu and Karnataka</b></p>	<p>Research Unit, Calgary, Alberta, T3B 6A8, Canada 2008</p>	<p>of these disorders. The higher the awareness among health-care professionals and school authorities, the earlier the identification of affected children and referral for appropriate intervention can begin and the fewer children will remain undetected. For this purpose an individual diagnostic tool specific to India was constructed.</p> <p>This lack of awareness is evident in the profiles of the 50 children who participated in their study. The average age at which the children were diagnosed was 11.36 years (with a range from 7 to 17 years), while the average age at which the children's symptoms had first been noticed was only 5.55 years</p>
--	--	---

<b>Research</b>	<b>Publication and Year</b>	<b>Abstract</b>
<p><b>Dyslexia: A Critical Study of Language Deficiency in Children and Adolescents and the various assessment programmes</b></p>	<p>M.Phil Vaishali Narbheram Punjani, Sardar Patel University, Surat, 2009</p>	<p>A student diagnosed with dyslexia has the mechanism in her brain working differently than other normal students. They are not abnormal and not even mentally challenged students. On the other hand they are above average in IQ. They have special ability in their own but they fall back in their studies because of their slow learning process and their finding math and letters tough to understand as they are. They also have problems in perception or assimilation or</p>

		<p>memory part of learning .</p> <p>The language areas in their brains are not developed properly or may be having some different type of mechanism that cannot work in the way a normal person's brain does.</p>
<b>Research</b>	<b>Publication and Year</b>	<b>Abstract</b>
<b>Enhancing Academic achievement in Learning Disabled through special educational techniques</b>	<p>M.Phil, Vibha Khanna North Western Karnataka University, Belgaum,(1999).</p>	<p>The researcher developed a special educational course programme that helped in deeper understanding of the Learning disability problems and also taught a group of 16 students over a period of 6 months in this new technique and helped them enhance their academic achievement. An informal screening tool to detect learning disability was also constructed and used to identify students at the early levels which was an area of interest for this research.</p>
<b>Grade Level Assessment Test For Detecting Learning Disability In Primary School Children.</b>	<p>MPhil Jayanthi N. NIMH, National Institute of Mental Health, Hyderabad (2009)</p>	<p>The screening battery consisted of ten tests: Letter Naming, Word Reading, Non-word Reading, Spelling, Passage Reading, Reading Comprehension, Listening Comprehension, Rapid Letter Naming and Digit Span.</p> <p>Content validity was established by expert judgment.</p> <p>Concurrent validity was obtained using the schools' language tests as criterion.</p>

**Challenges and Problems with Screens for General Learning Disabilities:  
Fletcher Suzanne, School Of Education , University Of Wisconsin- 2000**

The challenges and problems with screening tests and attempts to minimize them are discussed in this thesis. The questionable reliability and validity of a screen, lack of a theoretical base, and a tendency to predict global achievement rather than specific deficits in reading skills is a major problem of learning disability screens. A distinction is made between screening tests and readiness tests, diagnostic tests and IQ tests in order to avoid confusion. Almost 50 different standardized Screening and assessment tools for reading, writing difficulties are analyzed minutely and its pros and cons discussed in details.

#### Major differences and similarities with the present dissertation

**Similarities** - Both the researchers have focused on the development of screens for detecting Learning Disability.

**Dissimilarity** -The present researcher has focused on informal assessment tool and screening for only for Reading Disability whereas the reviewed research was about a tool for general Learning Disability.

**Linguistics and phonetics- Reading difficulty in Primary children causes and assessments : Ph.D, Sarasvati, V. C.I.E.F.L., Hyderabad, 1999.**

This research has studied the nature of communicative competence in relation to learning to read a language for specific purposes. It has also provided some guidelines for designing a course in English for official purposes (EOP) for undergraduates in Tamil Nadu, India. It studied the underlying causes of reading disability and what kind of classroom intervention should be prepared for such children so they too can learn easily. A course based on Communicative Approach for English language teaching was designed for this study. Apart from this an informal tool was built to assess the reading ability of the children studying in normal way and those in communicative method.

Disorders like ADHD and SpLD are prevalent in India; however, one of the major obstacles is lack of awareness of these disorders. The higher the awareness among health-care professionals and school authorities, the earlier the identification of

affected children and referral for appropriate intervention like remedial teaching etc can begin and the fewer children will remain undetected. This lack of awareness is evident in the profiles of the 50 children who participated in their study. The average age at which the children were diagnosed was 11.36 years (with a range from 7 to 17 years), while the average age at which the children's symptoms had first been noticed was only 5.55 years (with a range from 4 to 6 years). These averages can be compared to those found by Parr *et al.* who reported that the mean age at diagnosis for 391 children with ADHD was 8.7 years and that girls were more likely to have been diagnosed prior to age 8. The delay between symptoms first being noticed and the child being diagnosed with SpLD and ADHD was nearly 6 years on average for the children studied by Karande *et al.* Thus, it is not surprising that all of the children in their study demonstrated poor school performance by the time they were assessed in the authors' clinic. Problems in school performance, as opposed to specific symptoms of ADHD, are common complaints and common reasons for referral to child development centers in India.

**Dyslexia: A Critical Study of Language Deficiency in Children and Adolescents and the various assessment programmes : Vaishali Narbheram Punjani, Sardar Patel University, Surat, 2009**

Objectives:

To study the meaning and various definitions of Dyslexia.

To study whether all reading disabilities are dyslexia.

To study whether it is an acquired condition or a neurological disorder.

To suggest remedial teaching for such children.

Findings :

- A student diagnosed with dyslexia has the mechanism in her brain working differently than other normal students. They are not abnormal and not even mentally challenged students. On the other hand they are above average in IQ.
- They have special ability in their own but they fall back in their studies because of their slow learning process and their finding math and letters tough to understand as they are.

- They might have problems in perception or assimilation or memory part of learning .
- We normally create an image in our mind for every letter and every word we come across but they are not able to do so and here starts the problem.
- Gender of the child had no effect on dyslexia, yet the ratio of girls to boys having dyslexia is 4:1.
- The language areas in their brains are not developed properly or may be having some different type of mechanism that cannot work in the way our brain does.
- Rather than labelling them as dyslexics we should motivate and teach them using innovative methods like computers, tactile-audio etc.

**Enhancing Academic achievement in Learning Disabled through special educational techniques : Vibha Khanna, PhD, (Edu) North Western Karnataka University, 1999.**

Objectives of this research were

- i) To develop an assessment test to identify students with specific learning disabilities.
- ii) To develop a emotional educational technique program for the learning disabled students and to evaluate its effectiveness

Findings :

- An informal screening tool to detect learning disability was also constructed and used to identify students at the early levels which was an area of interest for this research
- The special educational emotional learning course development helped in deeper understanding of the Learning disability problems and their emotional issues.
- The course was effective in raising the level of academic achievement of pupils.
- The pupils sustained the academic achievement motivation level raised by the educational course even for 6 months after the training.

- The educational course was effective in improving the performance of pupils in school subjects.

**Jayanthi N.; Grade Level assessment test for detecting Learning Disability in Primary School children : M.Phil, NIMH, National Institute of Mental Health, Hyderabad,2009.**

Objectives:

- To develop a tool for early detection of LD in Primary children.
- To validate and use the tool to find out children at risk of LD.
- To suggest useful ways in handling such students and enhancing academic achievement.

Findings:

- The screening battery consisted of ten tests: Letter Naming, Word Reading, Non-word Reading, Spelling, Passage Reading, Reading Comprehension, Listening Comprehension, Rapid Letter Naming and Digit Span.
- Content validity was established by expert judgment.
- Concurrent validity was obtained using the schools' language tests as criterion.
- Evidence of predictive and construct validity was obtained through regression analyses and factor analyses to make the GLAD effective.
- Phonological awareness was the most significant predictor of word-level literacy skills.

## **2.8 Research articles on Special Education, Learning Disability and assessment tools in Journals**

**“Dyslexia: An examination of special teaching methodology on the education of students with LD” : Rodrigues, Hillary International Journal of Educational Research and Scientific Enquiry (IJERSE) ,New Jersey, (2010)**

This article talks about the educational challenges in our society especially for those with learning disability. She talks about the famous- Multisensory Method developed

by Grace Fernald in detail and how it can be used to teach children with Learning Disability.

An inclusive approach to teaching reading and writing, involves:-

- Student selects a word that he/she wants to learn
- Teacher writes that word on a piece of paper ( 4 x 10 inches) saying it aloud. Student watches the teacher write the word.
- Student traces the word saying it aloud and writes it down while saying it
- Student writes the word from memory. Student copies step 3 and 4 continue till the word is spelled correctly
- Correctly spelled words are put in a file box and are later used in studies.
- Letter tracing is faded, and student learns the word by looking, saying and writing. It is a simple but effective method of learning for children in the primary school to overcome dyslexia.

**Improving Word Recognition Skills: Why it Matters to know, what Works? : Dr Sheryl Swanson, LD Journal ,NZ, ISBN 9922-02-09-18-3**

"The most important outcome of teaching reading is word recognition," Dr. Swanson emphasizes, "Word recognition is that students learn to recognize real words, not simply sound out 'nonsense' words using phonics skills."

What other terms might teachers or other professionals use to describe a child's problem with "word recognition"

- decoding
- phonics
- phonemic awareness
- word attack skills

Direct instruction appears the most effective approach for improving word recognition skills in students with learning disabilities. Direct instruction refers to teaching skills in an explicit, direct fashion. It involves drill/repetition/practice and can be delivered to one child or to a small group of students at the same time.



The three instruction components that proved most effective in increasing word recognition skills in students with learning disabilities are described below. Ideally, a reading program for word recognition must include all four components. This article helps in understanding how to enhance reading and what components help in enhancing reading ability in school students.

**Participatory learning techniques in teaching students with Dyslexia and measuring its impact on the academic achievements of students of standard : Robert Chincelo, Delta State University Special Education Journal – Volume XXV VII, February 1999, Abraska**

This article talks in detail about a pre-test that helps to identify students with dyslexia and then running a learning technique to measure the impact of it, on their academic achievement.

A teacher made, pre test determined the level of academic achievement of the standard 5 students in various topics like spellings, free writing, comprehension etc. and that gave the researcher a general idea of the academic achievement levels. Then it used the Participatory Learning Technique (PLT) on the 36 students in the class and ran the programme for 3 weeks and ended with a post test to determine the impact of the Participatory Teaching and Learning technique. It concluded that the PLT was indeed able to raise the academic achievement level of the students and was a useful tool in remedial teaching for children with reading disability.

**The use of the Smith Learning disability screen to detect adult dyslexics in college students : Stake S and Sherer W; University of Toronto, Department of Educational Research Bi-annual Journal, Volume XMII, March -1998**

The journal of educational research of the University of Toronto had an excellent action research based on the utility of the Smith Learning Disability screen made for adult students and its impact was such that students who had reached the college level were not aware that they had dyslexia or a reading disability and were merely struggling with their problems and not able to pinpoint their actual issue. The study

gave immense clarity to such students about their condition and also told them what remedial steps can be taken and hence it was an extremely epoch making research that showed the real importance of early identification and assessment and also encouraged the researchers to develop such a tool for school kids and begin their remedial teaching The smith learning disability tool is a forerunner in the field of screening tools and was able to identify 20 students out of 500 that had dyslexia; showing 20% of the population surveyed in college had some or the other degree of learning disability.

**The writing dilemma – the dyslexic’s challenge in free writing Regina G Richards, University of Belmont , University Journal of Special Education, October 2013, Vol CVII**

The researcher Regina G. Richards has used a self made screening tool to assess and estimate the writing abilities of 90 children with dyslexia and equal number of students without dyslexia. The control group and the test group were given the same training for 3 weeks to see the correlation between dyslexia and the writing abilities of the students. She even constructed a screening tool and also conducted a pre-test and a post test in order to establish their current levels of writing and then ran a three week program and measured the difference in a post test and hence concluded that the the children with dyslexia have a higher (as much as 60 per cent) chance of developing a writing dilemma where they cannot express themselves freely in words. Such children showed very little progress in their free writing abilities like paragraph writing, comprehension , rhyme production etc and hence there is a direct correlation between reading ability and writing ability.

## **2.9 Review of related literature on usability testing**

**Rosson and Carroll (2002), New York, Usability engineering- A scenario based development of human computer user interaction**

Usability is “the quality of system with respect to ease of use and user satisfaction “the goal of which is to provide “feedback to software developers” to support an interactive, development process. Usability testing is usually carried out in order to

ensure that the system works seamlessly, help designers in recognizing its flaws, and understand the problems in the existing flaws if any .Usability testing helps to correct the system and make it more user friendly. They list three types of usability testing –

- Evaluative testing
- Analytical testing
- Empirical testing .

Rosson and Carroll, describe the analytical testing as a process “of investigation that analyses and evaluates the system’s features and their implication for use.”

Empirical evaluation is the a method in which the “investigation is done by data collection and observation made by the system users.”

Finally, Rosson and Carroll explain that evaluative testing is a mixed method approach that takes into account both the empirical and analytical data and studies the actual use of the data to check its usability. The selection of criteria to check the usability and empirical ability of any program should be broadly based on its - Understandibility, learnability, objective achievement, user satisfaction and applicability.

### **Usability Testing – Demystified,Dana Schunell (2009), Pearsons Publication,**

Usability testing is a process generally used in computer programming and design technology and therefore its use in other sciences is borrowed from computer sciences. In this book Dana Schunell presents the procedure in an easy format to be used in any other area where a tool has been designed and its usability has to be tested. Infact, Prof. Schunell’s book is a hands-on guide for all researchers who want to undertake usability testing . The simple steps that are then given in details are as follows:-

- Develop the test plan
- Choose the test subject or environment
- Prepare test materials required to administer the test
- Administer the test
- Conduct the session
- Conduct data analysis
- Make minute observations
- Implement the changes and test the ease of use

## 2.10 Objective-wise conclusion of literature review

- Studies reviewed on Learning Disability and development of Assessment tools to measure helped to know the various aspects of learning disability and showed that it is a measurable concept and that earlier the assessment is done the easier it is to begin intervention. The complex nature of the learning disability and its neuro-biological aspects were clearly understood along with its implications on all the various aspects of the student's life cognition of the written word, academic achievement, reading ability, motivation to read, intelligence, emotional adjustments etc some of the variables that are significantly related to the problem of reading disability or dyslexia.
- The review of related literature's first objective was to clearly understand Dyslexia or reading Disability – its causes, symptoms and how to identify a student .For example , Prof Wendy Raskin's PhD helped to understand the genetic basis of dyslexia. Behavioral and biological studies of dyslexia are complicated by its phenotypic heterogeneity and the lack of uniformly applied diagnostic criteria. The thesis collected data of certified dyslexics in the past 20 years, to identify genomic locations for genes involved in this complex disorder. This thesis made it easier to understand why dyslexia happens and gave a complete scientific overview of the problem of reading.
- Professor Manish Sabharwal's M.Phil research showed that there was no specific correlation between the economic condition of the students and prevalence of any learning disability and hence it was concluded that socio-economic conditions do not enhance or reduce the possibility of a learning disability in children, which means that children of any background may have a specific learning disability and most of the reasons are genetic and biological in nature not limited to any specific class or caste.
- While studying the related material the researcher found sufficient material

- like several articles, books and researches on specific Learning disability and also on Dyslexia in particular and was able to have a deeper understanding of the problem.
- The researcher's second objective in the review of related literature was to find out the various assessment tools developed to diagnose Learning disability and individual assessment tests developed to identify students with learning disability. The review of related literature was helpful to the researcher to know about the various screening tests, assessment tests, diagnostic testing techniques that can be used for early detection and remediation of children with dyslexia as it is also called a "hidden disability".
- Often children with dyslexia go unnoticed and undetected and hence, are termed as "slow learners" and are unable to cope up with the challenges of the academic rigors because they and their teachers are not aware that they have dyslexia. Such incidents can be totally removed from the scenario if the teachers are able to identify in a group scenario the students who might be "at risk" of dyslexia and begin remediation. This will save both the time and effort of the teacher and will go a long way in helping the student as well. Early detection is a key to better remediation. Hence, the review of research was extremely helpful to the present research which aims to develop - A group screening tool to identify students at risk of dyslexia – A study; that will help in early identification of learners with a reading disability and early remediation without waiting for individual diagnostic testing, which can be conducted at a later stage though. But, for immediate benefit to the students special pull out programmes can be made and implemented and the student can be given remedial teaching.
- The third objective of the review of related literature was to study and understand the various types of screening tools developed by other researchers and the challenges in their use and development . **'The use of the Smith Learning disability screen to detect adult dyslexics in college students'** by **Stake S and Sherer W.**, helped to understand how to use a screening tool to identify the required set of students. **Development and validation of a**

**reading-related assessment battery in Malay: PhD, Lee LW** , this Malay reading-related assessment battery based on the International Dyslexia Association definition of dyslexia was developed and validated for the purpose of dyslexia assessment in Secondary school and gave a clear understanding about the development and usage of assessment tests and screening tools. Another research titled the **Development of a Competence based Standardized Assessment Tool to Identify students at risk for Mathematical Disabilities in First Grade** by M.Geethamani, helped the researcher in creating a screening tool and was extremely relevant to the present research as the assessment procedure begins with screening in the regular classroom by the teachers who are involved in the teaching learning process. Another research by Jayanthi S., entitled **Grade Level assessment test for detecting Learning Disability in Primary School children** was greatly in sync with the present research and gave great insights into screening tool construction and challenges and issues.

- The fourth objective was to study in detail use of screening tools and how to and secure its validity, reliability and test its usability. To study the usability of the Screening tool to identify students at risk of a reading disability the researcher reviewed the process of usability testing as given by Rosson **and Carroll (2002), in their book, Usability engineering- A scenario based development of human computer user interaction.** It helped in the construction of usability components and construct a questionnaire for the present research. The researcher then prepared a questionnaire that was validated by expert opinion.

Hence, in conclusion the review of related literature was extremely helpful in understanding the theoretical bases of learning disability, screening tool construction and in administration and the process of usability testing of the group screening tool

## REFERENCES

1. Onita Nakra S.K. (May 2011) – Title : ‘Dyslexia defined, New Delhi.PHI Learning Pvt. Limited. (P.324)
2. Goleman,Daniel (September 27, 2005) - Title : ‘Emotional Intelligence : Why it can matter more than IQ’, New York. Bantam Books; 10th Anniversary edition. (P.46)
3. [http://psychology.about.com/od/psychologyquotes/Psychology\\_Quotes.html](http://psychology.about.com/od/psychologyquotes/Psychology_Quotes.html) retrieved on 12 th August 2015
4. <http://www.exforsys.com/career-center/ei/importance-of-emotional-intelligence-and-dyslexia.html> retrieved on 23<sup>rd</sup> July 2015
5. Lemons, C., Key, S., Fuchs, D., Yoder, P., Fuchs, L., & Compton, D-Predicting reading growth with event-related potentials: Thinking differently about indexing responsiveness. *Learning and Individual Differences*.
6. Studentecker, P.M &Fuchs, D., Fuchs, L.S.,. The blurring of special education in a new general education continuum of placements and services. *Exceptional Children. Journal of Learning Disabilities* 41 (5), 387-404.
7. Studentein, M.L., Berends, M., Fuchs, D., McMastudenter, Fuchs, L.S., & Compton, D.L. (2008). *Educational Evaluation and Policy Analysis*.
8. Compton, D.C., Bryant, J., & Davis, G.N. (2008). Findings from the first student-grade longitudinal reading study at the National Research Center on Learning Disabilities. *Reading and Writing: An Interdisciplinary Journal*, 21 (4), 413-436.
9. Caffrey, E., Fuchs, D., & Fuchs, L.S. (2008). The predictive validity of dynamic assessment: A review. *The Journal of Special Education*, 41(4), 254-270.
10. Dion, E., Brodeur, M., Campeau, M., Roux, C., Laplante, L., & Fuchs, D. (2008). Prevention of reading disabilities: The challenge of delivery of instruction and organization of educational services. *Journal of Canadian Psychology*, 49(2), 155-161.
11. Studentecker, P.M., Fuchs, D., & Fuchs, L.S. (2008). Progress monitoring as essential practice within Response to Intervention. *Rural Special Education Quarterly*, 27(4), 10-17.
12. Morgan, P.L., & Fuchs, D. (2007). Is there a bidirectional relationship between children,s reading skills and reading motivation? *Exceptional Children*, 73(2), 165-183, Orient Paperback.

13. Beck Caffrey, E., & Hill, L. (2007). Dynamic assessment as responsiveness-to-intervention: A scripted protocol to identify young at-risk readers. Printed by The Council for Exceptional Children (2008). Responsiveness-to-Intervention (pp. 79-89). Author: Arlington: VA.
14. McMastudenter, K.L., Fuchs, D., 2010, Promises and limitations of Peer-assisted learning in Learning Disabilities: A Contemporary Journal, 5, (2), 97-112.
15. Mangal, S.K. (May 2011) – Title : ‘Advanced Educational Psychology’, New Delhi. PHI Learning Pvt. Limited. (P.326)



## **CHAPTER - III**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

#### **3.2 Types of Research**

#### **3.3 Research Methodology**

#### **3.4 Objective-wise Research Methodology of the present study**

#### **3.5 Types of Research methodology**

#### **3.6 Steps in the present research**

##### **3.6.1 Defining the objectives for the group-based screening tool**

##### **3.6.2 Preliminary Considerations for making a screening tool**

##### **3.6.3 Review of Objectives by experts**

##### **3.6.4 Selection of measures from standardized individual reading tests**

##### **3.6.5 Selection of Areas of Reading to Develop the Tool**

##### **3.6.6 Component skills in reading**

##### **3.6.7 Finding HFW (High Frequency Words)**

##### **3.6.8 Procedure for finding the HFW**

##### **3.6.9 Item Writing and inclusion of the items for testing**

##### **3.6.10 Assessment of content validity**

##### **3.6.11 Revision of the test items after validity testing**

##### **3.6.12 Pilot test**

##### **3.6.13 Test item revision**

##### **3.6.14 Test assembly**

##### **3.6.15 Selection of a final standard**

##### **3.6.16 Re- test administration**

##### **3.6.17 Preparation of teacher's manual**

##### **3.6.18 Preparation of Usability test**

#### **3.7. Population**

#### **3.8 Sample of the study**

#### **3.9 Sampling Technique**

#### **3.10 Timeline of the study**

#### **3.11 Determining content and construct validity of the screening tool**

##### **3.11.1. Content validity through expert validation**

##### **3.11.2 Construct Validity through item discrimination index (D Value)**

- 3.12 Determining the reliability of the group screening tool**
- 3.13 Construction of the final group screening tool**
- 3.14 Selection of the usability testing method**
  - 3.14.1 Expert Validation of the questionnaire**
  - 3.14.2 Pilot Study of the usability questionnaire**
  - 3.14.3 Selection of the informants of the usability test**
  - 3.14.4 Identification of the target audience for the usability test**
  - 3.14.5 Administration of the test**
  - 3.14.6 Data Analysis**
- 3.15 Data Collection method**
- 3.16 Analysis of data**
- 3.17 Data Analysis tools**
- 3.18 Summary**

## **CHAPTER - III**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

Research is a formal systematic and intensive process of carrying on the scientific method of analysis. Research always starts from a question or a research problem and it involves a more systematic structure of investigation on problems usually resulting in sort of formal record of procedure and a report of the result of the findings or conclusions. Researcher gathers new knowledge or data from primary or firsthand resource. The research undertaken is logical and detailed in nature, applying every possible test to verify the data collected and procedures employed. The methodology adopted occupies a very important place in any kind of research. Research methodology lays out the detailed description of the research variables and procedure.

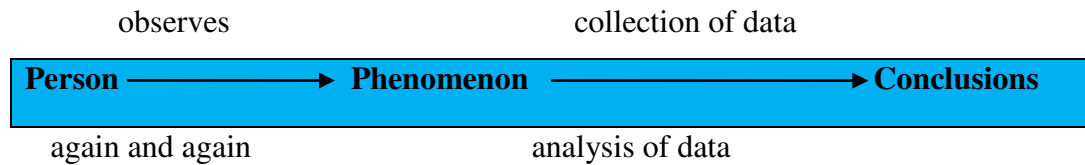
The present chapter discusses about the research methodology adopted in the completion of the topic under study. This chapter deals with the description of sample, methodology of the study, tools used to collect data and the statistical techniques used for data analysis.

The formidable problem that follows that task of defining the problem is the test of defining the research project, popularly known as the 'Research Design'. Decision regarding what, where, when and by what means concerning an inquiry or a research study, constitutes a research design.

A research design designates the logical manner in which individuals or other units compound and are analyzed for the basis of making interpretations from the data. Thus after the problem is defined and objectives are set out clearly, the researcher takes the important task of adopting a method of research best suited to the given problem and the resources available. Research design is needed because it facilitates the smooth sailing of research as efficiently as possible yielding maximum information with minimum expenditure of effort, time and money. A

research design designates the logical manner in which individuals or other units compound and are analyzed for the basis of making interpretations from the data.

Thus, we can say; research is a process by which a person observes the phenomena again and again and collects the data and on the basis of this data he draws some conclusions and attempts to answer the research problem.



At the heart of this process lies the research methodology that tells the researcher that the way he is going ahead in the research is systematic and well-organized and will reach to certain conclusions without any bias or external interference.

### 3.2 Types of Research

Research can be quantitative or qualitative in nature. Qualitative research is used to gain an understanding of underlying reasons, opinions and motivations. It provides a deeper understanding of the problem and helps to collect trends in thoughts and opinions about a topic. The sample is usually small and the respondents are chosen carefully in a qualitative research. While in a qualitative research the focus is on generating data that proves the hypothesis and thus the problem is solved through data analysis.

#### Qualitative Research

- It includes research through document analysis, observation and personal interview.
- It collects narrative data to gain deeper insights into the phenomena of interest.
- Data analysis includes the coding of the data and production of a verbal synthesis.

## Quantitative Research

- Quantitative Research is aimed at collecting numerical data in order to explain predict and or control phenomena of interest;
- Data analysis is mainly statistical and quantitative in nature.

The present research is quantitative research using descriptive survey methodology.

### 3.3 Research Methodology

Research design explains the plan of the study in detail. It gives the description of the tool used for collecting information, the sample, the methodology of the study and the methods used for analyzing the data.

Research design, puts the entire research plan on the paper and thus by serving as a blue print for the research, it helps the researcher to work logically, analyze data scientifically and interpret it methodically thereby avoiding disorganized work.

The selection of research design is based on the objectives of the study, variables taken into consideration and the conditions under which it is conducted. A worthwhile study is the result of careful planning.

Webster has defined **methodology** as “the science of method or arrangement”. Method is defined as orderliness and regularity or habitual practice in action. By placing stress on ‘arrangement’, ‘orderliness’, ‘regularity’ and ‘habitual practice’, the methodologies derive their substance essentially from the classically ideal controlled experiment which permeates in the literature of educational research. The methodology is decided with reference to research or the type of inquiry.

The salient features of research methodology is that:-

- Research methodology involves systematic procedures starting from the initial identification of the problem to its final conclusions.

- Its role is to carry on the research work in a scientific and valid manner.
- It provides the tools and techniques by which the research problem is attacked.
- It consists of procedures and techniques for conducting a study.
- It involves such general activities as identifying problems, review of literature, formulating hypotheses, procedure for testing hypotheses, measurement, data collection, analysis of data, interpreting results and drawing conclusions.
- Thus it consists of all general and specific activities of research. Thus research methodology has the identical meaning of mapping strategy of research.

### 3.4 Objective-wise Research Methodology of the present study

**Table 3.1**  
**Objective-wise research methodology**

Objectives	Research Methodology	Sampling
1) To develop a curriculum based group screening tool in English subject for identifying students at risk of Dyslexia in standard IV.	Setting of test objectives, Preparing draft , <b>establishing the norms and standards for the test, test reliability , validity , seek expert validation, Pilot testing , evaluation and administration of the tool</b>	Pilot study, random sample-64 students

	Administer the final tool in a group to the Entire sample – field survey and final testing	Incidental sampling used to conduct survey in English medium SSC board primary schools in Pune city.
2) To prepare a teacher's manual for the screening tool and test its usability.	Expert validation and usability questionnaire method along with face validity from teachers to establish usability of the manual and tool	Incidental sample of English teachers from those schools

### 3.5 Types of Research methodology

There are 4 types of research methodology majorly used in educational research. are :

- Historical Research Method
- Descriptive Survey Method
- Experimental Method
- Product development Method

**Historical Research Method** -This method has been defined as ‘the systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusions about the past’. The historical research mainly deals with the accurate account of past to get a clear view of the present and could help partially in predicting the future.

**Descriptive Survey Method**-This method can be applied to obtain the present information of current events and draw a valid general conclusion from the facts

discoursed. It could help to collect information of present or the existing educational events or phenomena.

**Experimental Method-**In this method the researcher has to deliberately manipulate certain aspects of experiment. The researcher has to control the variables involved in the studies and accordingly observe the cause and effect. **For the present research,** the researcher proposed to use the Descriptive Survey Method of research by giving the test to various students of class 4 in 13 different schools in Pune .

#### **Product Development Method-**

Product development Research has been defined as the systematic study of designing, developing and evaluating instructional programmes, processes and products that must meet the criteria of interlay consistency and effectiveness. ( Kenneth and Ross, 2005) For the screening tool product development method of research was used to develop the screening tool to identify school kids at risk of dyslexia in grade 4.

#### **Descriptive survey research method-**

Descriptive Survey research methodology is defined below by Isaac & Michael in their book on “Educational Research methodologies- issues and challenges” as- *“Descriptive Survey method is used to answer questions that have been raised, to solve problems that have been posed or observed, to assess needs and set goals, to determine whether or not specific objectives have been met, to establish baselines against which future comparisons can be made, to analyze trends across time, and generally, to describe what exists, in what amount, and in what context.”* (Isaac & Michael, 1997, p. 136) **W.B Kraemer** (1991) identified three distinguishing characteristics of descriptive survey research method

1. First, survey research is used to quantitatively describe specific aspects of a given population. These aspects often involve examining the relationships among variables.
2. Second, the data required for survey research are collected from people and are, therefore, subjective. Finally, survey research uses a selected portion of the population from which the findings can later be generalized back to the population.
3. Thirdly, in survey research, **independent and dependent variables are used** to define the scope of study, but cannot be explicitly controlled by the researcher.



Before conducting the survey, the researcher must predicate a model that identifies the expected relationships among these variables. The survey is then constructed to test this model against observations of the phenomena. In contrast to descriptive survey research, a survey is simply a data collection tool for carrying out survey research. It may be defined as a “means for gathering information about the characteristics, actions, or opinions of a large group of people” (Salant & Dillman, 1994, p. 2)

Surveys can also be used to assess needs, evaluate demand, and examine impact. Hence, the research methodology used in this research was a descriptive survey method that involved giving the test to over a 1000 pupils across different schools and analyzing the data to find the usability of the screening tool.

### **Product Development research method for screening tool development**

Product development Research has been defined as the systematic study of designing, developing and evaluating instructional programmes, processes and products that must meet the criteria of interlay consistency and effectiveness. ( Kenneth and Ross, 2005).

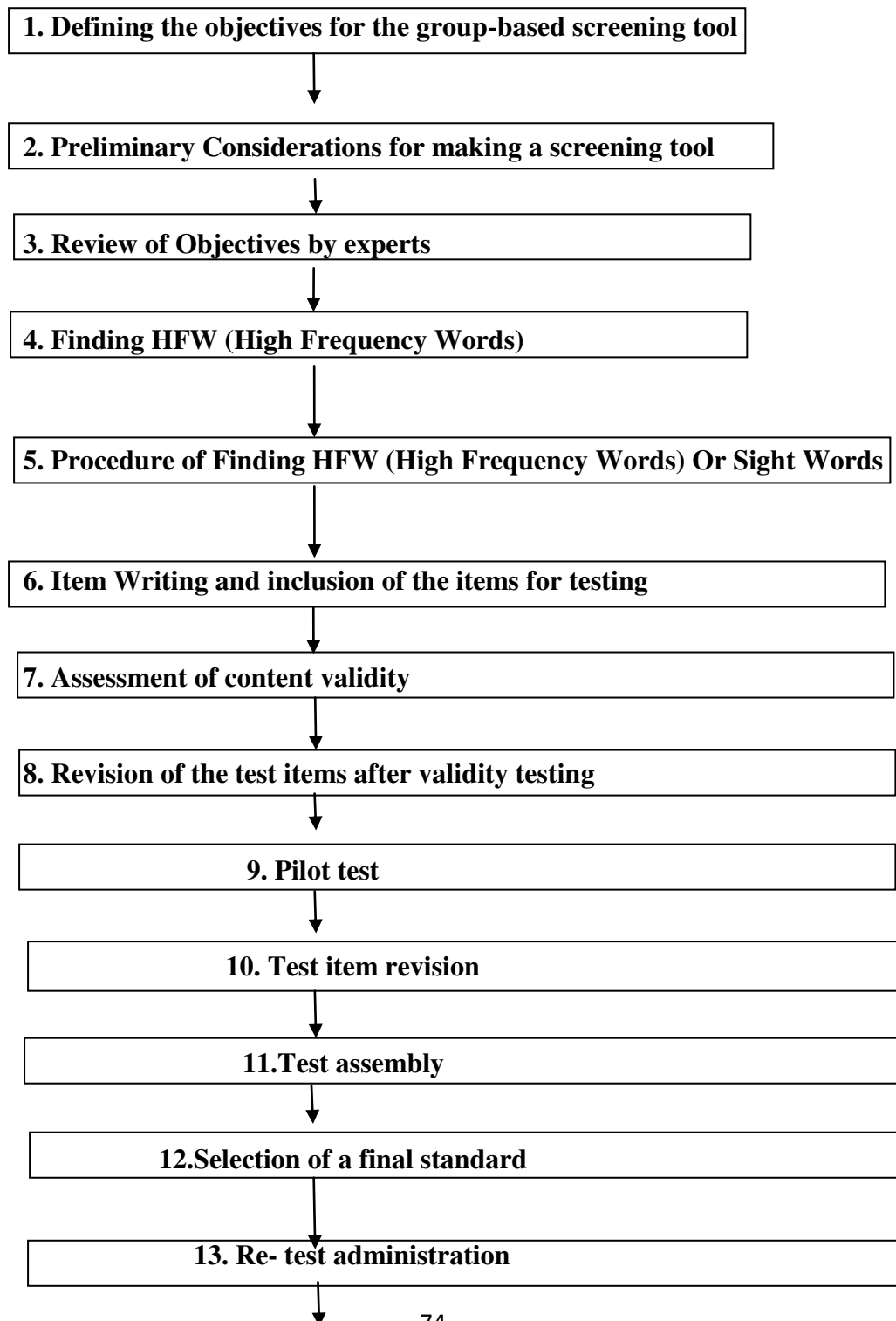
One of the objectives of the present research was to develop a screening tool to identify the kids at risk of dyslexia in grade four for which product development research was used designing a programme or a screening tool is a complex process that requires in-depth thinking, intricate planning , and systematic execution of the steps in product designing .

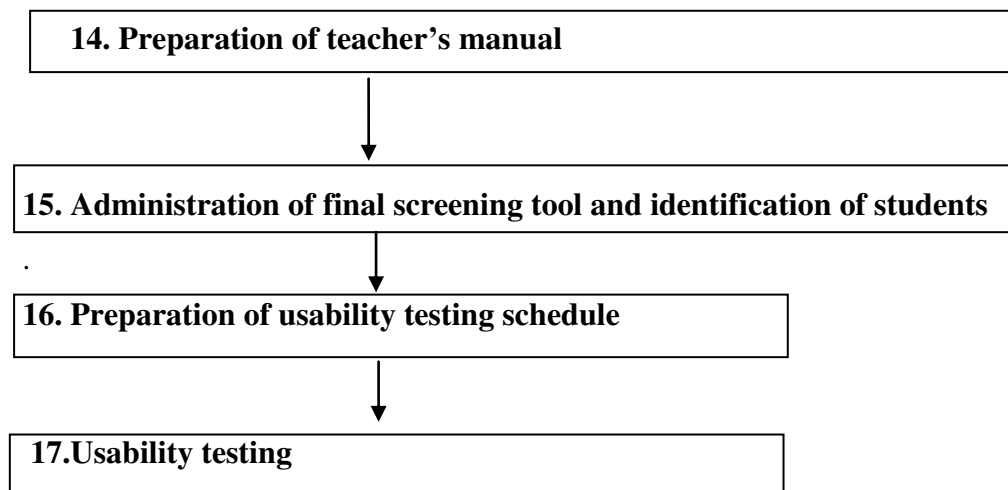
This can be achieved only if the sequential steps in product designing are followed while making the programme.

1. Analysis of current practices- A detailed survey of the current practices followed in the school for identifying the children with dyslexia revealed that no such program was in place in 10 schools where the researcher went. Based on the input of this survey , the researcher realised the strong need for developing a group screening tool to identify children with reading disability in the primary sections of the school.

2. Theoretical base - A thorough comparative study and understanding of the process of reading and the problem of dyslexia or reading disability was done to be able to make a screening tool to identify such kids and help them in their academic needs.

### 3.6 Steps in the present research - *Product Development (Flow Chart)*





### **3.6.1 Defining the objectives for the group-based screening tool**

Creating screening tests is a demanding task, both theoretically and empirically. In the development of the screening test three major steps should be taken. The first step is to define the objective of the screen and what it seeks to predict. The second is to identify early predictors. The third is to set a cut-off point for identifying children at risk of failing the criterion test.

*(Jenkins & Johnson 2007; Jenkins, Hudson & Johnson, 2009)*

The main objective of the screening test is to identify students at risk of developing a reading disability in grade four, and therefore the test must have the following salient features -

1. The test should screen fourth graders in their reading ability in English.
2. The screening test must be usable in groups.
3. It should be easy to use and interpret.

The essence is to identify children at risk of reading and writing difficulties. The conceptual model from which the subscales and the test items were conceived is based on ideas from the simple view of reading, the componential model of reading and the response to intervention model of reading. *(Refer NCLD , National Council of learning Disability ;2009)* . In the simple view of reading, the understanding is that reading is a product of decoding and comprehension of the written word.

However, the complexity of reading is explained in the other various intertwined aspects involving the cognitive linguistic mind, and psychological, motivational and environmental factors.

The actual steps taken in the development of the screening tool to identify students at risk of a reading disability were as follows:

### **3.6.2 Preliminary Considerations for making a screening tool**

The preliminary steps taken were

- Specify the purpose of the test.
- Specify objectives to be measured by the test.
- Specify groups to be measured, special testing requirements.
- Make initial decisions about item formats.
- Determine time and financial resources available for test construction and production.
- Identify and select qualified staff.
- Specify an initial estimate of test length.

### **3.6.3 Review of Objectives by experts**

- Review the descriptions of the objectives to determine their acceptability.
- Select final group of objectives to be measured on the test.
- Prepare item specifications for each objective and review them for completeness, accuracy, clarity, and practicality.

The first objective was to create a group screening tool which was reliable and valid and useful to identify students at risk of dyslexia. The data collected and analysed for the construction and development of the screening tool started right after the review of related literature. The 10 most widely used specific Learning Disability Standardised tests used for Specific Learning Disability like Dyslexia was first selected. there are separate tests for dysgraphia, dyscalculia and dyspraxia ,but only dyslexia tests were selected for this research.

The selection was based on :

- Expert advice and validation
- High reliability and validity of the test
- Availability of the test

### **3.6.4 Selection of measures from standardized individual reading tests**

Several individual specific learning disability tests like phoneme awareness, Non word spelling, Oral reading probe, Bruce Phoneme deletion test that were available

to the researcher were studied. But all these were found to be extremely difficult to administer in a group and are not culturally compatible for Indian scenario. Moreover, all these were individual tests and could not be used in a classroom setting. Apart from being extremely expensive and complicated these tests were not such that teachers could use them. But they were helpful in selection of the final measures to incorporate in the group screening tool. The reliability and validity coefficients of the main items were used as the key statistics to determine its use in the construction of the group screening tool.

Many of these standardized tests were used by the researcher to draw the key areas of testing reading disability in fourth graders in Pune schools in the State Secondary Certificate (SSC) Board English Medium schools.

Based on high reliability and validity ratio of the particular measure in the tests (as given in the test booklets) and online research of the test ; the common tests used in all the tests and review o related literature along with the expert advice, certain measures were analysed and chosen for use in the development of the screening tool.

The following table shows the measures analyzed and used from standardized tests and also its validity and reliability score which were then taken as the thumb rule to select the measure. Only those with high reliability and validity were chosen and tested for the construction of the group screening tool.

**Table 3.2**  
**Selection of Measures From Standardized, Individual English Reading Tests and their Reliability And Validity Scores**

Measure	Standardized Individual Tests	Measure selected after studying	Validity	Reliability
<b>1. Phonological awareness test</b>	Torgesen & Bryant	Phoneme addition	Concurrent Validity=.50-.55 Predictive validity=.59-.75	Cronbach's Alpha=.91
<b>2. Non-word spelling</b>	Torgesen & Davis	Nonsense word	Predictive Validity =.67	Cronbach's Alpha=.88
<b>3. Bruce Phoneme deletion test</b>	Bruce, Philip	Phoneme deletion	Predictive Validity =.67	Alpha=.92
<b>4. Nonsense word Fluency</b>	Good(1998)	Fluency of words	Criterion Validity is .80	Reliability .80
<b>5. Woodcock Free writing Test</b>	Johnson Woodcock	Free writing	.60-.75	.80 reliability on Cronbach's

				alpha
<b>6.Rapid letter naming test</b>	Good and Kaminski (2001)	Phoneme addition	Predictive Validity=.50-.55 Construct validity=.59-.75	Cronbach's Alpha= .78
<b>7. Segmenting fluency</b>	Torgesen & Davis	Reading test	Predictive Validity =.67	Spearman Brown prophecy formula .83
<b>8.Oral Reading fluency test</b>	Children's Educational Services (1999)	Woodcock reading , mastery test, Peabody Individualised Achievement test	Predictive Validity =.67	Alternate form reliability .84
<b>9. Oral word Fluency test</b>	Good & carter(2009)	Fluency of spoken words	Criterion Validity is .80	Reliability .89
<b>10. Johanssen Free writing Test</b>	Johnson and Hansen Woodcock	Free writing	.60-.75	.80 reliability on Cronbach's alpha

All the above tests had high validity and reliability ratios as shown in their test booklets/pdf's and the particular sub tests which were chosen on the basis of the high individual validity and the number of common subtests found in all the standardised, individual Dyslexia/Reading tests. This allowed the researcher to narrow down the types of tests that should be used to test reading disability and then construct a screening tool according to the text book of the Maharashtra State board book for standard IV.

Individual items were taken and adapted to the Indian scenario and also changed for group testing. Expert opinion and research and also advice from subject teachers helped in finalization of probable items to be put in the screening tool.

Since the test is based on a curriculum the SSC board Bal Bharti was scanned and used as the main reference point to select the questions for testing . this would make the test even more relatable to the target audience which is the students and teachers of grade four in English medium schools in Pune urban area. The following table lists the final ten criteria selected after expert advice and discussion and review of related literature and the pilot testing helped to further concretize the selection of the criteria to test the students on their reading ability in grade four.

### 3.6.5 Selection of Areas of Reading to Develop the Tool

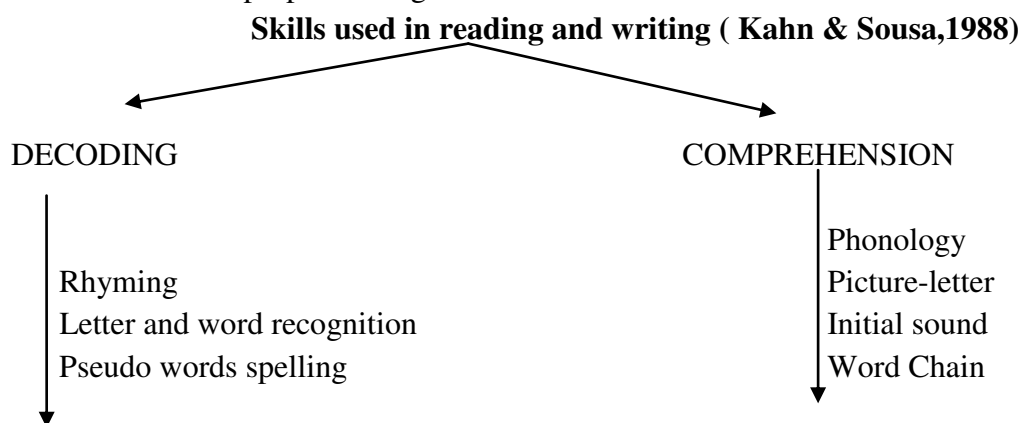
The next statistical inference was required to finally select the ten topics based on –

1. Maximum number of times repetition in all tests
2. High reliability and validity of the test item.
3. Expert advice and validation

Questions in the final group screening tool, were made on the 10 topics which were picked up by expert views, talks with the guide and after seeing the high reliability and validity of the type of measure. All the finalized tests were picked up from the table 4.3 after studying the different types of individual, standardized reading tests for children with reading disability. After the key areas had been chosen the researcher then used the curriculum based text book ‘Bal Bharti’ to make question on the topics selected above so that all the major components used in reading ability test are incorporated in the screening tool .

### 3.6.6 Component skills in reading

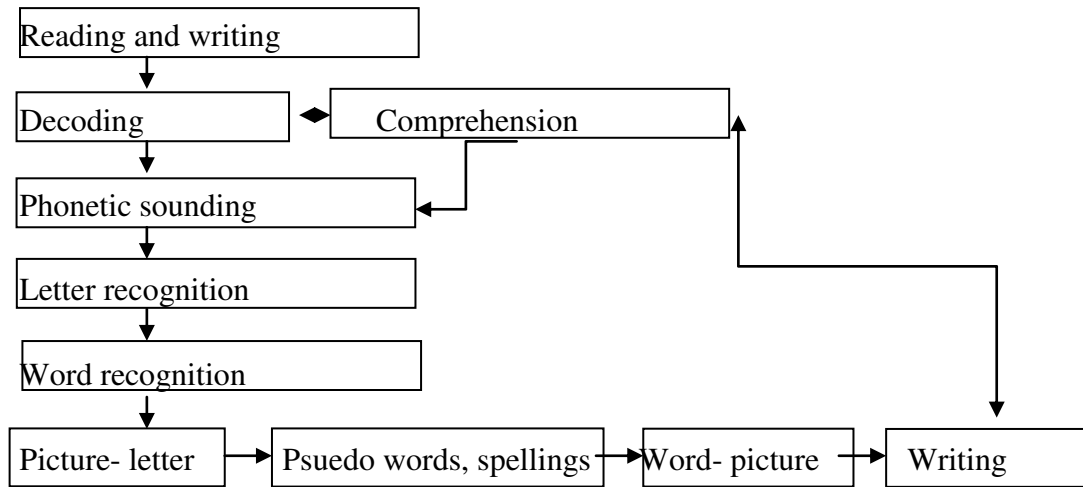
This is a graphical representation of the conceptual model conceived from the literature reviewed in this study. It summarizes the reading and writing components as presented in the literature review in the context of this study. The model also indicates the proposed linguistic indicators and the tests as their measures.



If decoding and comprehension is the combined body that constitutes reading and writing, then phonological awareness is the heart that ignites letter recognition and word recognition, thus facilitating the whole process of reading and writing. According to **Samuel Kahn** “successful reading is the result of the interaction between the decoding and comprehension.”

Below is the graphical representation of the reading process in children conceived after review o related literature and the components that will be used in testing the

reading ability of the students through the group screening tools. It shows the proposed linguistic indicators to be tested and the measures that will be used.



### 3.6.7 Finding HFW (High Frequency Words)

aa. The selection of these high frequency words is that - a normal reader can read these High Frequency words without any problem but a dyslexic student cannot read these commonly occurring words without a strenuous effort, hence the value of the High frequency words, also called “Sight words” or “Dolce Words”. These words differ from age to age and grade to grade. (Brown and Nordich, 2008, *Dolce Words for Dyslexics*)

ab. First, the researcher found out the grade 4 English curriculum book - the Bal Bharti published by SCERT (revised edition 2014) used in SSC board schools.

ac. A manual word count was done following Kihampa and Mkinga method of tallying.

### 3.6.8 Procedure of Finding HFW (High Frequency Words) Or Sight Words

aa. A five stroke tallying method was used

ab. A word with three and more tallies (15) was considered as a high frequency. The full list is presented in *Annexures*.

#### A Small Sample of High Frequency Words for the Test Construction

because, above, but, across, camp, address, ago, care, careful, airplane, almost, before, also, centre, though, awake, between, dead bottom, desk, different, brought, building, built, rain, weak, that, though, after etc



### **3.6.9 Item Writing and inclusion of the items for testing**

- aa. Draft a sufficient number of the objectives to be measured on the test.
- ab. Enter items into a computerized item bank.
- ac. Carry out item editing.
- ad. Select the items as per discussions with guides and experts in the field

### **3.6.10 Assessment of content validity**

- aa. Identify a group of experts and measurement specialists.
- ab. Reviewing of the test items to determine their match to the objective, their representativeness, and their freedom from bias and stereotyping.
- ac. Get an Expert review the test items to determine their technical adequacy .

### **3.6.11 Revision of the test items after validity testing**

- aa. Based upon data from 4b and 4c, revise test items or delete them.
- ab. Write additional test items (if needed) and repeat step 4.

### **3.6.12 Pilot test**

- aa. Organize the test items for pilot test
- ab. Administer the test forms to randomly chosen groups of examinees.
- ac. Conduct item analysis and item study.
- ad. Remove the items that score low on the item analysis scale after pilot testing

### **3.6.13 Test item revision**

- aa. Using the results from 6c, revise test items
- ab. Add or remove items as per the pilot test results .

### **3.6.14 Test assembly**

- aa. Determine the test length, the number of forms needed, and the number of items per objective.
- ab. Select test items from available pool of valid test items.
- ac. Prepare test directions, practice questions, test booklet layout,

scoring keys, and answers.

ad. Specify modifications to instructions as per the pilot testing results

### **3.6.15 Selection of a final standard**

aa. Determine if description of examinee

performance or determination of mastery status is appropriate for test purpose(s).

ab. Initiate a process to determine the standards of achievement.

ac. Specify considerations that may affect the standard(s) when applied to examinees.

ad. Specify “alternative” test score interpretations for examinees

### **3.6.16 Re- test administration**

aa. Design the test administration to

collect score reliability and validity information.

ab. Administer the test form(s) to appropriately chosen group of examinees.

ac. Identify and evaluate administration modifications to meet individual special needs that may affect reliability and validity of tests.

ad. Evaluate the test administration procedures, test items, and score reliability and validity.

ae. Make final revisions based on the available technical data.

af. Conduct reliability and validity investigations

### **3.6.17 Preparation of teacher’s manual**

aa. Prepare a test administrator’s manual.

ab. Prepare a scoring and interpretation manual.

### **3.6.18 Preparation of Usability testing**

aa. Prepare a usability questionnaire

ab. Teachers run the test independently and give feedback for usability

ac. Make changes if any suggested by the teachers.

*(References from “Advances in criterion-referenced measurement,” by R.Hambleton and H. Rogers, 1991, pp.107-109 and “Advances in Educational and psychological Testing” R.Hambleton and H. Rogers, pp. 10-11)*

### **3.7. Population**

Population is the sum totals of students of class four in English medium State Secondary Certification Board schools in Pune City.

### **3.8 Sample of the study**

Sampling is a process of obtaining information about an entire population by examining only a part of it. Sampling is fundamental to all statistical methodology of behavioral and social research. Bad sampling vitiates the data at the source. No amount of subsequent statistical findings will improve its quality. Sampling is the part of the strategy of research. It has acquired the status of technical job.

**David S.Fox** , defines sampling as ‘ In the social sciences, it is not possible to collect data from every respondent relevant to our study but only from some fractional part of the respondents. The process of selecting the fractional part is called sampling.The sample consisted of 1045 grade four students of English medium schools in Pune of State Secondary Certification Board (SSC Board).

### **3.9 Sampling Technique**

A part of the population is called a sample. In other words, sampling is the term used for the study and it is assumed to be a representative of the large group from which it is drawn. **The sampling technique in the present study** is the lottery method in which the names of the English medium SSC board schools in Pune urban area were put in a draw and the chit was drawn out of it to ensure maximum randomness. But , out of those schools only the ones that allowed the researcher to conduct the research were taken and hence **for** this research the researcher used **incidental** sampling after seeking permission from the respective schools in those

areas i.e north ,south, east west and central Pune English medium SSC board schools .

### 3.10 Timeline of the study

- The design of the screening tool was developed in June 2014 and after expert review and relevant changes the pilot testing was done. In mid-August 2015, 64 grade four children aged 7 to 9.5 (Mean = 8.25), from 2 randomly selected primary schools in the municipality of Pune, undertook a pilot group test measuring cognitive linguistic skills with ten subscales concerning *word identification, letter identification, phonological awareness and spelling*.
- Then in September the group undertook re-test to establish reliability. Suitable changes were made after item analysis and the final screening tool was created along with teachers manual, probe and checklist.
- The final group test took place in October 2015 to January 2016 with a sample size of 1045 students to identify children at risk of reading difficulties.
- On February 2016, a smaller sample of 177 low performing children drawn from the main sample participated in an individual test including four subscales measuring *pseudo-word reading, actual word reading, actual text reading, one-minute reading and writing*.
- Again the 22 low performers of Level II reading Probe, were checked on a “checklist” made by the researcher and were found to be “at risk” of learning disability.
- In February end, 2016, 15 English teachers were given the screening tool and were asked to fill the usability questionnaire to test the usability of the tool and the data analysed.

**Table 3.3 – Timeline in developing a screening tool for dyslexia (Reading Disability)**

Test	Date/Timeline	Sample /Result
Pilot Testing	15-16th August,2015	Sample size = 64 5 items deleted and 6 changes made
Retest	14 September,2015	Sample size = 64 Changed test administered to establish reliability. HIGH test correlation= .95 showing reliability
Final Screening tool Group Test administration	30 October, 2015- January 2016	Sample size = 1045 Mean ,median standard deviation of test scores
Level II reading test	February 2-12 <sup>nd</sup> 2016	Sample Size = 177 low performers
Checklist	14-15 <sup>th</sup> February 2016	Sample size= 22 low performers at risk of dyslexia
Usability testing	20-26 th Feb 2016	Teachers took the usability testing questionnaire and responded appropriately
Remedial Teaching advised for the above 22 low performing students at “risk” of developing reading disorder or dyslexia and asked to go for diagnostic		

certification.

### **3.11 Determining content and construct validity of the screening tool**

The general definition of validity is the degree to which the test measures what it claims, or purports to measure ( *Hector & Brown 1999,p. 230*). Validity is generally divided into 3 categories – Content, construct and criterion-related or concurrent validity of a test. (*Hector & Brown 1999,p. 231-42*). Content validity seeks to focus on the content of the test- is it appropriate, is it adequate to measure a certain trait or skill, is it specific enough and generally content validity is established by “expert review and validation”. These well trained experts generally make judgements based on their experience and expertise to check the degree to which the test items match the objectives of the test. It is based on expert judgement and has no statistical basis.

Next, comes the criterion referenced validity also called concurrent validity . It is usually tested to focus on the correlation of the test being validated with a standardised and well respected test which measures the same or more or less the same objectives. If there are no related standardised test , as is the case in this curriculum based , group testing screen then the criterion validity can be established using degree of co-relation of a WRAT test with the screening tool test.

Lastly, comes the construct validity. The definition of construct validity is that it is the “experimental demonstration that the test is measuring the construct it is claiming to measure. ( *Hector & Brown 1999,p. 230*). The most reliable method to measure construct validity is a pre test and post test measure and correlation testing between the items; the least differences in score can be said to support the construct validity of the test. It is also called item analysis way of checking construct validity. (*Brown 1996, pp. 288-92*)

### 3.11.1. Content validity through expert validation

The **content validity** of the items was first secured qualitatively by several experts from RCI and SNTD (Juhu Campus). The **construct validity** of the screen was established by item analysis. **Item analysis** was conducted to determine the internal consistency of both the group test and follow-up test. This was again followed by independent evaluation and **Expert Validation** from 3 eminent experts, namely

- a) Dr. Chiddanand Desai , MBBS, MA PhD(Delhi)
- b) Dr Kamlesh Chaudhary M.Ed, PhD (Pune)
- c) Dr Sathyanarsh Reddy M.Sc, PhD (Bangalore)

The reports of the experts were then held as standards to improve the screening tool and make changes as suggested. The content was thus validated by the experts. (*See Annexure*) The following components measuring reading fluency were chosen for individual testing, level II through expert advice and theoretical analysis:

- pseudo-word reading words aloud and actual text reading
- one minute reading (Brus & Voeten, 1973), and
- free writing (Moats, 2006).

### 3.11.2 Construct Validity through item discrimination index (D Value)

The dimensions behind the scales were theory-based and the test items were drawn from a high frequency list of words counted from the authorized instruction and reading textbooks in grade four ( BAL BHARATI) as followed by all the SSC board English medium schools in Pune. For the construct validity , the items were quantitatively analyzed to obtain item difficulty indices and to determine the discrimination indices for each item used from the pilot testing, which is further discussed in Chapter 4 – Data analysis and interpretation. The analysis was conducted by computing an item difficulty index (**p-value**) and the item discrimination index (**D value**) was found through computing total-item correlation ( $r_{pbis}$ ). Item and total raw scores were used in the computation of

item difficulty, item discrimination and item-total correlation using SPSS software. The quantitative item analysis was an important back-up of the qualitative item analysis as observed in the content validation process.

**Item difficulty** is calculated as the proportion of percentage of individuals choosing the right answer. (*Anastasi, 1982; Hotiu, 2006, p-13*). This statistic is known as item difficulty and termed as **p-value** and items or questions that were too easy or too difficult were thus eliminated and an average . Item values (p-values) lying between .5 to .85 were accepted as the standard for construct validity of the screening test. (*Brown & Houston 1999, p 290*). This is further explained in Chapter 4 of data analysis and interpretation.

### **3.12 Determining the reliability of the group screening tool**

The reliability coefficients (Cronbach's alpha,  $r = .91$  to  $.97$ ) of the screen was computed using the test- retest scores and then using the SPSS software the correlational values were deducted, which was expected to be high because it is based on the high inter correlations, one dimensional structure and good content validity.

The high reliability also reflected that the test was carefully constructed and pilot testing well performed. Linguistic components known to be sensitive predictors of reading and writing skills were chosen for validating the created group test.

All the correlations were positive and very high, between the **test and retest scores** and thus the reliability of the test was confirmed statistically through the high Cronbach alpha score. This is further explained in Chapter 4 of the research report in data analysis and interpretation.

### **3.13 Construction of the final group screening tool**

Construction of an effective tool is a crucial stage in any research activity. For any instrument to be an effective data gathering tool it has to be valid and reliable. Since the researcher is using a screening test in English, it was made and corrected several times by guide, subject experts and changes were made accordingly. Final set of tool was also checked by guide and RCI experts. Apart from this the



usability questionnaire too was made and corrected several times by the researcher and guide to come to the final data gathering tool.

The first draft of the screening tool had 15 questions ( *see Annexure*).But it was considered too lengthy and some questions seemed too difficult for Class 4 students and hence the number of questions was brought down to 10 after interaction with the guide and the expert and also the teachers in the school who also gave their suggestions. The Screening test was made and corrected several times by guide and changes were made accordingly. Final set of tool was also checked by guide.

Finally the researcher decided to use the revised tool and teacher's manual were ready for pilot testing on 64 students in the selected school.

### **3.14 Selection of the usability testing research instrument**

Questionnaire method was selected as the most reliable and effective method to establish the usability of the screening tool in this research . The various criteria of usability were tested using questions in the questionnaire. Both quantitative and qualitative responses were measured to ascertain the usability.

The questionnaire was formulated keeping in mind the suggestions and recommendations by Foddy .W, 1993, which were as follows-

1. Order of increasing difficulty with easy questions to begin with
2. Simple , clear and precise language was to be used.
- 3.Relevant questions worded simply.
4. Avoid ambiguity and repetition.

#### **3.14.1 Expert Validation of the questionnaire**

The usability questionnaire was prepared and given to five senior English teacher sand also the research guide and their valuable opinions were taken to make the questionnaire more valid. The following changes were suggested by them.

1. Group the items in the questionnaire as per the aspects of usability testing
2. Give sub headings for each aspect of the usability testing separately
3. Include achievement testing too in the questionnaire.

### **3.14.2 Pilot Study of the usability questionnaire**

6 teachers were randomly selected and the usability test questionnaire was given to them to check for any challenges in the administration of the test .

The Pilot study showed the following results-

1. Instruct the teachers to mark only one answer per question, avoid multiple answers.
2. Instruct the teachers to judge the screening tool objectively and then give the answers.
3. In the qualitative questions the teachers were to be asked to submit only to-the-point, precise answers.

The usability test questionnaire was thus standardised and was now ready to be used to check the usability of the group screening tool.

### **3.14.3 Selection of the informants of the usability test**

Finally 12 teachers were selected from the school which had administered the group screening tool to conduct the usability test. The selection of the teachers were done using the following criteria –

- a. English language teachers / class teachers ( primary section).
- b. Permission and willingness to participate.
- c. Teachers who were willing to use the group screening tool in their classrooms.

### **3.14.4 Identification of the target audience for the usability test**

The target audience who will be using the Group Screening tool to identify students at risk of a reading disability are the English teachers in the school.

### **3.14.5 Administration of the test**

The manual and the CD along with the screening tool were given to these teachers and they were requested to administer the test in their class.

An initial orientation was taken by the researcher to tell them about reading disability in children and how it can be remedied if detected early.

Finally, after they had used the screening tool and evaluated it , they were asked for their feedback in the form of filling the usability questionnaire.

### 3.14.6 Data analysis for usability questionnaire

The observation of the researcher was noted and the responses were tabulated and they were listed in quantitative form in percentages. The technique used here divided the usability into 6 standard components. The questions listed in this questionnaire were classified under the different aspects of usability components as follows:

- **Learnability-** Does the product help in learning anything new- any new skill or concept. What is its learnability quotient?
- **Understandability-** is the end product making sense to the user.
- **Operability-** Is it easy to use and score . Ease of use determines the value of the product.
- **Object achievement-** This component of the usability testing measures the fact whether the tool or product was able to achieve the objective of measuring what it set out to measure.
- **User satisfaction-** this component measures the operational use along with the easy user satisfaction levels.
- **Applicability-** Is it relevant and applicable to the target audiences for whom it has been made? Is it really useful to them

### 3.15 Data Collection method

Data collection method is a long drawn task which requires good planning and execution skills on the part researcher; the process began after collecting an official letter from the department, stating the researcher and the purpose. Then the school was approached on the basis of the permission letter given by the TMV university department of PhD studies and the school was requested to let the researcher come and conduct the activities and administer the screening tools and its subsequent levels in the school and fill in the questionnaire for the usability test. For that purpose school was helpful and offered co-operation, by way of allotting the time and date that was most suitable to the researcher. Teachers gave their cooperation, since this contribution would be of some help in the field of education. The

principals, teachers and students also greatly helped in the test administration and in data collection.

### **3.16 Inferential analysis of research data**

There are two ways of analyzing the data:

- a. Descriptive Analysis
- b. Inferential Analysis

**Descriptive Analysis:** Descriptive statistical analysis primarily limits ‘generalizations to a particular group observed’. This description of data is necessary to highlight the characteristics of the sample. The ultimate purpose is to develop generalization that may be used to explain phenomena and predict future occurrences. Thus descriptive analysis of data is necessary for the process of inferential analysis, which allows testing of the hypothesis and draw conditions.

**Inferential Analysis:** It is concerned with the various tests of significance for testing the hypothesis in order to determine with what validity data can be said to indicate some conclusion or conclusions.

It is also concerned with the estimation of population values. It is mainly on the basis of inferential analysis that the task of interpretation is performed. The statistical techniques adopted for inferential analysis of data is as under - Percentage, Graphs, Tables, Charts, Correlation regression etc. This research used inferential analysis to establish validity and reliability of the developed tool and also to analyzing results of the usability questionnaire from teachers of English language. In this research inferential analysis of data is used.

The next chapter deals in detail with the analysis and interpretation of data collected through the screening tool and the teachers usability questionnaire on the evidence that the screening tool is able to identify students of grade four who might be “at risk” of a reading disability and require remedial teaching along with classroom instruction.

### 3.17 Data Analysis tools

The following data analysis tools were used:-

Item analysis- discrimination index, difficulty index for construct validity of the screening test.

1. Reliability test through Co-Efficient of Correlation(r).
2. Cronbach's Alpha for item analysis of the individual test items.
3. Mean and standard deviation for the survey of students and usability report.

The tabular representation of statistical tools used objective-wise are given below.

**Table 3.4 Statistical tools used**

<b>Objectives</b>	<b>Methodology</b>	<b>Statistical tools</b>	<b>Sample</b>
Pilot testing the screening tool and testing its reliability and validity and to administer the tool and identify students with reading disability	Setting of test objectives, Preparing draft using MLL (Minimum Learning Levels for Class 4 in English as prescribed by SSC Board), Involving subject expert , Pilot testing and evaluation Administer the final tool in a group to the entire sample – field survey and final testing	*Item analysis * Cronbach's Alpha for reliability * Expert validation Mean, standard deviation and median scores	Purposive sampling 64 students for piloting Purposive sampling of 1045 students of Class IV from Secondary School Certificate (SSC) board English medium schools in Pune to identify students with dyslexia using the screening tool.
<b>Objectives</b>	<b>Methodology</b>	<b>Statistical tools</b>	<b>Sample</b>

To prepare the teacher's manual for the screening tool and test its usability	Usability test through face validity from teachers themselves using questionnaire method.	Simple mean of ease of use And percentage scores of the data	Purposive sample of 12 English teachers from those schools
---	---	--	--

### 3.18 Summary

Chapter three concentrated on the detailed methodology for developing the screening tool using the product development method with the 16 steps given (page 74) that included selection of key areas of reading through study and expert review of several standardised testing followed by item analysis and Cronbach's Alpha analysis for setting the reliability of the tool and the pilot testing . The types of tests and subtest and their reliability and validity ratios were also highlighted, several assessments tests were studies to select those that were most reliable, expert validated and most repeated in all the tests. It was then correlated with the text book Bal Bharti( edition 2015) on which the test is based. The chapter tried to show the logical proceedings in the creation of the screening tool by the researcher.

Furthermore , based on the major components of the reading and writing process the main elements to be included in the test were selected.The components of the tool were thus relevant to the students understanding as it was based on the text book, which was analysed to find out the High Frequency words or sight words that formed the core of the screening tool spelling and reading. In this process the understanding of the Minimum Levels of learning or MLL in English , as set by the State Education Board was also an essential step in the developing of this tool

After piloting the changes were made accordingly and the reliability was tested again and the item analysis score helped to eliminate the low scoring items. The final draft was thus then used for identifying students at risk of dyslexia and was administered to over a thousand Standard IV students in order to establish its efficacy. The next step was the construction of the answer key and the teacher's manual along with the usability test of the tool which was thus undertaken using the questionnaire method. A questionnaire was constructed to check the usability of the tool and was piloted with six teachers and finally data was collected from 12 teachers through the questionnaire survey method to establish the usability of the tool.

## References

1. Foddy, Willam. (1993) *Constructing Questions for Psychometric Test*,
2. Cambridge University Press, New Delhi p-340-345.
3. Menon Radha (2010) 2<sup>nd</sup> edition *Research In Education*, Neelkamal Publication, New Delhi
4. Johnson,TA & Reidman Flora (1999) *Using Screening Tool as a Technique* Program Evaluation and Methodology Division, Washington D.C.p 45-46
5. Groat, Linda & Wang, David. *Architectural Research Methods*, John Wiley & Sons, Inc., New Jersey ,p 78
6. Hollowitz, J. & Wilson C.E, (1993) *Structured Checklist in LD assessment* Journal of Applied Communication Research,,www.jacr.org
7. Kvale, Steinar( 2000), *Interviews: An Introduction to Quantitative Research*, Tata Mc Graw Hill, Mumbai p 78-88
8. N. K. Denzin & Y. S. Lincoln (1995), *The Sage Handbook of Quantitative Research*
9. (3<sup>rd</sup> ed.), pp. 1-33. Thousand Oaks, CA: Sage Publications, p 451 Kaul Lokesh, Perimal,T.Y (2009) “*Educational Philosophy and Learning Disability*” 4<sup>th</sup> edition p-45 Vikas Publishing, New Delhi
10. Best J.W and Kahn KV (2004) “*Research in Education*,” 10<sup>th</sup> Edition p-34,35,267 ,Prentice hall, New Delhi
11. Brown, J. D. (1996). *Testing in language programs*. Upper Saddle River, NJersey
12. <http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER%202014/Articles/ashokmutumsavitribobdeketanverma.pdf> retrieved on 11th January2016



## **CHAPTER IV**

### **DATA ANALYSIS & INTERPRETATION**

#### **4.1 Introduction**

#### **4.2 Descriptive statistics**

##### **4.2.1 Inferential Statistics**

#### **4.3 Data collection**

#### **4.4 Objective 1 data analysis and interpretation**

##### **4.4.1 Expert Validation and qualitative analysis**

##### **4.4.2 Finding HFW (High Frequency Words) From the “Balbharti” Grade 4**

##### **4.4.3 Procedure of Finding HFW (High Frequency Words) Or Sight Words**

##### **4.4.4 Item Analysis and Reliability Test of the Final Draft of the Screening Tool**

#### **4.5 Data Collection of the Pilot Test of the Group Screening Tool**

#### **4.6 Data Analysis and Interpretation for Objective 2**

##### **4.6.1 Descriptive Statistics and Reliability of the Group Test Items After Pilot Study**

#### **4.7 Test- Retest Reliability table among the ten subscales**

#### **4.8 The Level II reading Probe**

#### **4.9 School wise data of the field administration of the final developed group screening tool**

#### **4.10 Selection of the Schools for Conducting the Final Study of the Screening**

#### **4.11 Low performers in Screening tool testing**

#### **4.12 Data on school wise student performance**

#### **4.13 Data on marks scored in different subscales by the students**

**4.14 Data on Level II reading probe test for failed students**

**4.15 Gender wise and Marks wise scores of Low Performing Students in Group Screening Test**

**4.16 Final Administration Summary of Screening Tool**

**4.17 Data Analysis on the fulfilment of Objective 3 - Analysis of Usability Test of the Screening Tool**

**4.17.1 Component 1- Understandability**

**4.17.2 Analysis of the usability quality component II- Learnability**

**4.17.3 Analysis of the usability quality component III- Objective Achievement**

**4.17.4 Analysis of the usability quality component IV- Operability**

**4.17.5 Analysis of the usability quality component V- User Satisfaction**

**4.17.6 Analysis of the usability quality component VI – Applicability**

**4.17.7 Overall Qualitative feedback about Usability**

**4.17.8 Conclusions of the data about the usability of the screening tool**

**4.18 Fulfillment of Research Objectives**

# CHAPTER – IV

## DATA ANALYSIS & INTERPRETATION

### 4.1 Introduction

Statistical methods deal with the collection, classification and tabulation of numerical facts so as to provide a basis for the explanation, description and comparison of the phenomenon under study. Various statistical methods are used in research so as to analyze data and draw conclusions and is called as Analytical techniques of research. In this averages, variability, correlation, regression, trends, rates and ratios, t-test etc. are used to analyze a given set of collected data. This chapter discusses inferential statistics, which uses sample data to make decisions or inferences about the population. Populations are group of interest when inferential statistics are used, even though data are analyzed from samples collected yet the inferences are useful to the whole population.

Statistics is the study of numerical data and helps the researcher in drawing conclusions and getting empirical proof that the research was efficiently conducted and results reached as per the objectives of the research. It deals with the process in which the researcher gathers, presents, organises, calculates and analyzes data.

There are mainly two types of statistical methods used in research

- Descriptive statistics
- Inferential statistics

### 4.2 Descriptive statistics

This statistics describes the features of the data collected through the sample quantitatively . Some important features of the data or information is described through the descriptive statistics.

For Example-

- Estimation of the number of boys and girls in a district
- Frequency of earthquakes in a region
- Estimation of the damage to the state exchequer during wars etc.

Descriptive statistics helps in describing the features of the population that is being studied. Although both descriptive and inferential statistics are useful in analysis of data both have different uses and give different insights into the collected data. The descriptive statistics is useful in giving the summary of the given sample as well as the observations seen in those samples. These summaries or descriptions can either be graphical or quantitative. For Example: The individual or team performance of our cricket team is a descriptive statistical measure.

As Per Howard &Skin(1978) “Descriptive statistics does not reach at any conclusions beyond the given data or hypothesis and is in fact a quantitative way of simply describing the sample data collected.” Generally measures of central tendency ie mean, median ,mode, standard deviation, variance, quartiles, range, absolute deviation are included in the measures of spread and all types of graphs are depictive of descriptive data.

#### **4.2.1 Inferential Statistics**

Inferential statistics is that type of statistical conclusion in which we can draw predictions and inferences from the whole data and detect and predict observational and sampling errors. This type of statistics is generally used to make estimates and test hypotheses using given data.

Descriptive statistics just describes the certain characteristics about a data while, inferential statistics, deeply analyzes the statistical data and observations and tells the researcher what to do next and how to approach the collected data. It answers the question , what does the data collected predict ?

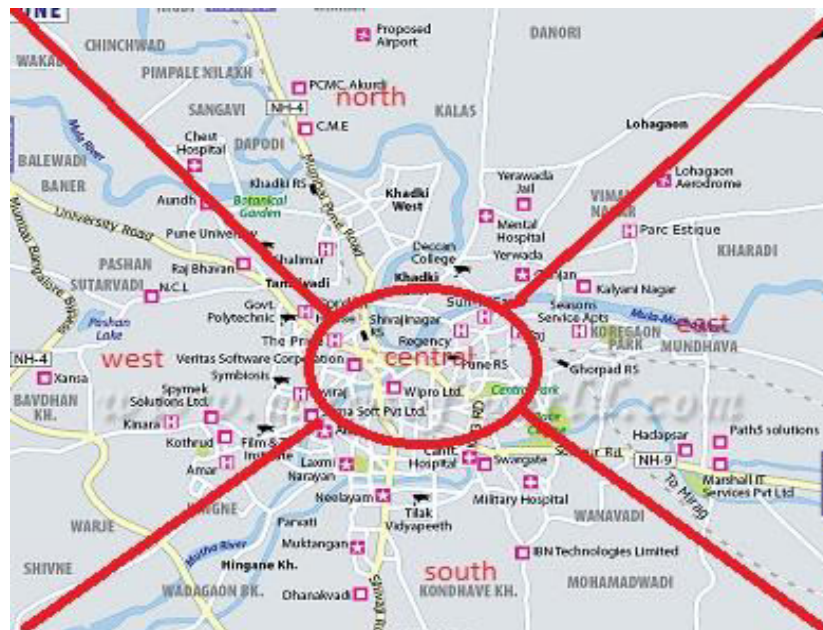
Hence, inferential statistics may be defined as the answer of the question "what is needed to be done next". This provides an information about the

further surveys and experiments. Inferential statistics enables the researcher to draw conclusions before the implementation of some particular organizational policy.

In the present research the researcher has used descriptive data for administration and usability testing and for item analysis inferential data to check reliability through Cronbach's alpha and Item Discrimination scores.

### 4.3 Data Collection

The data for this research was collected from 1045 grade four students in Pune city studying in 13 SSC (Secondary School Certificate Board) Maharashtra and the usability test was run on 12 English teachers of these schools. For this the entire city was divided into north ,south ,east ,west and central parts and the focus was to collect data in such a manner that the number of respondents from each part were more or less equal.



Letters of permission were given to 5 schools in each area and incidentally 13 schools accepted the researcher's letters and granted permission . The test retest for the pilot study were conducted in the same schools and since it required repeated visits by the researcher certain schools did not allow the researcher to go through the entire process of using level ii probe and checklist and hence, such schools were left midway and new schools were

taken up . The aim was to administer the screening tool to over 1000 students and this was successfully done by the researcher keeping a balance between the number of students from each area such that there is no area wise discrepancy.

**TABLE 4.1 : Sample Composition for Screening Tool Data Collection**

<b>Region</b>	<b>Name of School</b>	<b>Boys</b>	<b>Girls</b>
East	Limra High School	49	28
	Basant English medium School	39	30
	Phoenix English Medium school	31	20
	Vatsalya High School, BT Kawde	37	41
	Sub Total	156	119
West	Sunrise English Medium School	50	12
	Wisdom High School	52	18
	Sub Total	102	30
Central	Deen Dyal Upadhayay Primary school	29	28
	Oscar English medium school	27	30
	Vatsalya High School and junior college	38	31
	Sub Total	94	89
South	Sadhana English Medium School	61	121
	Saraswati English Medium School	48	31
	Sub Total	109	152
North	Mother Teresa Secondary School and Junior College	59	49
	Vardhaman English medium High School	27	59
	Sub Total	86	108
	<b>Total students</b>	<b>547</b>	<b>498</b>

**4.4 Objective 1 – Data analysis and interpretation-** *To construct a curriculum based group screening tool in English subject for identifying students at risk of Dyslexia in class IV.*

#### **4.4.1 Expert Validation and qualitative analysis**

For the conceptual design the researcher's knowledge and experience were clarified by the literature reviewed on the definition and more expert advice was also consulted, including professors in the field at **SNDT** University in and **RCI** (New Delhi) and Centre for Child Development and Learning, Bengaluru (**CCDL**). The consultation confirmed the kind of tests to give and the mode and design for validation of the tool.

The experts recommended having a word count of some English books commonly used in grade 4 to distinguish high frequency (HF) words and low frequency (LF) words and use these words for constructing the relevant tests.

Experts in the field of Learning disability and specific remediation were then sent the sample tool for their expert advice in SNDT (Juhu). This was again followed by independent evaluation and **Expert Validation** of the final tool after piloting by three eminent experts, namely:-

1. Dr. Chiddanand Desai , MBBS, PhD (Delhi)
2. Dr Kamlesh Chaudhary M.Ed, PhD (Pune) from RCI
3. Dr Sathyanarsh Reddy M.Sc, PhD (Bengaluru) from CCDL

The qualitative analysis reports of the experts were then held as standards to improve the screening tool and make changes as suggested. The content was thus validated by the experts.

#### **4.4.2. Finding HFW (High Frequency Words) From the “Balbharti” Grade 4**

The **need and importance** of the selection of these high frequency words is that - a normal reader can read these High Frequency words without any problem but a dyslexic student cannot read these commonly occurring words without a strenuous effort , hence the value of the High frequency words, also called “Sight words” or “Dolce Words”. These words differ from age to age and grade to grade.(*Brown and Nordich , 2008,Dolce Words for Dyslexics*)

First, the researcher found out the grade 4 English curriculum book- the Bal Bharti published by SCERT (revised edition 2014). This was done in order to use these High frequency words for the different test measures like Phonological awareness, rhyming etc.

Then the researcher went through each and every chapter of the 28 chapters and underlined the most commonly occurring words and then the most common and popular words had to meet the criteria as high frequency words.

In order to distinguish high and low frequency words a **manual word count was done on the English reader** (Bal Bharti) in class 4 following the method as given by Kihampa and Mkinga in their PhD research thesis on procedure of selecting words as High Frequency words. (Kihampa, 1997; Mkinga, 2000, Institute of Education, NZ).

High Frequency words become “sight words” or **DOLCE words** which a student can read automatically without making any effort as the brain has registered these words because it has read them so many times.

The **assumption** of the selection of these high frequency words is that - a normal reader can read these common words without any issue but a dyslexic student needs to put in strenuous effort, hence the value of the High frequency words in order to prepare the group screening test.

#### **4.4.3 Procedure of Finding HFW (High Frequency Words) Or Sight Words**

The process involved finding out how many times each word used in a particular book appeared in the whole book by **five stroke tallying**. A word with three and more tallies (15) was considered as a high frequency one, while one with less than three as low frequency. High frequency words from all the books made one list, and likewise with low frequency words. The full list is presented in **Annexure D**.

The tests used high frequency words and were constructed by starting with **easier words and then moving to more difficult ones** except for the picture-letter, letter picture, initial sound and the writing of the letters of the alphabet in the writing test. In these scales the items were mixed up so that the children would not easily guess what letter would follow in the arrangement.

Short high frequency words without clusters or with a single cluster and no succession of clusters were considered easier to read. Longer high frequency words without clusters or with single or a succession of single



consonant clusters and with a nasal sound were considered more difficult to read.

Low frequency words were very limitedly and sparingly used. These were considered to be more difficult to read. They were used when it was felt or observed that the high frequency words were exhausted. The box below presents an example of the selection of the words for the tests:

**FIG 4.2**

**A Small Sample of High Frequency Words for the Test Construction**

because, above, but, across, camp, address, ago, care, careful, airplane, almost, because, also, centre, though, awake ,between, dead bottom, desk ,different ,brought building, built, rain, weak etc

**4.4.4 Item Analysis and Reliability Test of the Final Draft of the Screening Tool**

The process of item analysis involved determining the reliability, item difficulty and item discrimination for the 7 subscales of the group test, which had a total of 104 items, and of the follow-up test with 10 subscales.

**Item difficulty (P Value) :** The percentage of students who gave correct answer helped to determine the level of difficulty of an item or its p-value. This was calculated after the pilot testing.

(i) It is also called “ p value”. The range is from 0% to 100%, or more typically written as a proportion of 0.0 to 1.00. The higher the value, the *easier* the item.

(ii) Calculation: Divide the number of students who got an item correct by the total number of students who answered it.

(iii) P-values below 0.20 are very difficult items and should be removed from subsequent exams, and/or identified as an area for re-instruction.

(iv) Accepted values are .50-1.0

**Item discrimination:** the relationship between how well students did on the item and their total exam score.

- (i) Also referred to as the Point-Biserial correlation (*rpbis*)
- (ii) The range is from –1.00 to 1.00.
- (iii) The higher the value, the more discriminating the item. A highly discriminating item indicates that the students who had high exams scores got the item correct whereas students who had low exam scores got the item incorrect.
- (iv) Acceptable range: 0.20 or higher, Ideal value: The closer to 1.00 the better

**Item-total statistics:** measure the relationship of individual exam items to the overall exam score. However, one can calculate these statistics using SPSS or SAS statistical software. Most of the items were within an acceptable range of difficulty (i.e.( difficulty index) pvalue was between 0.15 and 0.85). The items also discriminated well. The D-value was from 0.30 and above. In this respect, most of the items were qualified to be included when developing further versions of the screening tool.

**Table 4.2**  
**Item score analysis table of the final draft of the screening tool**

Item-total statistics	Mean = 46.1100 S.D. = 8.26444 Valid n = 100 Cronbach's alpha = .794313 Standardized alpha = .800491 Average inter-item correlation = .297818					
Variable	Mean if deleted	Var. if deleted	S.D. if deleted	rpbis	Pvalue	Alpha if deleted
ITEM1	41.61000	51.93790	7.206795	.656298	.507160	.752243
ITEM2	41.37000	53.79310	7.334378	.666111	.533015	.754692
ITEM3	41.41000	54.86190	7.406882	.549226	.363895	.766778
ITEM4	41.63000	56.57310	7.521509	.470852	.305573	.776015
ITEM5	41.52000	64.16961	8.010593	.054609	.057399	.824907
ITEM6	41.56000	62.68640	7.917474	.118561	.045653	.817907
ITEM7	41.46000	54.02840	7.350401	.587637	.443563	.762033
ITEM8	41.33000	53.32110	7.302130	.609204	.446298	.758992
ITEM9	41.44000	55.06640	7.420674	.502529	.328149	.772013

ITEM10	41.66000	53.78440	7.333785	.572875	.410561	.763314
<b>ITEM 11</b>	41.41000	54.86190	7.406882	<b>.02347</b>	<b>.05667</b>	.766734
ITEM 12	41.63000	56.57310	7.521509	.61875	.55634	.776038
<b>ITEM 13</b>	41.52000	64.16961	8.010593	<b>.02387</b>	<b>.07264</b>	.82388
<b>ITEM 14</b>	41.56000	62.68640	7.917474	<b>.05376</b>	<b>.045622</b>	.766108
ITEM 15	41.89000	55.68640	8.917474	.08376	.00896	.76396

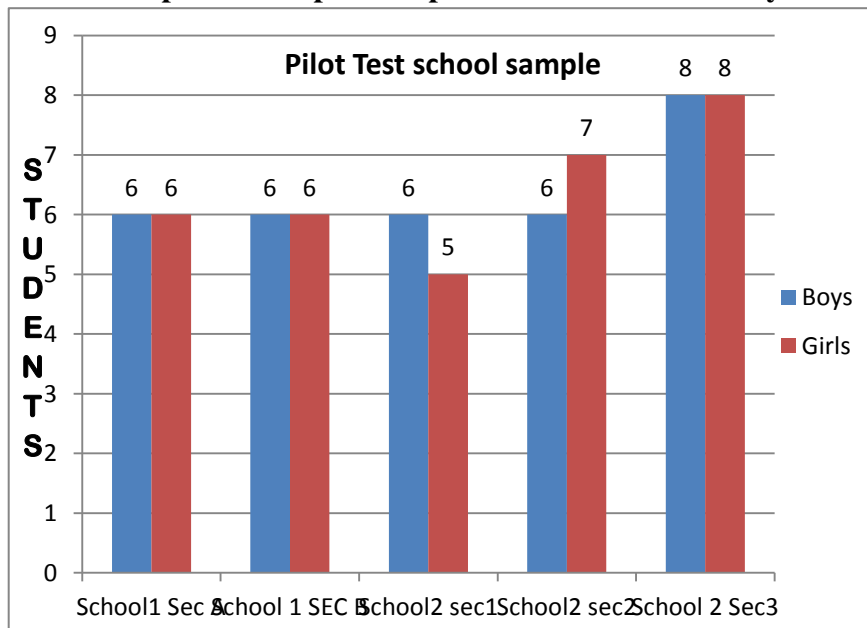
*Items or questions in the screening tool that are in bold were rejected as they failed the item analysis test*

**Data Analysis - Rpbis** - Acceptable range: 0.20 or higher, Ideal value closer to 1.00 the better **p-values**- item difficulty below 0.20 are very difficult items and should be removed from subsequent exams, and/or identified as an area for re-instruction. Accepted values are .50-1.0. Hence item numbers 5,6 11,13,14 had to be deleted as they did not pass the item analysis test.

#### 4.5 Data Collection of the Pilot Test of the Group Screening Tool

The participants for the pilot study are described below. The pilot study was firstly conducted on 64 children random sampled in grade four from the selected SSC board English primary schools in Pune municipality.

**Graph 4.1 Sample Composition of the Pilot Study**



**Table 4.3 Sample composition of the pilot study**

Students	School 1		School 2		
	Sec1	Sec2	Sec A	Sec B	Sec C
Boys	6	6	6	7	8
Girls	6	6	5	6	8
Total (64)	12	12	11	13	16

The pilot study, as the first phase of the study, was conducted for the purpose of further refinement of the screening test items and selection of the most valid and reliable test items for the final group screening tool. During the pilot study students from both the schools were selected randomly and the test was administered to them.

#### **4.6 Data Analysis and Interpretation for Objective 1**

The first and foremost part of the objective was to construct a screening tool and then to administer it to identify the students “at risk” of dyslexia or reading disability . This was done by actually conducting the group test with the newly constructed screening tool to 1045 students in 13 different schools in Pune of grade 4. This too is an essential part of the product development process. The data thus collected was analysed and interpreted to identify such students who were at risk of having a reading disability.

##### **4.6.1 Descriptive Statistics and Reliability of the Group Test Items After Pilot Study**

The descriptive statistics for the group test and for the tests which were used for validation, i.e. individual test, follow-up test (Reading Probe Level II) and Check-List are presented along with the Descriptive data of the scales of the group test, individual test, follow-up test marks are as follows:-

**Table 4.4 Descriptive Statistics and Reliability of the Group Test Items After Pilot Study**

Question/Item	Mean	SD	rpbis	Alpha(reliability)
1	90	30.6	.51	.93
2	82	38.7	.67	.92
3	80	38.6	.77	.92
4	74	34.5	.87	.92
5	78	47.2	.80	.91
6	77	50.1	.82	.91
7	89	49.4	.77	.91
8	92	47.4	.70	.92
9	34	40.8	.53	.93
10	21	50.4	.83	.92
<b>Total</b>	<b>59.7</b>	<b>34.0</b>	<b>.53</b>	<b>.92</b>

**Data Analysis** - The mean is 59.7, SD=34.0 and reliability,  $r=.92$ . Item difficulty index is between 0.21 and 0.90. In this case the test had good enough items ( $p=0.21 < > 0.82$ ) to be retained which was of average ease for the children. Item discrimination index ranged from .51 to .82 indicating that all the items discriminated well. The average item difficulty is .53 and reliability is .92 which is also high. Construct validity was further determined by principal component analysis. The results indicated a one-dimensional structure, named *initial literacy factor*. This means that all the scales measured the same construct. All the ten subscales highly inter-correlated. The average correlation index is .92 among all the items.

#### **4.7 Test- Retest Reliability table among the ten subscales**

To establish the test-retest reliability in the pilot test study the scores were subject to correlational manipulation using the SPSS software and found to be highly reliable as all coefficients of correlation fell between .7 to 1. The following table shows the reliability scores of the screening tool after the pilot study.

**Table 4.5 Retest Reliability table among the ten subscales**

Subtests	1	2	3	4	5	6	7	8	9	10	Total
Test-Retest	.65	.71	.75	.66	.81	.67	.65	.68	.69	.72	.78
Reliability	.81	.84	.83	.98	.81	.80	.88	.78	.88	.85	.80

Table 4.5 shows the reliability of the retest scores of the ten questions that were used in the screening tool. The reliability co-efficient is high ie .80 on all the sub tests together and hence the test is found to be reliable. The next portion of the chapter deals with the relevant changes made after the pilot testing and the expert validation.

#### **4.8 The Level II- Reading Probe**

Those who scored very low ie in the “at risk” category in the group test were further administered the second level of the screening tool called simply the Level II. It included measures of phonological awareness, measures of reading, comprehension and writing on a more higher scale with test items like One minute reading and listening ,so that the teacher can make sure where the students is having a difficulty in reading ability.

Measures of phonological awareness include only one subscale, namely the pseudo-word Test. Measures of reading include three subscales, which are the reading words aloud, actual text reading, and one minute reading. The individual test battery also includes a writing test. The total is 6 subscales. All the subscales in the individual test battery were also selected based on the literature review and according to expert advice. The scales were also judged to be manageable when administering them to the 48 sampled pupils.

#### **Reading disability checklist qualitative validation**

The checklist consists of 28 questions divided into 3 major categories:-

- (i) Reading
- (ii) Language comprehension
- (iii) Writing

This checklist has been **compiled by calibrating three different checklists** given by

- (i) Rehabilitation Council of India (RCI), Manual of Learning Disability
- (ii) Singapore’s Genesis Institute of Learning Disability Checklist
- (iii) National Learning Disability (NLD) program’s checklist along with the [www. understood.org](http://www.understood.org), NGO organization’s free online disability checklist.

This checklist too has been developed after content validation with experts and was a part of the pilot testing of the screening tool . Those students who had more than 12 out of 28 items on the check list were to be marked as “ at risk” category of developing Dyslexia and hence needed immediate reading interventions.

### **Qualitative Changes after the Pilot Study**

After the pilot test the number of items in the test was reduced as it was observed that a test with a large number of items bored the pupils. The qualitative scrutiny involved experts, guide and the researcher.

- The number of pseudo-words was also reduced from the originally intended ten to five only. The pupils were not used to reading non-words. Some pupils said that it was ‘English’ since they could not get the meaning of the words. They said that their teacher had not taught them such words.
- This implied that the examiners had to be very cautious and careful during the administration and when giving the instructions for the tests. It was essential that the pupils really understood what each test required them to do.
- Another change was that pictures were added in the Unseen passage to help them understand and comprehend better.
- Generally, most of them showed a positive attitude to the test. It seemed play-like to them. The teachers also liked the tests. Some gave comments like, “They are very good!” Others said, “They are challenging!” Others remarked, “They provide a different way of testing pupils’ reading and writing skills!”

**Table 4.6**  
**Qualitative Changes after Pilot Testing**

<b>Questions removed after pilot test</b>	<b>Questions added after pilot test</b>
1. Pilot test had 30 questions out of which 10 were removed . E.g – Questions on Opposites was considered too difficult by experts	1. After pilot test the total number of questions was fixed at 10 with 2 subtests each and hence the test has 20 questions and valued at 40 marks.

and removed as we want to judge only basic reading and comprehension skills.	
2. Pseudo-words or non sense words reduced to 5 from 10 as students could not score on it. Item difficulty was too high.	2. Pictures with passage added
3.4 very easy items removed that failed item analysis. E.g Match the correct word with the picture Classroom Bus stop etc were removed.	3. 2 more words added for test of comprehension. E.g – Yell – to shout Chores – Daily work
4. Unnecessary data like age, name of teacher, class was removed.	4. Font size was increased for ease of viewing

After the changes had been made and the pilot study successfully done the group screening tool was ready for field testing and the researcher had to conduct the main study .

#### **4.9 School wise data of the field administration of the final developed group screening tool**

After the successful creation of a valid and reliable group screening tool ,the next objective of the research was to use the tool extensively over 1000 or more students to establish that the screening tool can identify the students with reading disability or not. For achieving Objective 2 ; the above constructed group screening tool to identify the students at risk of a reading disability (dyslexia ) in grade four of SSC board was administered to over 1000 students from 13 English medium schools in Pune city.



**Table 4.7****Gender –wise and Region wise sample composition for data collection**

<b>Region</b>	<b>Name of School</b>	<b>Boys</b>	<b>Girls</b>
East	Limra High School	156	119
	Basant English medium School		
	Phoenix English Medium school		
	Vatsalya High School, BT Kawde		
West	Sunrise English Medium School	102	30
	Wisdom High School		
Central	Deen Dyal Upadhayay Primary school	94	89
	Oscar English medium school		
	Vatsalya High School and junior college		
South	Sadhana English Medium School	109	152
	Saraswati English Medium School		
North	Mother Teresa Secondary School and Junior College	86	108
	Vardhaman English medium High School		
	<b>Total</b>	<b>547</b>	<b>498</b>

#### **4.10 Selection of the Schools for Conducting the Final Study of the Screening**

For selecting the schools in which to conduct the main study of identifying students with a reading disability or dyslexia the researcher divided the city into 5 regions i.e. north, south, east , west and central Pune The main study involved, administering the Group screening test to **1045** grade four students in SSC board English medium schools in urban Pune.

This was done from early October 2015 to January 2016, when the children were half-way through grade 4. The main study involved 1045 fourth grade children ranging from age 7.5 to 10, with a mean age of 8.25, from the selected primary schools in Pune municipality. This included administering the screening tool:-. Group Screening tool with. Level II Reading Probe and Checklist.

**Table 4.8 Final administration of Screening Tool**

Date	Schools
October 2016	Limra, Basant,Phoenix,Vatsalya - 1.Sunrise
November 2016	Vatsalya School- 2 DeenDayal,Sadhana,Vardhaman,
January 2016	Wisdom, Saraswati Vidyalaya ,Mother Teresa, Oscar high

#### 4.11 Low performers in Screening tool testing

After the screening tool had been administered the data of 1045 students and the marks scored were entered in the SPSS software and all the students who scored less than 16 on the test were listed out school wise, class section wise and name wise. Out of 1045, 177 people failed the test i.e they scored less than 16 marks 150 boys and 27 girls , which means 28% boys and only 6% girls.

**Table 4. 9 Low performers in Screening tool testing**

Name of School	Boys	Girls
Limra High School	17	03
Basant English medium School	15	02
Phoenix English Medium school	06	01
Vatsalya High School, BT Kawde	09	02
Sunrise English Medium School	11	00
Wisdom High School	16	02
Deen Dyal Upadhayay Primary school	13	05
Oscar English medium school	01	01
Vatsalya High School and junior college	08	01

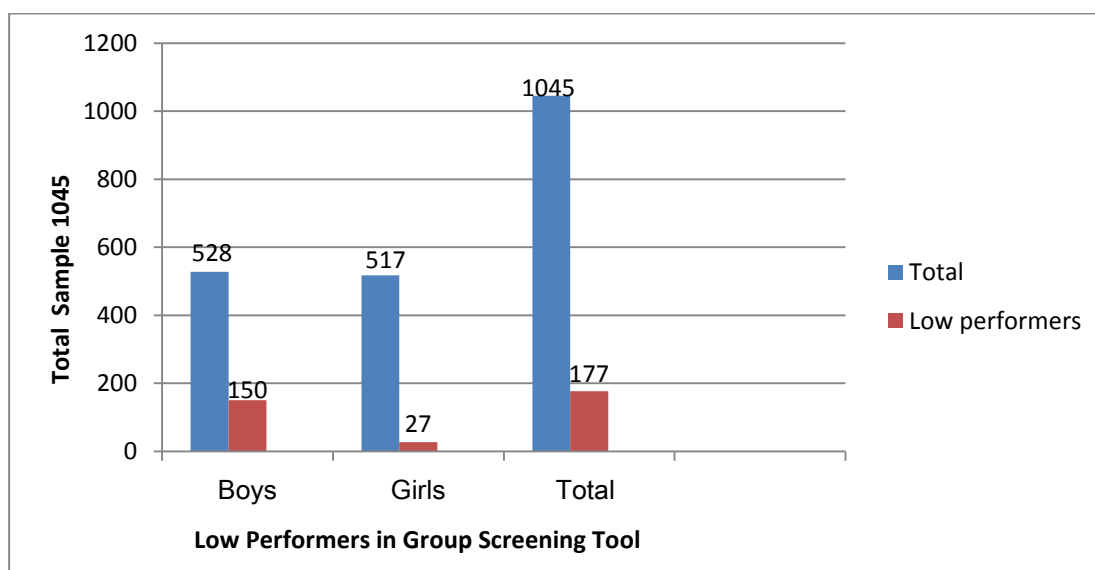
Sadhana English Medium School	15	04
Saraswati English Medium School	19	03
Mother Teresa Secondary School and Junior College	15	01
Vardhaman English medium High School	05	02
<b>Total students</b>	<b>547</b>	<b>498</b>
<b>Low Performers</b>	<b>b = 150</b>	<b>g = 27</b>
<b>Percentage</b>	$150/547=27.4\%$	$27/498=5.4\%$

LP=Low Performers ie, less than 16 marks in group screening test, b=boys, g=girls

Explanation: The above table shows that out of 1045 students who took the final test , there were approximately equal number of boys and girls. Out of them **177** got below 16 ie “at risk” of reading disability marks. In that there were **150** boys and **27** girls. The number of boys was three times as much as the girls although the number of boys and girls taking the test was more or less the same ie, 517 and 528 respectively. The percentage of boys who failed to score even 16 marks out of 40 in the group screening test was 14% and only 2.5% girls failed the group screening test level 1.

The total percentage was however more  $177/1045 = 16.93\%$  of all the **sample students** failed the level 1 group screening tool for dyslexia.

**Graph 4.2 Low Performers in Group Screening Tool**



#### 4.12 Data on school wise student performance

**Table 4.10 School wise Student Performance**

Name of School	Appeared Boys	Pass	Pass % Boys	Appeared Girls	Pass	Pass % Girls
Limra High School	49	32	65.3	28	25	89.2
Basant English medium School	39	24	61.5	30	28	93.3
Phoenix English Medium school	31	25	80.6	20	19	95
Vatsalya High School, BT Kawde	37	28	75.6	41	39	95.1
Sunrise English Medium School	50	39	78%	12	12	100
Wisdom High School	52	36	69.2	18	16	88.8
Deen Dyal Upadhayay Primary school	29	16	55.1	28	23	82.1
Oscar English medium school	27	26	96.2	30	29	96.6
Vatsalya High School and junior college	38	30	78.9	31	30	96.7
Sadhana English Medium School	61	46	75.4	121	117	96.6
Saraswati English Medium School	48	29	60.4	31	28	90.3
Mother Teresa Secondary School and Junior College	59	44	74.5	49	48	97.9
Vardhaman English medium High School	27	22	81.4	59	57	96.6
<b>Total students</b>	<b>547</b>	<b>Pass= 397</b>	<b>71.5 %</b>	<b>498</b>	<b>Pass 471</b>	<b>95.7 %</b>
<b>LP</b>	<b>b = 150</b>			<b>g = 27</b>		
<b>Percentage of Low performers</b>	$150/547=1$ <b>27.4 %</b>			$27/498=$ <b>3%</b>		$177/1045$ <b>=17%</b>

**Analysis** of Table 4.13- The number of boys with low performance is five times more than girls although the sample of girls and boys is almost the same . The % of boys who could not score the minimum cut-off was significantly high thus showing the prevalence of reading disability more in boys than girls.

Amongst the entire population of 1045 students 177 were low performers which means that 177( 16.96%) of the total student surveyed using the tool failed the basic English group test and were then asked to take the level II reading probe to clearly indicate a reading disability or dyslexia.

The next step was to administer Reading Probe Level II developed by the researcher to the 177 low performing students in order to weed out those that might be weak in English language due to factors others than dyslexia and those that scored less than 50% marks in Level II were run through the checklist for reading disability. This further ensured that the screening tool finally identified 22 students with a reading disability or dyslexia.

#### **4.13 Data on marks scored in different subscales by the students**

The students were given the test and the results showed that there were about 177 students out of 1045 of grade four who scored less than 16 marks and came in the at risk categories in both the test and retest scores. The distribution of retest marks is as follows.

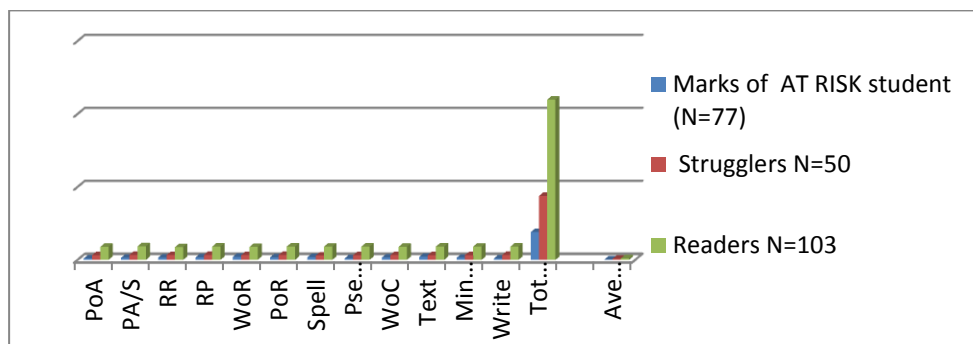
**Table No 4.11 Total marks scored by students in different subscales of the screening tool**

Subscales	Marks of AT RISK student (N=77)	Strugglers N=50	Readers N=103
PoA	20	64	180
PA/S	30	69	187
RR	32	66	175
RP	35	69	183
WoR	42	66	178
PoR	36	68	183
Spell	38	60	182
Pseudo	22	64	183
WoC	34	66	180
Text	43	65	183
Minute	30	65	182
Write	20	68	183
<b>Total score</b>	<b>382</b>	<b>878</b>	<b>2196</b>

*PoA=Phoneme Awareness, PoR=Phoneme recognition, PA/S= Phoneme Addition/Subtraction, RR= Rhyme Recognition, RP=Rhyme Production, WoR=Word Recognition, Spell=Spelling, Psuedo= Nonsense words , WoC=Word Comprehension, Text=Unseen text, Minute= Reading in a minute, Write= Free writing*

**Graph 4.3**

**Scores of Students on Different Subscales**



**Analysis** of the table and graph above shows that strugglers scored very low on all the subscales especially in phoneme awareness and phoneme addition

and subtraction sub test in the screening tool . Therefore they were also weak in spellings and reading and word recognition, but they were able to do alright in Rhyme production and writing.

According to the MLL (Minimum Learning Levels in English) the performance of the students on the test is very poor . Even the readers have scored only 54% marks in the test. This means the overall level of achievement in English learning is extremely low in grade four of SSC board schools surveyed.

Whereas the strugglers and readers did best or second best on phoneme awareness and recognition and hence were able to read better. This shows that phonetic awareness and word recognition are highly correlated. ( *Huksara, Garthrud, 2009, pg 17,418*)

#### **4.14 Data on Level II reading probe test for failed students**

Data was collected on the scores of all the 177 students who failed the group screening test and had to take the level II test further to ascertain reading disability.

**Table 4. 12 Test results of Level II reading probe for at risk students (N=177)**

<b>Subtest</b>	<b>Word awareness (10marks*177)</b>	<b>Spelling (10marks*177)</b>	<b>Sight words (10marks*177)</b>	<b>Reading with comprehension (10marks*177)</b>
Total scores achieved by 177 at risk students	450	380	303	288
% scores of 177 "At risk" students	$450/1770*100=25.45\%$	21.46%	17.11%	16.27%

**Analysis** of data shows that the average performance of the 177 “at risk” students is lower than even 50% in the level II individual test on all the four subtests and the lowest performance score being in reading English. The test is based on the curriculum of class IV and the MLL - **Minimum Learning Levels**, as prescribed by the **Dr Dave SC Committee (NCERT) ,1986 , accepted by SSC Board, Maharashtra 1990 )** as given for class IV in English language proficiency and taken from their textbook, yet these children could not perform .

The area where they have the least marks is the reading with comprehension and thus that is the area that has to have the maximum remediation. At risk students as a whole are unable to read the English language with comprehension and thus putting them at risk of dyslexia and also drop-out !

#### **4.15 Gender wise and Marks wise scores of Low Performing Students in Group Screening Test**

The 1045 students who took the test 177 failed it and scored less than 16 out of 40, the gender wise break up is given as follows and shows that 150 boys and 27 girls need to take the Level II probe test now.

**Table 4.13 Scores Obtained Gender wise and Marks wise by Low Performing Students in Group Screening Test**

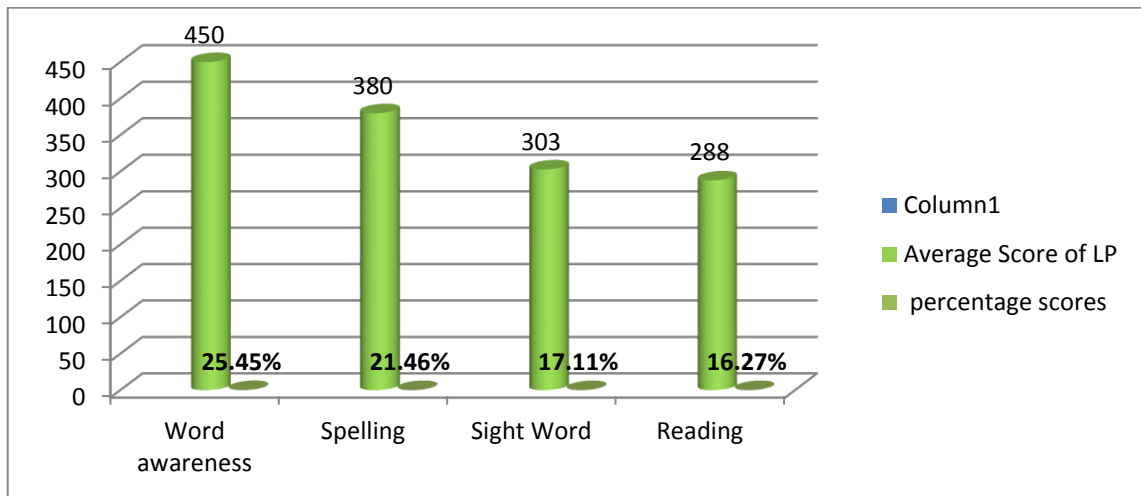
<b>Gender</b>	<b>Score below 16</b>	<b>17-28</b>	<b>28 -40</b>	<b>Total</b>
<b>Boys</b>	150	169	228	547
<b>Girls</b>	27	250	221	498



Those who scored below 16 in level II were subjected to checklist by the teachers and in that all of the above 22 were found to be having more than 12 criteria or symptoms of learning disability in general and reading disability in particular and hence required remedial intervention.

**Graph 4.4**

**Average % scores of “At Risk” students in level II test**



**Analysis** of the graph above shows the dismal performance of the Low Performing students in Level II individual reading test.

These 177 students had scored less than 16 marks in the group screening tool and took the second level individual test, in which too they did not do well. But this does not mean they have dyslexia.

Once they had more than 12 ticks out of 28 on the checklist can we say that they have are having disability otherwise low performance can also be attributed to slow learning or no exposure to English etc.

Hence in the final tally of the data **22 students** showed signs of being at risk of Dyslexia using the group screening tool developed by the researcher.

Whereas the rest of the 65 students were weak in reading but did not have a reading disability which is a neurobiological disorder that inhibits the ability to decode and memorize alphabets and sound out words.

They would benefit from remedial teaching as well as the students with Reading disability.

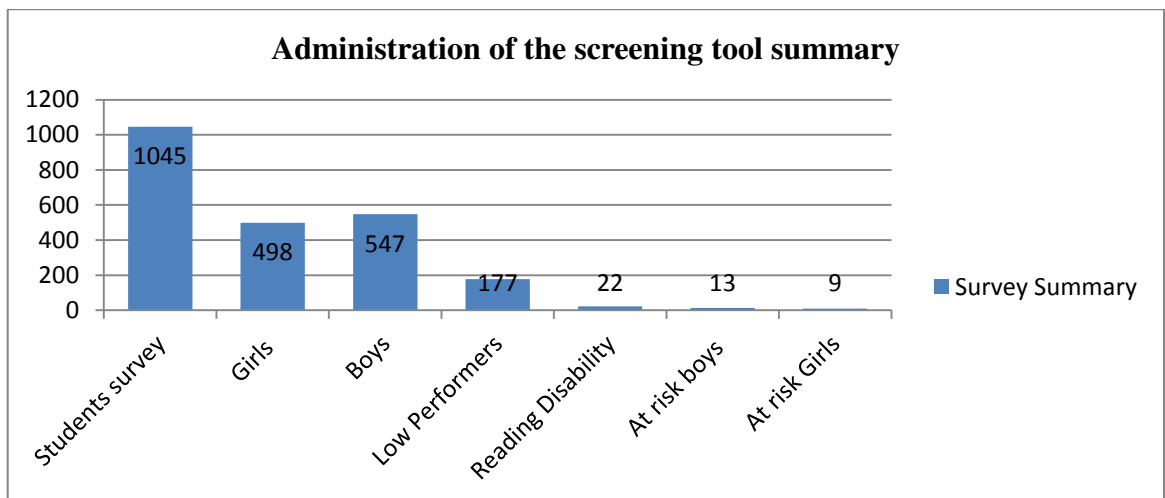
A **teacher’s manual** was also prepared to help the teachers administer the test themselves with ease and know the students who have a reading disability. Face Validity of the manual was established by giving it to the English teachers themselves for their views.

#### 4.16 Final Administration Summary of Screening Tool

Hence, out of the 1045 students surveyed using the screening tool 22 students ( 13 boys and 9 girls) have been found out to be “at risk “of a lifelong reading disability condition also called dyslexia and remedial teaching and further diagnostic testing is recommended for these students. Thus, the second objective of the research to identify students at risk of dyslexia was successfully reached and 22 students were thus detected.

**Graph 4.5**

**Administration of screening tool summary**



Hence the Objective number 2 of identifying students at risk of dyslexia in grade four in SSC board English medium schools in Pune using the newly developed Group screening tool was successfully achieved.

#### 4.17 Data Analysis on the fulfilment of Objective 2 -

The second objective was testing the usability of the group screening tool and the teacher's manual through the usability testing techniques as developed by Gordon Neilson and Dana Schunell (2002) for software testing in the field of technology and computers.

The technique used here divided the usability into 6 standard components. Then a questionnaire was used to get feedback from the teachers who have used the group screening tool and the Level II reading probe in a class setting. The questions listed in this questionnaire were classified under the different aspects of usability components as follows:

- **Understandability**- is the end product making sense to the user. Can they understand the theoretical basis of the tool and what it tries to measure or do? Is it easy to understand the concept? All these issues are answered using appropriately formed questions in a questionnaire form after the end user has used the product whose usability has to be tested.
- **Learnability**- Does the product help in learning anything new- any new skill or concept. What is its learnability quotient?
- **Operability**- Is it easy to use and score. Ease of use determines the value of the product. However nice a tool might be if it is not easy to use and not user friendly it cannot be successful or even useful.
- **Object achievement**- This component of the usability testing measures the fact whether the tool or product was able to achieve the objective of measuring what it set out to measure. Has the objective or goal been achieved? In this research, has the tool been able to identify at risk students?
- **User satisfaction**- its aesthetical beauty, ease of use and operational use along with the easy understandability of its instructional manual decide its user satisfaction levels.
- **Applicability**- Is it relevant and applicable to the target audiences for whom it has been made? Is it really useful to them and helps them in the

researcher set out to. This component along with the other five components form the core of usability testing in the field of psychometric testing as adapted from computer software testing.

To study the usability of the Screening tool to identify students at risk of a reading disability the researcher finalized the usability components and constructed a questionnaire. The researcher then prepared a questionnaire that was validated by expert opinion.

The selection of the user group was done purposefully based on the availability and willingness of the teachers to be a part of the usability testing procedure.

An orientation for the testing was given to the teachers by the researcher . The researcher then collected feedback on the usability of the screening tool to identify the students “at risk” of dyslexia in grade four through the questionnaire. Open ended questions were included in the questionnaire so as to get qualitative feedback on the usability of the screening tool to identify the students with a reading disability.

**Table 4.14 Component-wise number of questions**

Component	No. of Questions
Understandability	7
Operability	4
User satisfaction	4
Applicability	7
Objective Achievement	2
Learnability	4
Total Questions	29

The responses of all the 12 English subject teachers, were analyzed through percentages, graphical representation and qualitative interpretations. The frequency of the responses was totalled and then the responses were analysed and the scores put in graphical form. There were 25 yes /no questions and 4 questions had qualitative/subjective answers.

**Table 4.15 Total Scores of individual respondents on the usability questionnaire**

Total questions	Yes/No	Max Score / All Yes	Scores Obtained
25		25	Out of 25
Teacher 1		25	24
Teacher 2		25	23
Teacher 3		25	22
Teacher 4		25	22
Teacher 5		25	23
Teacher 6		25	23
Teacher 7		25	25
Teacher 8		25	23
Teacher 9		25	22
Teacher 10		25	23
Teacher 11		25	23
Teacher 12		25	24
Total		300	287
% scores of response		287/300*100	95.23333%

There were 25 yes /no questions and 4 questions had qualitative/subjective answers. For every yes response they got 1 mark and 0 for no , so if they liked the screening tool the maximum that they would get is 25 out of 25 and the minimum if they did not like anything would be a 0. 95% of the e teachers gave a positive response to the usability test which means 95% of the teachers found the tool useful and easy to use.

The responses of all the 12 English subject teachers, were analyzed through percentages, graphical representation and qualitative interpretations. The frequency of the responses was totalled and then the responses were analysed and the scores put in graphical form..

#### **4.17.1 Component 1- Understandability**

The understandability factor of the screening tool was analyzed through eight questions covering the understandability of the theoretical background of the screening tool to identify students at risk with dyslexia and the reflective questions used throughout the tool. The analysis has been done statement wise as per the responses given.

**Statement 1 - Screening tool to identify students at risk of dyslexia is easy to understand and follow**

**Table 4.16**

**Is the Screening tool is easy to understand and follow?**

<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	12	100%
<b>No</b>	0	-
<b>Total</b>	12	100%

**Observation-** The table above indicates that 100 percent of the teachers responded positively to the screening tool saying that it was easy to understand.

**Interpretation-** All the users found the screening tool for the identification of students with a reading disability very easy to understand.

**Conclusion-** It is easy to understand the screening tool to identify students at risk of a reading disability in standard four students.

**Table 4.17**

**Statement 2- Were you able to understand the principles on which the screening tool tests the reading ability of the students?**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	10	86.7%
<b>No</b>	2	13.3%
<b>Total</b>	12	100%

**Observation-** The table above indicates that 86.7 percent of the teachers responded positively to the screening tool saying that its theoretical base was easy to understand.

**Interpretation-** Out of all the teachers , 13 percent found that they do not fully comprehend the theoretical principals of testing for a reading disability.

**Conclusion-** The screening tool was indeed easy to understand as majority i.e 86.7 percent of the respondents understood the principles behind the screening tool. It is important to explain to the teachers in detail about dyslexia and how to identify students at risk of a reading disability in standard four students using written words and comprehension.

**Table 4.18**

**Statement 3- Was the phonetic principles of reading easy to understand in the screening tool?**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	10	86.7%
<b>No</b>	2	13.3%
<b>Total</b>	12	100%

**Observation-** The table above indicates that 86.7 percent of the teachers responded positively to the screening tool saying that its theoretical base was easy to understand.

**Interpretation-** Out of all the teachers , 13 percent found that they do not fully comprehend the theoretical principals of testing for a reading disability.

**Conclusion-** The reading principles of the screening tool were indeed easy to understand as majority i.e 86.7 percent of the respondents understood the principles behind the screening tool. It is important to explain to the teachers in detail about dyslexia and how to identify students at risk of a reading disability .

**Table 4.19**

**Statement 4 - Did you go through the teachers manual and procedure well before starting?**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	12	100%
<b>No</b>	0	-
<b>Total</b>	12	100%

All respondents went through the manual voluntarily before the testing began and they were able to use it and understand the manual .

**Table 4.20**

**Statement 5- Do you think that the steps given in the screening tool are easy to follow and implement in a class?**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	11	91.7%
<b>No</b>	1	8.3%
<b>Total</b>	12	100%

**Observation-** The table above indicates that 91.7 percent of the teachers responded positively to the screening tool saying that the steps of testing were easy to follow and implement.

**Interpretation-** Out of all the teachers , 8.3 percent found that they looking into the manual for the dictation words was a bit tedious for them otherwise they found the tool easy.

**Conclusion-** The implementation and the steps of testing were easy to follow in a class room setting while administering the screening tool.

**Table 4.21**

**Statement - Do you think it was easy for the examiner to check and score the screening test?**

Responses	Frequency	Percentage
Yes	11	91.66%
No	1	-
Total	11	91.7%

**Observation-** The table above indicates that 91.66 percent of the teachers responded positively to the screening tool saying that it was easy to check and score

**Interpretation-** Most of the users found the screening tool for the identification of students with a reading disability very easy to check and score.

**Conclusion-** It is easy to check and score the screening tool to identify students at risk of a reading disability in standard four students.

**Table 4.22**

**Statement 6- Do you think it was easy for the students to go through the various parts in the screening test?**

Responses	Frequency	Percentage
Yes	12	100%
No	0	-
Total	12	100%

**Observation-** The table above indicates that 100 percent of the teachers responded positively to the screening tool saying that the steps of the testing were easy to follow.



**Interpretation-** All the users found the screening tool for the identification of students with a reading disability very easy to follow and administer.

**Conclusion-** It is easy to follow and administer the screening tool to identify students at risk of a reading disability in standard four students.

**Table 4.23**

**Statement 7- Is the teachers Manual given along with the test self explanatory?**

Responses	Frequency	Percentage
Yes	12	100%
No	0	-
Total	12	100%

**Observation-** The table above indicates that 100 percent of the teachers responded positively to the screening tool saying that it was self explanatory.

**Interpretation-** All the users found the screening tool for the identification of students with a reading disability was self explanatory.

**Conclusion-** It is self explanatory and can be administered in a classroom setting easily in order to identify students at risk of a reading disability in standard four .

#### **4.17.2 Analysis of the usability quality component II- Learnability**

The Learnability of the screening tool was measured by 4 questions.

**Table 4.24**

**Statement 8 - Was the screening tool able to measure the learning levels of the students in English reading and writing?**

Responses	Frequency	Percentage
Yes	12	100%
No	0	-
Total	12	100%

**Observation-** The table above indicates that 100 percent of the teachers responded positively to the screening tool saying that it was able to measure the learning levels of the students in English reading and writing.

**Interpretation-** All the users found the screening tool for the identification of students with a reading disability had high learnability.

**Conclusion-** It is useful in measuring the learning levels of the students in English in order to identify students at risk of a reading disability in standard four .

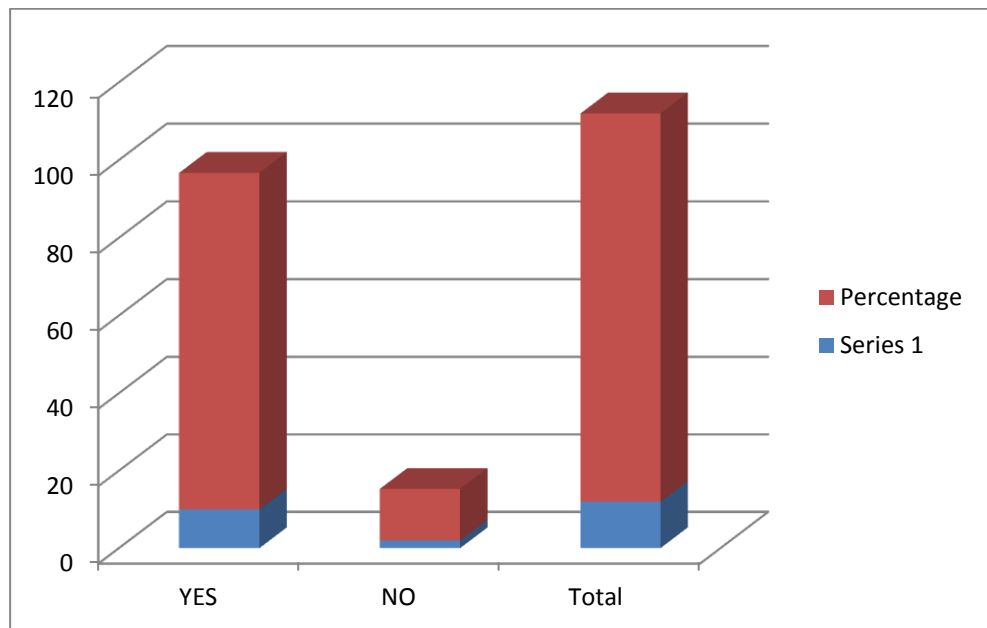
**Table 4.25**

**Statement 9- Were you able to achieve the objectives of identifying students with a reading disability?**

Response	Frequency	Percentage
Yes	10	86.7%
No	2	13.3%
Total	12	100%

**Graph 4.6**

**Were you able to achieve the objectives of identifying students with a reading disability?**



**Observation-** The table and graph above indicates that 86.7 percent of the teachers responded positively to the screening tool saying that the screening tool did help them figure out which students might be at risk of developing a reading disability

**Interpretation-** Out of all the teachers , 13 percent found that they could not fully point out the students at risk testing of a reading disability using the tool.

**Conclusion-** The screening tool was indeed useful in learning about the English reading abilities of the students for 86.7 percent of the teachers and they found it useful in identifying students at risk of dyslexia

**Table 4.26**

**Statement 10 - Do you think it will be helpful to you in developing a remedial program for the students that fail the screening test?**

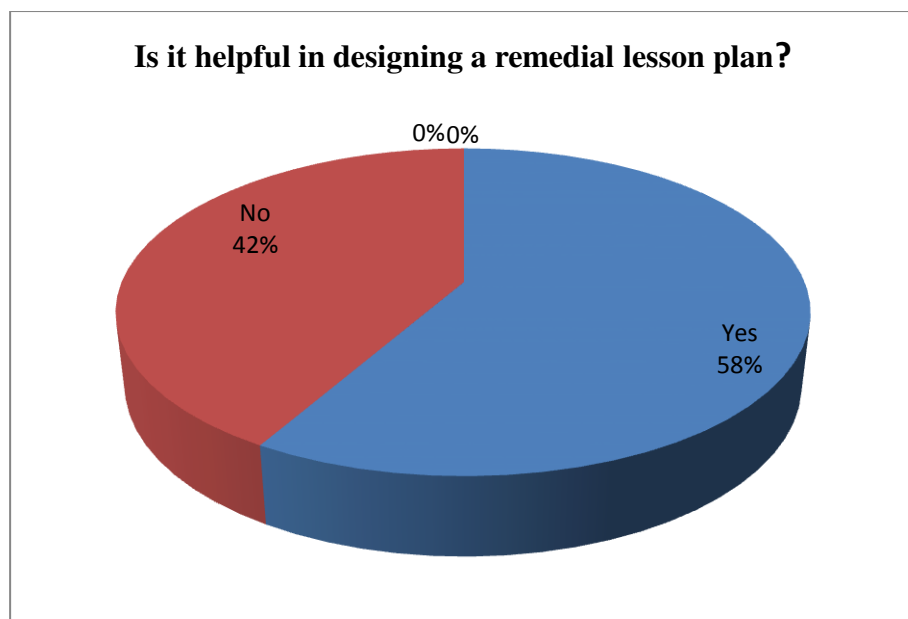
Response	Frequency	Percentage
Yes	7	58.7%
No	5	41.3%
<b>Total</b>	12	100%

**Observation-** The table above indicates that only 58.7 percent of the teachers responded positively to the screening tool saying that it will help them design a remedial lesson plan.

**Interpretation-** Out of all the 12 teachers , 41.3 percent found that the screening tool will not help them to design a remedial lesson

**Conclusion-** The screening tool was indeed made to identify students at risk of a reading disability in standard four students using written words and comprehension and it was not made to help design a remedial plan of action.

**Graph 4.7**



### 4.17.3 Analysis of the usability quality component III- Objective Achievement

The Objective achievement factor of the screening tool was analyzed through two questions covering the goal achievement of the screening tool to identify students at risk with dyslexia and the analysis has been done statement wise and as per the responses given.

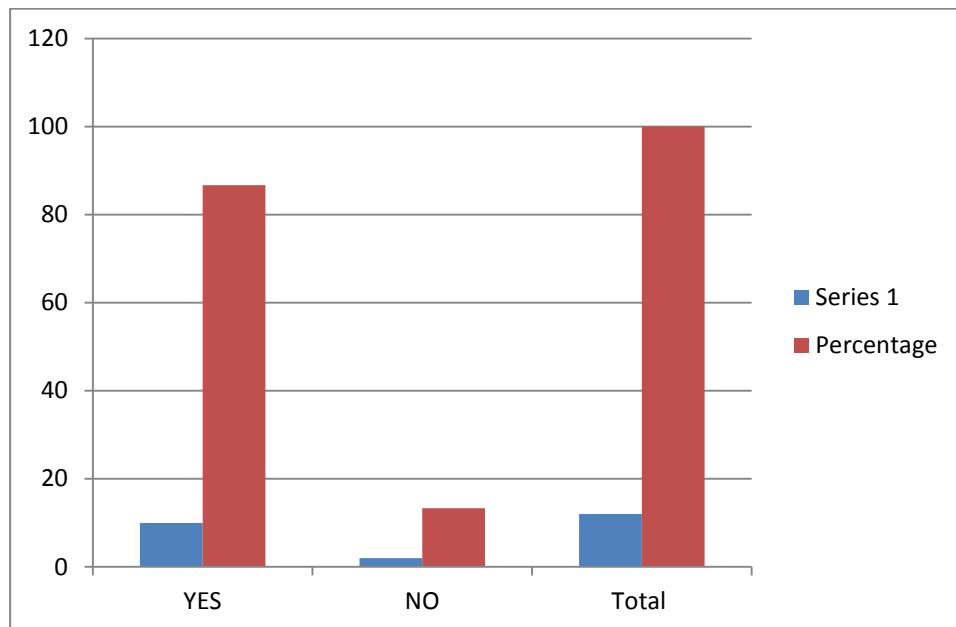
**Table 4.27**

**Statement 12- Have the objectives for identifying students with problems in English reading been achieved with this Screening tool?**

Response	Frequency	Percentage
Yes	10	86.7%
No	2	13.3%
Total	12	100%

**Graph 4.8**

**Have the objectives of identifying students with a reading disability been achieved?**



**Observation-** The table and graph above indicates that 86.7 percent of the teachers responded positively to the screening tool saying that the screening tool did help them figure out which students might be at risk of developing a reading disability

**Interpretation-** Out of all the teachers , 13 percent found that they could not fully point out the students at risk testing of a reading disability using the tool.

**Conclusion-** The screening tool was indeed useful in learning about the English reading abilities of the students for 86.7 percent of the teachers and they found it useful in identifying students at risk of dyslexia.

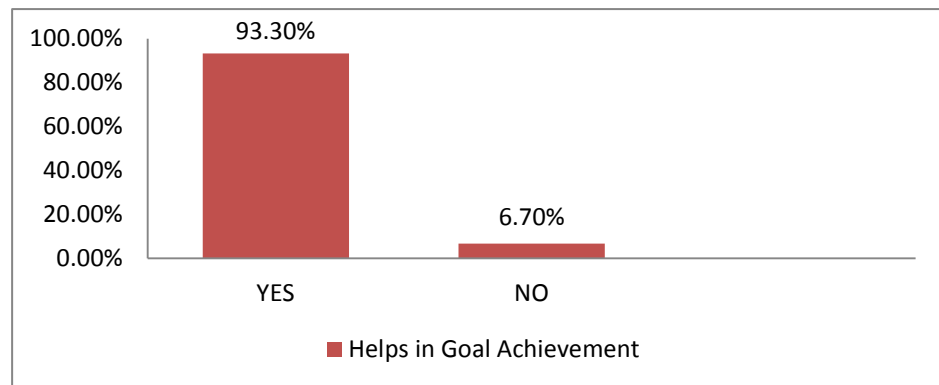
**Table 4.28**

**Statement 13 - Does this tool help the teacher to achieve the goal of effectively teaching her class by giving extra remedial teaching for students with different abilities?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
<b>Total</b>	12	100%

**Graph4.9**

**Does the tool hold good in goal achievement of teaching effectively?**



**Observation-** The table and graph above indicates that 93.3 percent of the teachers responded positively to the screening tool saying that does fulfill the goal of identifying those that might be at risk of a reading disability.

**Interpretation-** Out of all the teachers , 6.7 percent found that they do not fully agree that it achieve the goal of student identification for those at risk of dyslexia .

**Conclusion-** The screening tool was indeed easy to understand as majority i.e. 93.3 percent of the respondents agreed that the tool was able to achieve its goal to identify students at risk of a reading disability in standard four students using written words and comprehension. Majority of the respondents agree that the tool is the first step in evaluating, designing, planning and developing remedial teaching learning for children with a specific learning disability like Dyslexia.

#### 4.17.4 Analysis of the usability quality component IV- Operability

The usability quality component of operability of the screening tool was analyzed through four questions covering the sequencing of the test , application of theoretical principles while conducting the test for identify the students with a reading disability was indeed easy to follow and understand. The analysis has been done statement wise as per the responses of the teachers.

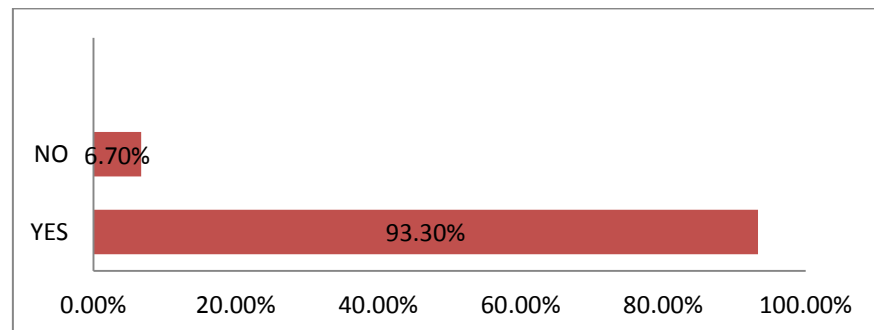
**Table 4.29**

**Statement 14 - Is the sequence of questions in the group screening tool in appropriate order?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
<b>Total</b>	12	100%

**Graph 4.10**

**Is the sequence of questions in the group screening tool in appropriate order?**



**Observation-** The table and graph above indicates that 93.3 percent of the users responded that the screening tool was appropriately sequenced. Out of

all the teachers, 6.7 percent found that they do not fully agree that that the screening tool was appropriately sequenced.

**Interpretation-** Most of the respondents responded that the sequence of the questions in the screening tool were appropriately sequenced .A negligible number of users responded that the screening tool was not appropriately sequenced.

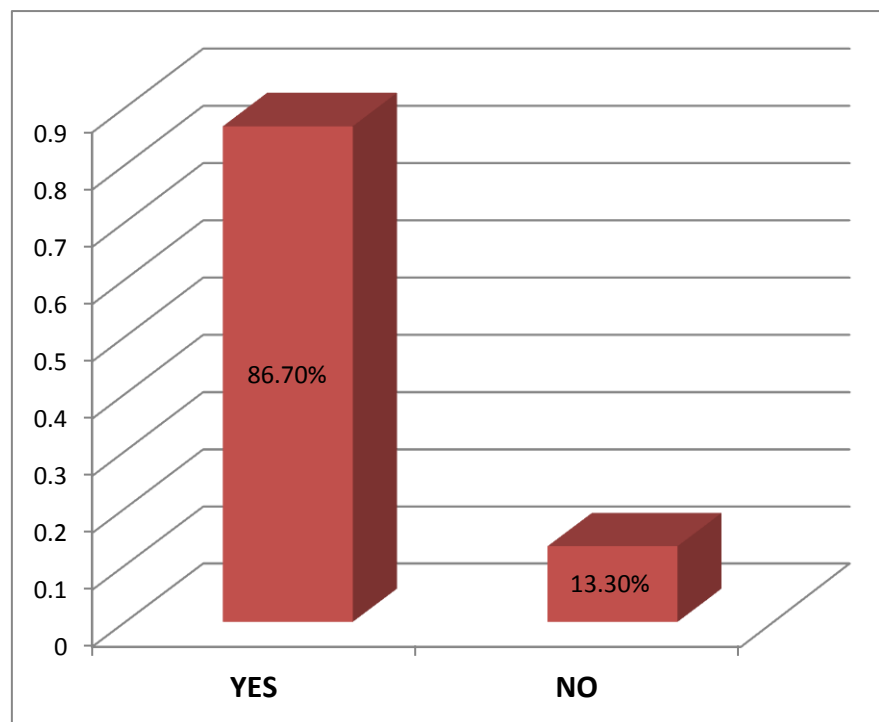
**Conclusion-** The screening tool was appropriately sequenced beginning with simple questions on phonetics and ending in free writing . Majority of the respondents agreed to this sequence of testing.

**Table 4.30**

**Statement 15 - Was it easy to score and interpret?**

Response	Frequency	Percentage
Yes	10	86.7%
No	2	13.3%
<b>Total</b>	12	100%

**Graph 4.11**



**Observation-** The table and graph above indicates that 86.7 percent of the teachers responded positively to the screening tool saying that the screening

tool was simple and easy to score. Out of all the teachers, 13 percent found that the tool was not easy to score especially the free writing part.

**Conclusion-** The screening tool was indeed easy to score as 86.7 percent of the found it useful .

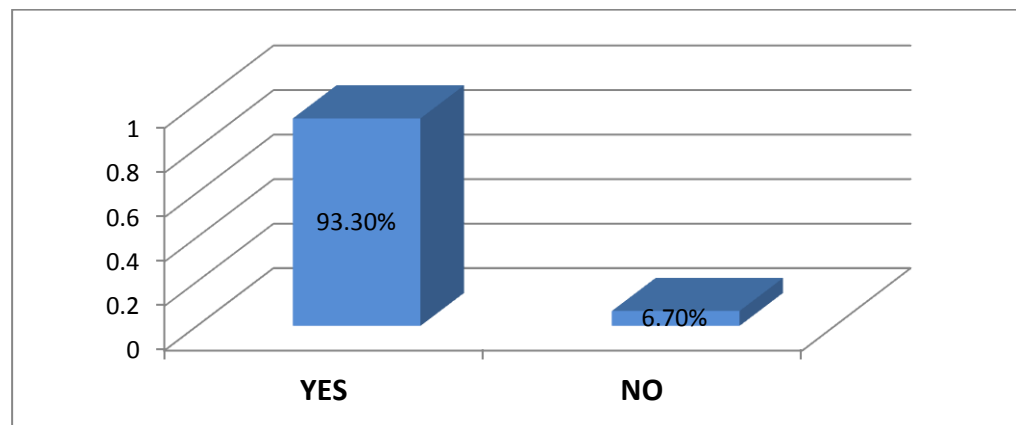
**Table 4.31**

**Statement 16 - After going though the testing process do you think it is possible to successfully identify students with a reading disability and start extra remedial teaching for them?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
<b>Total</b>	12	100%

**Graph 4.12**

**After going though the testing process do you think it is possible to successfully identify students with a reading disability and start extra remedial teaching for them?**



**Observation-** The table and graph above indicates that 93.3 percent of the users responded that the screening tool was helpful in picking up students who needed remedial teaching. Out of all the teachers, 6.7 percent found that they do not fully agree that that the screening tool was not useful in identifying students to begin remedial education.



**Interpretation-** Most of the respondents responded that the screening tool was appropriately made and helpful in identifying students who needed remedial teaching in English and was indeed helpful to them.

**Conclusion-** The screening tool was successful in identifying students with a reading disability and start extra remedial teaching for them.

#### **4.17.5 Analysis of the usability quality component V- User Satisfaction**

The usability quality component of the user satisfaction of the screening tool was analyzed through three questions covering the effectiveness of developing a group based tool to check the students for their reading ability and identify those at risk of Dyslexia. The user satisfaction component of the tool measures its user friendliness in a classroom setting.

**Table 4.32**

**Statement 17 - Do you think that the screening tool will be a handy tool in the hands of the teachers in a classroom setting?**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	11	93.3%
<b>No</b>	1	6.7%
<b>Total</b>	12	100%

**Observation-** The table above indicates that 100 percent of the teachers responded positively to the screening tool saying that the testing tool will be extremely helpful in a classroom setting to identify students with dyslexia

**Interpretation-** All the users found the screening tool for the identification of students with a reading disability very useful in a classroom setting.

**Conclusion-** It can be safely concluded that the screening tool will be a handy tool in the hands of the teachers in a classroom setting.

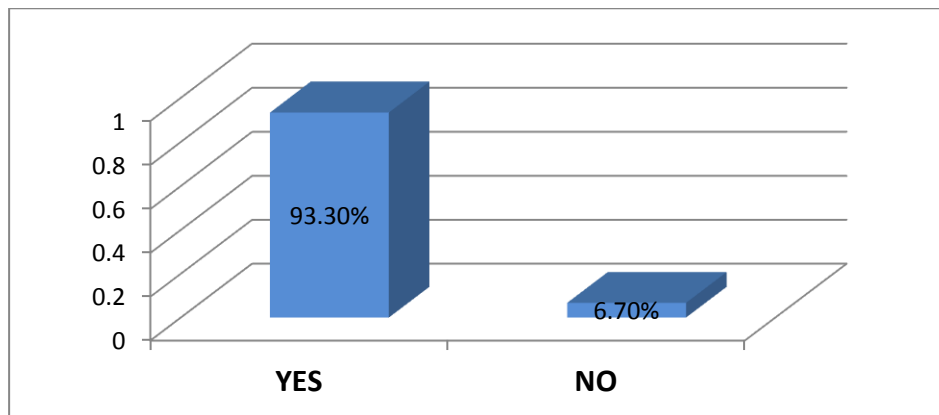
**Table 4.33**

**Statement 18 - Did you like the overall presentation of the screening tool to identify students at risk of dyslexia?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
Total	12	100%

**Graph-4.13**

**Statement 18 - Did you like the overall presentation of the screening tool?**



**Observation-** The table and graph above indicates that 93.3 percent of the users responded that the screening tool’s overall presentation was good and they liked it but was out of all the teachers, 6.7 percent found that they do not fully like the presentation and would prefer some changes in display like bolder font and more graphics.

**Interpretation-** Majority of the respondents responded that the screening tool was appropriately made and its overall presentation was good.

**Conclusion-** The overall presentation of the screening tool was liked by the respondents.

**Table 4.34**

**Statement 19 - Do you think that the target audience which is the students will benefit from the screening tool in the end?**

Responses	Frequency	Percentage
Yes	12	100%
No	0	-
Total	12	100%

**Observation-** The table above indicates that 100 percent of the teachers responded positively to the screening tool saying that the testing tool will be extremely helpful to the end users that is the students as they can be spotted early and intervention in the form of remedial education can be started early

**Interpretation-** All the users found the screening tool for the identification of students with a reading disability very useful for the end users that is the students.

**Conclusion-** It can be safely concluded that the target audience which is the students will benefit from the screening tool in the end.

**4.17.6 Analysis of the usability quality component VI - Applicability**

The usability quality component of applicability of the screening tool was analyzed through four questions covering the applicability of the screening tool to a real classroom setting and how the students with a reading disability can be identified using this test. The analysis has been done statement wise as per the responses of the teachers

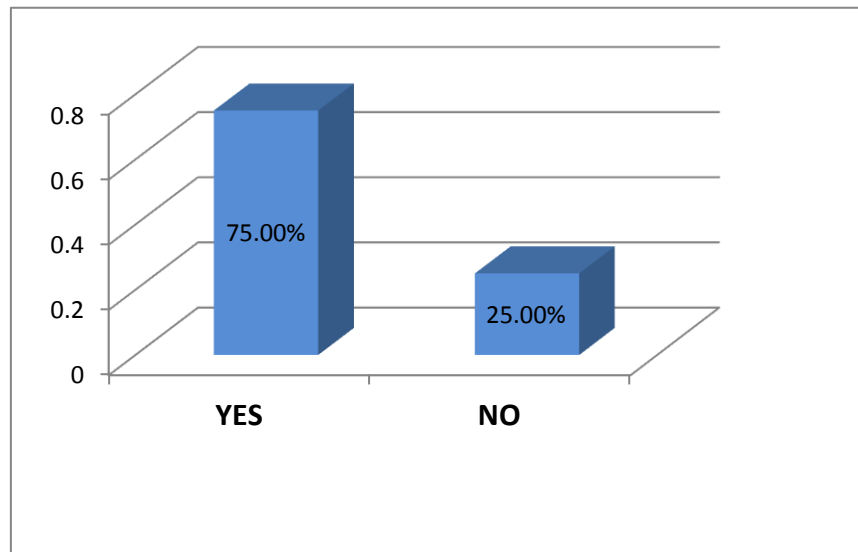
**Table 4.35**

**Statement 20 - Can such a screening tool be applied for other subjects like Mathematics and Marathi etc?**

Response	Frequency	Percentage
Yes	9	75%
No	3	6.7%
Total	12	100%

**Graph 4.14**

**Can such a screening tool be applied for other subjects like Mathematics and Marathi etc?**



**Observation-** The table and graph above indicates that 75 percent of the users responded that the screening tool's may applied for other subjects like Mathematics and Marathi etc. But, 25% did not agree with the statement.

**Interpretation-** Majority of the respondents responded that the screening tool was appropriately made for English and maybe such a tool could be made for Marathi and mathematics as well.

**Conclusion-** A screening tool can also be developed for application in other subjects like Mathematics and Marathi also.

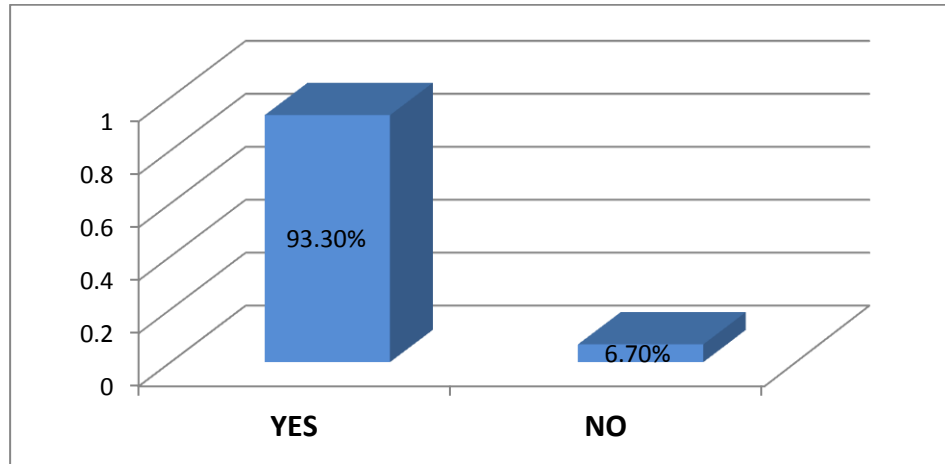
**Table 4.36**

**Statement 21- After reading the instructions and the teacher's manual, do you think that this screening tool can be effectively used and adopted by other schools for early identification of students with reading disability?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
<b>Total</b>	12	100%

**Graph 4.15**

**After reading the instructions and the teacher’s manual, do you think that this screening tool can be effectively used and adopted by other schools for early identification of students with reading disability?**



**Observation-** The table and graph above indicates that 93.3 percent of the users responded that the screening tool can be effectively used and adopted by other schools for early identification of students with reading disability . Out of all the 12 teachers, 6.7 percent found that they do not fully agree that that the screening tool can be effectively used and adopted by other schools for early identification of students with reading disability.

**Interpretation-** Most of the respondents responded positively stating that the screening tool can be effectively used and adopted by other schools for early identification of students with reading disability.

**Conclusion-** The screening tool can be effectively used and adopted by other schools for early identification of students with reading disability.

**Table 4.37**

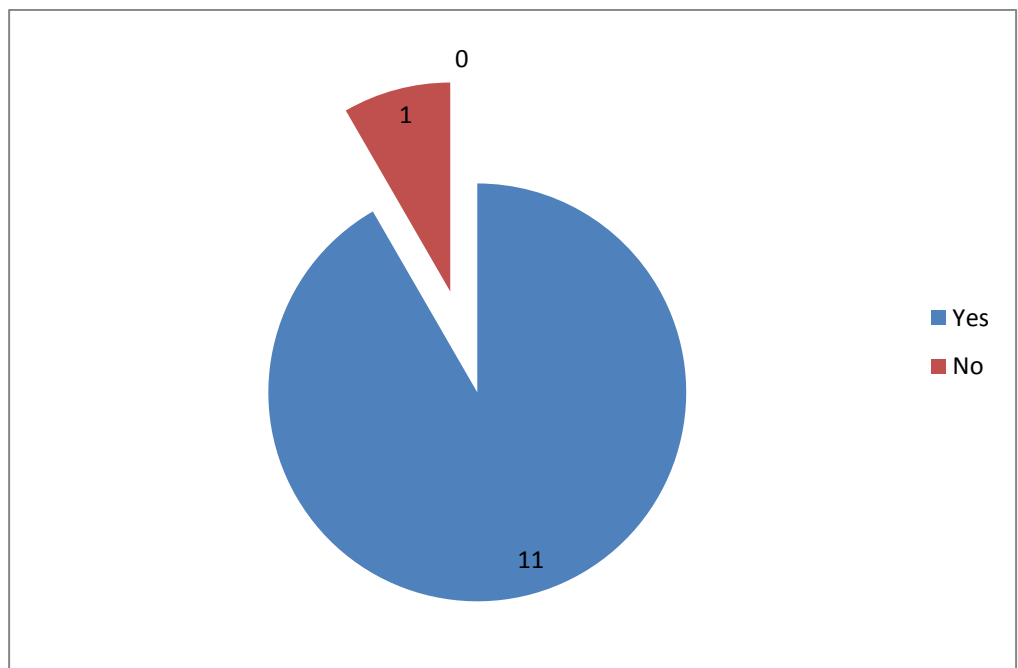
**Statement 22 - Do you think it is easy for the English teacher to use on her own to find weak students?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
<b>Total</b>	12	100%

**Table 4.38**

**Statement 23 - Can such a screening tool be applied for other subjects like Mathematics and Social Studies in which English is used ?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
<b>Total</b>	12	100%



**Table 4.39**

**Statement 24 - After reading the instructions and the teachers manual, do you think that this screening tool can be effectively used and adopted by schools for early identification of students with reading disability?**

Response	Frequency	Percentage
Yes	11	93.3%
No	1	6.7%
<b>Total</b>	12	100%

#### **4.17.7 Overall Qualitative feedback about Usability**

##### **What do you think are the special features of this group screening tool?**

- (i) The screening tool is effective in knowing the reading ability of the students in grade four and also identifying areas of weakness.
- (ii) It is easy to use and administer in a classroom setting
- (iii) It is easy to score and well presented.
- (iv) It is helpful in identifying students at risk of dyslexia and begin a “pull out” programme.
- (v) It also encourages teachers to make that extra effort for those students who are unable to cope up with the regular English reading and writing.
- (vi) It is extremely user friendly because of its ease of scoring and well defined user manual.

##### **Would you like to suggest any points to add or delete in this test?**

- (i) Add some more graphics to the test to make it interesting
- (ii) Make the font size bigger.

##### **Would you like to suggest any activity or step or sequence to add in this screening tool?**

The user manual should be printed in Marathi and Hindi as well for wider reach and usability.

#### **4.17.8 Conclusions of the data about the usability of the screening tool to identify**

Based on the above data observation and interpretation about the usability of the screening tool, the researcher concluded the user group responses in the form of percentages.

**Table 4.40**

**User Group responses in percentages of the usability of the group screening tool for Dyslexia (Reading Disability)**

<b>Usability components</b>	<b>Statements</b>	<b>Percentages obtained</b>	<b>Average percentage</b>
<b>Understandability</b>	The group screening tool is easy to understand and follow.	100%	95.6%
	The theoretical basis on which the screening tool tests the reading ability of the students is understandable.	97.3%	
	The steps given in the screening tool are easy to follow and implement in a class.	97.6%	
	The Teacher's Manual given along with the test self explanatory.	100%	
<b>Learnability</b>	Was the tool able to measure the learning levels of students in English reading and writing?	97.67%	95.56%
	Were you able to achieve the objectives of identifying students with a reading disability?	100%	
	Do you think it will be helpful to you in developing a remedial program for the students that fail the screening test?	78.87%	
<b>Objective achievement</b>	Have the objectives for identifying students with problems in English reading been achieved with this Screening tool?	86.7%	89.99%
	Does this tool help the teacher to achieve the goal of effectively teaching her class by giving extra remedial teaching for students with different abilities?	87%	



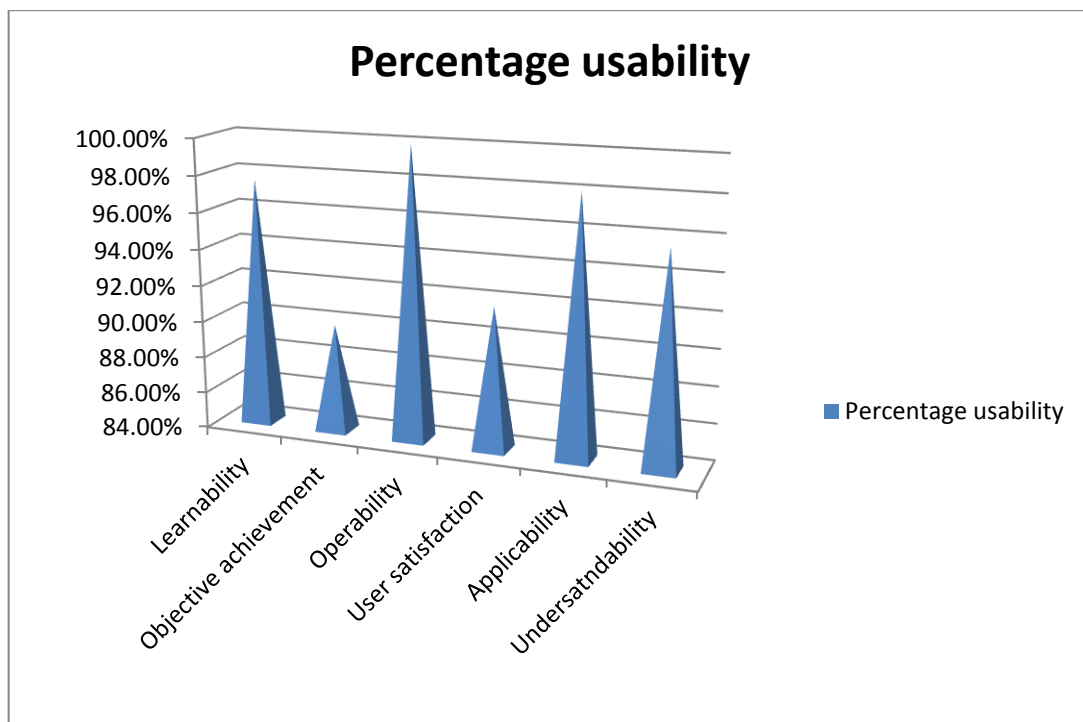
<b>Operability</b>	<p>Is the sequence of questions in the group screening tool in appropriate order?</p> <p>Was it easy to score and interpret?</p> <p>After going through the testing process do you think it is possible to successfully identify students with a reading disability and start extra remedial teaching for them?</p>	<p>100%</p> <p>100%</p> <p>100%</p>	100%
<b>User Satisfaction</b>	<p>Do you think that the screening tool will be a handy tool in the hands of the teachers in a classroom setting?</p> <p>Did you like the overall presentation of the screening tool to identify students at risk of dyslexia?</p> <p>Do you think that the target audience which is the students will benefit from the screening tool in the end?</p>	<p>100%</p> <p>93.3%</p> <p>100%</p>	95.66%
<b>Applicability</b>	<p>Can such a screening tool be applied for other subjects like Mathematics and Marathi etc?</p> <p>After reading the instructions and the teacher's manual, do you think that this screening tool can be effectively used and adopted by other schools for early identification of students with reading disability?</p>	<p>75%</p> <p>98.33%</p>	86.66%
	<b>Total percentage of usability of the group screening tool</b>	<b>95.33%</b>	

<b>Usability component</b>	<b>Average percentages</b>	<b>Total average Usability percentage</b>
----------------------------	----------------------------	---

<b>Learnability</b>	<b>95.56</b>	<b>93.56%</b>
<b>Objective achievement</b>	<b>89.99</b>	
<b>Operability</b>	<b>100%</b>	
<b>Understandability</b>	<b>91.76%</b>	
<b>Applicability</b>	<b>86.66%</b>	
<b>User Satisfaction</b>	<b>95.6%</b>	
<b>Conclusion : the group screening tool has 95% usability as per the target audience questionnaire survey</b>		

**Graph 4.16**

**Percentage Usability factor Summation Graph**



#### 4.18 Fulfillment of Research Objectives

**Table 4.41**  
**Fulfillment of Research Objectives**

Objectives	Observation	Data Interpretation	Conclusion
1. To develop a screening tool for reading ability in class 4 and identify students with reading disability	The tool was reliable and valid	The reliability was established through coefficient of correlation which was .92 and validity was .20- .80 which is the accepted level for all the subtests on the tool. Item analysis too proved the validity and reliability of the tool	In conclusion we can say that the tool was able to measure the reading ability of students of grade four in SSC board schools
	The group administration of the tool was successful and led to proper results	The screening tool was piloted on 64 students and final tool was used on 1045 students and the results was able to segregate low performers from the rest of the group and Level II and checklist could firmly establish the students who were at "risk of reading disability"	In conclusion the screening tool along with reading probe level II and checklist were able to identify 22 students with a reading disability. 13 boys and 9 girls and no gender bias was seen in 547(boys) and 498 (girls) who took the screening tool test.
2.To prepare a teacher's manual and test its usability.	The teacher's manual is helpful in administering and scoring the test.	Face Validity of the manual was established by giving it to the English teachers themselves for their views. Pilot testing was done with 6 randomly selected English subject teachers who had used the tool and the final Usability testing through a specially constructed questionnaire was carried out on 12 English teachers in Pune and the data statistically tested and interpreted	The teachers found it useful and easy. The average usability of the group screening tool to identify students at risk of Dyslexia was found to be 93.56%



## **CHAPTER - V**

### **SUMMARY, FINDINGS AND CONCLUSIONS**

- 5.1 Summary of the study**
- 5.2 Significance of the Research**
- 5.3 Objectives of the Study**
- 5.4 Title of the study**
- 5.5 Statement of the research problem**
- 5.6 Operational Definitions**
- 5.7 Assumptions**
- 5.8 Research Questions**
- 5.9 Scope of the Research**
- 5.10 Limitations**
- 5.11 Delimitations**
- 5.12 Method of Research**
- 5.13 Need and importance of the study**
- 5.14 Review of related literature**
- 5.15 Findings of Research for Objective 1**
- 5.16 Findings of Research for Objective 2**
- 5.17 Conclusions of the research for Objective 1**
- 5.18 Conclusions of the research for Objective 2**
- 5.19 Suggestions for further research**
- 5.20 Educational significance of the research**
- 5.21 Possible Knowledge Contributes**

## CHAPTER V

### SUMMARY, FINDINGS AND CONCLUSIONS

#### 5.1 Summary of the study

*“Drawing conclusions and summarizing is the most important step in any research”*, ( Best & Kahn, p 67) and for this the researcher analyzed the data collected through the screening tool and checklist and the usability questionnaire and analyzed them with the use of statistical tools.

The focus of the said research was to create a group screening tool to identify students at risk of a reading disability or Dyslexia and then administer the tool to find out such students and establish the usability of the tool, for the students of grade IV in English medium SSC(State Secondary Certificate) board schools in Pune.

In Chapter I the researcher has explained the concept of learning disability, its meaning and the effect on the students with the symptoms and causes of reading disability or dyslexia, along with the need to work in the area of early detection and need for a easy to use and effective group screening tool that can be used by teachers in their classroom setting to cull out students at risk of a reading disability.

The work of other researchers in the similar lines is reviewed and included in the Chapter II, in Review of Related Literature. Research on Learning Disability(LD) , articles and journals about developing assessment tools and other psychological based screening tools and also articles and research work on usability testing were reviewed. The conclusions derived from the review of related literature allowed the researcher to know that the research was in the right direction and the way in which a useful group screening tool can be developed, administered and checked for its usability.

Chapter III of the research study talks about the methods adopted for carrying out this research including selection of population, sample, sampling techniques, tool of data collection and the process of data analysis, process of establishing the

reliability and validity of the screening tool and also the process of testing its usability in a classroom setting .

Chapter IV throws light on quantitative and qualitative analysis of the findings or results derived after the administration of the researcher- made group screening tool and the analysis of collected data, and interpretation of the data. Data presentation was in the form of graphs and charts and simple statistical measure and the analysis was followed by the interpretation to draw conclusions about the research at hand .

The descriptive data indicates a large range of variation in all the scales and good discrimination between the children. The validity analysis of the screen included two types of validity: content validity, construct validity. To achieve content validity, the test items were chosen directly from high frequency words from grade 4 regular school books in reading and writing. In addition, a panel of experts, including qualified grade 4 teachers and experts from a teacher training college and SNDT and RCI helped in scrutinizing and evaluation of the items and the scales. Most items were judged to be appropriate. The analysis of construct validity included, firstly, an item analysis aiming at ensuring the internal consistency of the scales. The reliability coefficients (Cronbach's alpha) of the scales were high.

In Chapter V the summary and the findings of the research are followed by the conclusions of each of the objectives achieved. In summary, the group screening tool seems to function effectively and was able to identify students who were vulnerable or at risk of developing a reading disability and who needed remedial education . Early detection and remediation ensures that the students do not develop any long standing academic issues . The present chapter gives summary of the steps followed in the completion of the research work along with the findings and conclusions of each objective of the research. It also presents brief outline of the major findings of the research work, suggestions given based on the findings and suggestions about further research topics. Summary of the research methodology followed for the present research work is presented in following paragraphs, beginning with the need and importance of the research .

## 5.2 Significance of the Research

Since everything from admission in college to the selection of careers ; depends on the raw scores and marks obtained by a student in one or the other exam, it is important that they have good academic performance. In such a scenario students with reading or spelling disabilities or Dyslexia even though endowed with above average IQ tend to be left behind or lag and this causes serious emotional and academic problems.

As we have already seen that individual tests are so expensive and difficult to administer and need specially trained personnel to run them; there is a great need for a basic screening tool which can be run and scored by a teacher in a classroom setting and help the students to begin remedial learning without waiting for diagnostic assessment.

The following study helps in developing a group screening tool for identifying children who might show early signs of this problem and begin early remedial teaching to improve their lot. In India only individualized screening is available and that too after the problem has reached a stage where the child is unable to cope with the rigors of daily school and is sent to a counselor for behavioral issues.

In such a scenario it is better to screen students early in the classroom itself and then those that might be showing a tendency towards dyslexia should be sent for remediation. Hence, the pressing need to develop a group screening tool and test its usability in the school to identify and remedy students with dyslexia.

Once the student has been recognized as being “at risk” of dyslexia, intervention can begin in helping these students to cope up with their studies. The screening tool is beneficial to the student and the teachers in many ways such as:

- Recognize the area of deficiency in reading.
- Help to develop lesson plans to help such students
- Recommend them for further formal, diagnostic testing.
- Organize activities in class to build a strong reading environment in the class.



- Equip parents with the required knowledge on LD and make them partners in the child's development process.

Every child that drops out of the school system because of being unable to read and write despite inputs as he/she suffers from a learning disability can be saved and brought back to the school if there is early diagnosis of his learning issues and hence the significance of this group screening tool in bringing back hope to many such students and also in helping teachers to begin remedial teaching.

### **5.3 Objectives of the Study**

The following are the objectives of the present research study:

- 1) To construct a curriculum based group screening tool in English subject for identifying students at risk of Dyslexia in standard IV.
- 2) To prepare the teacher's manual for the screening tool and test its usability.

### **5.4 Title of the study**

“Development of a group screening tool for identifying students at risk of Dyslexia- A Study”

### **5.5 Statement of the Research Problem**

To develop a curriculum based group screening tool in English for identifying students of standard IV at risk of Dyslexia in English Medium schools affiliated to Maharashtra State Board of Secondary and Higher Secondary Education in Pune.

## **5.6 Operational Definitions**

### **a) Group Screening Tool**

In the operational sense of this research a group screening tool means a test or a group of initial test(s) in a sequence of tests, usually quickly administered by the subject teacher to more than one pupil at a time, developed by the researcher . The results are used to determine students who might be at risk of dyslexia in standard IV.

### **b) Dyslexia**

In this research it means that Dyslexia is a specific learning disability that severely affects language development and impacts reading and other language based development and functioning. It literally means "the impairment of the ability to read" English language in this research.

### **c) Student**

In this research the term 'student' means a child between 7.5 or 10 years of age studying in standard IV of an English medium school of the Secondary School Certificate (SSC) Board in Pune.

### **d) Curriculum based**

In this research the term 'curriculum' refers to the English syllabus as given in the textbook ( Balbharti, Edition 2015) and 'Minimum Learning Levels' (MLL) expected in standard IV of SSC board as given by the Dr Dave Committee Report 1986 and accepted by the NCERT and Maharashtra Education Dept.

### **e) Group**

In this research the term 'group' means the sample students of standard 4 of State School Certificate (SSC) Board in Pune, who will take the test in their standard.

#### **f) At Risk**

In this research “at risk” means a student of standard IV that might have a probability of developing a reading disability or dyslexia caused by internal or external vulnerabilities which may be avoided by preemptive action like identification and remedial teaching .

### **5.7 Assumptions**

a) Child does not have any physical ailment or disorder in hearing, seeing or loco motor abilities and normal IQ. (Refer “ *Developmental Delays and Dyslexia*”, Dr Sathe. S and Dr Dwyer. A, TataMcGraw Hill, pages 49,57,118)

b) Reading Disability or dyslexia is a measurable aspect of a student’s ability. (Refer “ *Developmental Delays and Dyslexia*”, Dr Sathe. S and Dr Dwyer. A, TataMcGraw Hill, page 14)

### **5.8 Research Questions**

The basic research questions in the research were as follows:

- How can an English language ,curriculum based, group screening tool be developed to identify students with a reading disability?
- How can such a tool be administered in a classroom setting to identify students “at risk” of Dyslexia?
- What is the usability of the screening tool in the classroom for the teachers?

### **5.9 Scope of the research**

The scope of the study generally delineates what the researcher will study and how much of it will be impacted by the study. It has two measures, geographical effect or scope of the research and the academic scope of the research .

**Geographical Scope-**The geographical scope of this study are all students studying in class IV in Pune city only.

**Academic Scope-**The study pertains to the students performance in the subject of English only as taught in Maharashtra Secondary State Certificate (SSC) Board schools.

### **5.10 Limitations**

- It is an informal, teacher made curriculum based screening tool and is not a diagnostic tool.
- It cannot be used to certify a student as reading disabled but can be used to begin remedial teaching.

### **5.11 Delimitations**

- The delimitation of the research is that the results of the screening test are based on the study conducted on 1045 students of standard IV at 13 English medium SSC Board schools in Pune city alone The research was conducted on children in the age group of 7.5 to 10 years.
- The research was conducted only in 13 English medium SSC Board schools in Pune city.
- The research pertained to the academic year 2015-16.

### **5.12 Method of the Research**

A Multi-method approach to the study has been taken in this research.

1. *Objective 1 - Product development*
2. *Objectives 2 – Descriptive Survey method.*

The **multi method** approach has been taken because the objective is two-fold here; one to create a screening tool that involves the “Product Development” method and secondly to use it and identify students at risk of a reading disability and also check its usability. Therefore, the approach is different for different objectives. In this research study the researcher has used **multi method** approach product development method in developing the screening tool and descriptive survey method for identifying the students with reading disability using the screening tool. Here the methodology is Multi method – two separate methods for product development and for identifications of students with Dyslexia and to check the usability of the tool are used with quantitative assessments.

### **5.13 Need and importance of the study**

Since everything from admission in college to the selection of careers ; depends on the raw scores and marks obtained by a student in one or the other exam, it is important that they have good academic performance. In such a scenario students with reading or spelling disabilities or Dyslexia even though endowed with above average IQ tend to be left behind or lag and this causes serious emotional and academic problems.

As we have already seen that individual tests are so expensive and difficult to administer and need specially trained personnel to run them; there is a great need for a basic screening tool which can be run and scored by a teacher in a classroom setting and help the students to begin remedial learning without waiting for diagnostic assessment.

The following study helps in developing a group screening tool for identifying children who might show early signs of this problem and begin early remedial teaching to improve their lot. In India only individualized screening is available and that too after the problem has reached a stage where the child is unable to cope with the rigors of daily school and is sent to a counsellor for behavioural issues.

In such a scenario it is better to screen students early in the classroom itself and then those that might be showing a tendency towards dyslexia should be sent for

remediation. **Hence, the pressing need to develop a group screening tool and test its usability in the school to identify and remedy students with dyslexia.** Once the student has been recognized as being “at risk ”of dyslexia, intervention can begin in helping these students to cope up with their studies.

#### **5.14 Review of related literature**

One of the foremost objectives was to understand by review of related literature the importance of inclusive education and the work done in the field of learning disability, the national perspective on learning disabilities and the steps taken towards inclusion of children with special needs in the regular school system.

The next objective was to read theoretical articles on learning disabilities (LD) and especially on dyslexia and also on the process of reading and learning and what challenges are encountered in the process of reading.

The third objective was to get relevant review of literature on the various types of screening tool and challenges in use and development of screening tools in psychology.

The fourth objective was to study in detail use of screening tools in Learning disabilities especially in dyslexia and learning disabilities and how to construct such a tool and secure its validity, reliability and usability.

To fulfil the above objectives, the researcher reviewed the literature in a systematic way by dividing the entire study in 5 parts- theoretical aspect of learning disability, experimental researches in learning disability, co-relation studies in learning disability, studies on development of screening tools, research journals and websites on specific learning disability. The main highlights of the review were-

- The theoretical review of various aspects of Learning disability – Books, Journals and PhD thesis (international and national)
- Experimental Research on Specific Learning Disabilities like Dyscalculia, dyslexia, dysgraphia etc- M.Phil, PhD research, Journals (both national and international)
- Co-relational studies of learning disability and screening tools used in education and medicine. PhD, M.Phil researches both Indian and international.

- Researches and studies on development of screening tools and the challenges and use of these tools in education and psychology – M.Phil, PhD studies.
- Research Journals and online e-books on dyslexia and research in assessment of dyslexia , use of standardized individual assessment tests and usability testing in computer programs and educational psychology.

In all 38 different types of literature was reviewed.

- PhD on Learning Disability- 3
- Books on learning Diability-3
- PhD on development of assessment and screening tools -2
- MPhil research on learning disability – 3
- MPhil research on Learning Disability-3
- Co-relational M.Phil and M.Ed researches on Learning disability and assessment techniques- 3
- Research articles on assessment tool development (National)- 3
- Research articles on assessment tool development (International)-4
- Online journals and theses and website resources- 10
- Books on Learning disability and also on Usability testing - 5
- Hard copy Journals (national)- 4
- Hard Copy Journals (international)- 5

### **5.15 Findings of Research for Objective 1**

*To develop a curriculum based group screening tool in English for identifying students with Dyslexia in class IV*

- The researcher was able to develop a screening tool based on the class IV Bal Bharti text book which is the standard SSC ( State Secondary School Certificate) Board.
- The reliability coefficient of the screening tool was measured after test retest and using SPSS Cronbach's Alpha was calculated. Cronbach's alpha were

extremely high in all the tests - group test, 10 scales: .91 to .97; individual test, 5 scales: .97 to .98 and for the retest scales: .84 to .95; which also could be expected based on the high inter-correlations. The apparent explanation is the one-dimensionality of the scales and the careful process of creating and administering the tests which ensured its reliability, which means it can be used again and again and will always deliver reliable scores.

- Content validity was established through expert validation and taking written analysis from experts in the field of learning disability and hence the screening was valid.
- Construct validity was checked by item discrimination, item difficulty and item analysis of all the test items on the screening tool and it was found to have a high item discrimination factor of .7 to .9 which meant that it was a valid screening tool.
- Further pilot testing and all the subsequent changes ensured that the researcher was able to develop a group screening tool to identify students at risk of dyslexia or reading disability.

### **Findings of research for Objective 1 after tool administration**

*To identify the students with Dyslexia after administering the group screening tool*

- Group administration in a class with an average of 50 or more, students poses a challenge as while giving instructions there was a lot of talking and whispering and the fear of cheating amongst students has to be taken care of while administering the screening tool but still the screening tool worked and students answered the questions as asked.



- 1045 students in 13 schools of Pune were administered the screening tool and after completing the two levels of the tool; 22 students were found out to be “at risk “of a lifelong reading disability condition also called dyslexia and remedial teaching and further diagnostic testing was recommended for these students.
- These 177 students had scored less than 16 marks in the group screening tool and they took the second level individual test, in which too they did not do well and scored less than 24 marks in level II. Out of 177, 65 students had to take the checklist too..
- Out of the 65 students , only 22 students had more than 12 ticks out of 28 on the checklist ; then we could say that they were at risk of having a reading disability otherwise low performance can also be attributed to slow learning or no exposure to English etc.
- Hence in the final tally of the data **22 students** were identified as being at risk of Dyslexia using the group screening tool developed by the researcher and thus the objective 2 was met too.

### **5.16 Findings of Research for Objective 2**

*Objective- To prepare a teacher’s manual for the screening tool and test its usability*

- Questionnaire method was selected as the most reliable and effective method to establish the usability of the teacher’s manual of the screening tool. The various criteria of usability were tested using questions in the questionnaire. Both quantitative and qualitative responses were measured to ascertain the usability.
- After pilot testing and changes in the questionnaire were made and administered to 15 teachers who had used the screening tool and their responses evaluated and studied in percentages.

- The group screening tool was found to be easy to understand and follow by 95% teachers.
- The theoretical basis on which the screening tool tests the reading ability of the students is understandable to 100% of the teachers which means they all knew and understood dyslexia.
- The testing steps given in the screening tool's teacher's manual were found to be easy to follow and implement in a class by 100% teachers.
- The Teacher's Manual given along with the test was found to be self explanatory by 98% teachers.

### **5.17 Conclusions of the research for Objective 1**

*Objective- To develop a curriculum based group screening tool in English for identifying students with Dyslexia in class IV*

1. Specific concerns in the construction of the group screening tool were adequately met -Several challenges had to be addressed in the process of constructing and validating the screening instrument of children at risk of developing reading and writing difficulties as there are no group screening tool available in India. (Davis, Lindo & Compton, 2007; Jenkins & O'Connor, 2002)

Research findings show that “*children up to grade four with difficulties in reading and writing can be easily assisted. Beyond this point it becomes difficult to assist them.*” (Rathvon, Meryl, 2006) These questions were addressed by examining the available curriculum literature and discussing this with subject experts. Before deciding on the linguistic components of the screen, it was above all necessary to find an operational definition of reading, and from that to determine the implication of reading difficulties.

Therefore, Individual screening tool had to be studied and other group screening tool likes - Brant's children anger group screening tool, Evan's group screening tool for addiction ,and Morris and Kurth's group screening tool for juvenile obesity had to be studied to clearly understand the difference between the group screening tool and individual assessment tools.

Group Screening instruments are available to assess children on an individual basis as well , but individual screening tools don't work the other way round.

2. Individual assessment is not possible and purposeful due to lack of time personnel and time available for the task in a school by the school counselor. This is, however, mostly not the case as most parents and teachers are not aware of LD and do not take their kids for individual assessment.

3. The item analysis which used high frequency list of words counted from the authorized reading textbooks in grade 4. The items were quantitatively analyzed by computing the p-value to obtain item difficulty indices and the D-value to determine the discrimination indices for each item used. Most of the items were within an acceptable range of difficulty (i.e. **p value was between 0.15 and 0.85**). The items also discriminated well the **D-value was from 0.50 and above**. In this respect, most of the items were easy to use and evaluate in the screening tool.

4. Apart from this Learning Disability certification is a long drawn and expensive process and it is difficult to find registered personnel who can diagnose and certify LD, hence intervention gets delayed and the student is unable to cope up with the academic pressures in the class. Hence, creating a group-based screen was necessary for the this situation, where class sizes are very large in most schools.

5. Through reliability and validity testing and expert validation and pilot testing the researcher was able to meet the above criteria and was able to successfully draw up a group screening tool to identify students at risk of a reading disability in grade 4.

The results of this study indicated that the group test battery has adequate psychometric properties required for a screen. The reliability coefficients (Cronbach's alpha) ranged from  $r=.91$  to  $.97$ . All the ten subscales inter-correlated highly. The high correlations ( $r=.88$  to  $.96$ ) can be explained from the fact that the tests were carefully constructed and that they seemed to measure the same construct. Another explanation is based on the very well-established content validity. Evidence of content validity was established

by theory and following advice from experts. The theory basis was on the simple view of reading and the componential model of reading.

6. The pilot test of the screen was constructed and administered that also contributed to the enhancement of content validity and changes. The test items for the subtests were drawn from the authorized instruction and reading textbooks used in grade 4.

7. The words were drawn from a high frequency list. Hence, the test items were familiar to the children. The administration and invigilation of the tests was, generally, carefully planned and executed and successfully done.

8. Identifying the cut-off point using MLL (Minimum Learning Levels expected at the end of grade four) Dr Dave SC committee report used by the State Board of Education clearly spells out the Minimum Learning Levels that should be reached to by a grade IV student in English. This document helps to set the basic level of English knowledge that the students should have by the end of class IV. Therefore the timing of the test was crucial and was held in January, when the session is almost over.

The at-risk group, which is the target group in this study, is characterized by obtaining very low scores, or none in all the scales. Conversely, the good readers group comprises children scoring highly in all the measures. **For example**, the researcher found that in the three clusters, the first highest cluster students were operating above average in all the predictive indicators used (i.e. beginning sound, rhyme awareness, alphabet recognition letter sounds and invented spelling). The second highest cluster operated above average in all the predictors, but slightly lower compared to the highest group. The third cluster was below average in all indicators (beginning sounds and rhyme) and below average in three predictors (alphabet cognition, letter sound and invented spelling, rhyme, letter sound and actual spelling, phonological awareness, and free writing).

9. In order to set up the **cut-off point** on the group test, a summary variable was created and a score was counted based on the seven scales of the group test. The

analysis of the distribution revealed that 24.3% (N= 82) of the children, an amount comparable to the at-risk group from cluster analysis, had scores below 16. The suggestion is consequently that children scoring lower than 16 belong to the at-risk group and need intensive support. The 75 children (22.3%) scoring between 16 and 27 also belong to a group needing observation and extra attention, although they can somehow manage, but they are struggling right now and do not have reading disability or dyslexia.

10. The resulting instrument was constructed with an embodiment of crucial cognitive linguistic predictors judged to be most significant to later reading achievement: in this study, phonological awareness was measured by initial sound and spelling; letter identification was measured by picture-letter and letter-picture tasks; word identification was measured by picture-word, free-writing and match the following. And hence a reliable and valid group testing instrument was finally developed which identified 22 students as having a risk of developing dyslexia ; in the research study.

### **Identification of the students at risk of Dyslexia through the administration of the group screening tool**

1. Actual group administration and evaluation of the test was successful-Group administration in a class with an average of 50 students poses a great challenge while giving instructions and also there could be some talking and whispering and the fear of cheating amongst students. However, the test and retest scores to set the reliability showed that it had high reliability and high correlation value. Thus we may conclude that actual class administration and evaluation of the screening tool is possible an effective to identify students with dyslexia and was seen in the research of 1045 pupils.

2. No Gender effect was visible in the test results- In this survey, the girls slightly outperformed the boys, a finding that has been common in many literacy skill studies in other parts of the world, e.g., the PISA 2010 study reported by OECD, (*Organization for Economic Co-operation and Development, 2010*) and also the IAEEA Report 1985, *International Association for the Evaluation of*

*Educational Achievement, IEA Reading Literacy study 1985-1994 reported by (Elley, 1994).*

More studies about gender differences in learning are needed to say that gender influences ability. But some research reports say that boys have four times more chance of having Dyslexia than girls, but reports are inconclusive. Hence, gender is not a defining factor in the present research and out of the final **22** students, 13 are boys and 9 are girls but that could be because the number of boys who took the test (547) is more than the number of girls(498).

Therefore there is no gender effect seen in the identification of girls and boys at risk of dyslexia.

### 3. The screening tool could successfully identify students “at risk” of Dyslexia

Psychometric findings suggest that the group test developed in this study can be used as a screening device in identifying beginning readers at risk of developing reading difficulties. Thus, the created screening instrument in combination with home- and school background information is also useful for obtaining information about factors which are important for student achievement and which are hampering his academic journey.

Out of the 1045( students surveyed the researcher was able to convincingly find out 22 (13 boys and 9 girls) “at risk” students who showed all symptoms of reading disability and who needed immediate intervention to prevent retention in the same class or drop-out from studies altogether.

The screen is indeed useful in detecting such students and helping educators to begin intervention for such students and avoid dropping out of such students due to bad performance.

## 5.18 Conclusions of the research for Objective 2

*Objective- To prepare the teacher's manual for the screening tool and test its usability.*

### **Ease of use and economical in identifying children with a reading disability -**

Performing the test does not take much time and it is relatively easy to administer and score. It can be administered following a short training and guiding instructions. It is also cost effective in the sense that it does not require a lot of staff and expensive material to administer.

3. Usability survey of 15 English language teachers who had used the screening tool helped in coming to the following conclusions after analysis of the detailed **usability questionnaire** developed by the researcher.

- The screening tool was effective in knowing the reading ability of the students in grade four and also identifying areas of weakness.
- It was easy to use and administer in a classroom setting.
- It was easy to score and well presented.
- It was helpful in identifying students at risk of dyslexia and begin a “pull out” programme.
- It also encouraged teachers to make that extra effort for those students who are unable to cope up with the regular English reading and writing.
- It was extremely user friendly because of its ease of scoring and user manual.

Finally the usability questionnaire scored above 90% on all the five usability criteria of applicability, operability, ease of use, adaptability and user satisfaction thus concluding that the screening tool is highly usable to find students with early signs of Dyslexia.

### **5.19 Suggestions for further research**

1. Further research is suggested to focus on predicting different abilities like mathematical (dyscalculia) or dyspraxia( bad psychomotor abilities ) etc.
2. Another research can focus on obtaining experiences of different kinds of samples, e.g., in different areas of urban and rural areas of Pune and studying the results of their achievement, etc. implementation of regular screening in other classes too, for finding children at risk of developing reading and writing difficulties is suggested.
3. A research can also be conducted on the usability of explicitly including early and regular screening in school curricula.
4. Supporting strategies and intervention programs for children found through the screening test can also be a topic for further research.
5. Rapid automatized naming technique also called “Sight word reading” of High Frequency Word is the process of shortening the time it takes to name objects, e.g. letters or syllables aloud and do it as quickly as possible. Rapid naming speed has successfully been used in revealing phonological awareness deficits and it is a strong predictor of reading skills remediation being effective. Further research in usage and effects of RAN in treating students with Dyslexia can be studied.

### **5.20 Educational significance of the research**

The significance of this research in the field of Special education and inclusive education is immense and can help teachers and parents to identify and understand the source of their students’ academic problems especially if it relates to their ability to read.



1. There is broad agreement among researchers in the science of reading, that deficit in the phonological system is an indicator of reading and writing difficulties . ( Catts & Kahmi, 2004; Høien & Lundberg, 2000; Kerins, 2006)

2. Deficits in core phonological processes seem to be central to many reading problems. These processes are often categorized into three areas: phonological awareness, rapid naming and phonological memory and if properly measured, remediation can take place only in the specific area of weakness.

3. Phonological awareness involves an individual's awareness of the sound structure of spoken language. Phonological awareness is demonstrated when one can hear, remember and manipulate sound units within words, syllables and syllable fragments, i.e. onsets/ rhymes and phonemes. (Bailet et al., 2009; McGuinness, 2004) This can be tested by the screening tool and can help in drawing a remediation plan for students with Dyslexia

5. Reading disability when detected can be overcome using interventions like VKAT method ie Visual – Kinesthetic- Audio- Tactile methods of teaching and Sight word training and helping these bright kids to excel because only kids with above average IQ are inflicted with Learning Disability.

### **5.21 Possible Knowledge Contributes**

This research will help teachers/facilitators/parents, in identifying the “at risk” students of Reading Disability, so that remedial teaching can begin and help them to cope better with the academic rigor of their class.

This research will ease the undue pressure put by society on students with Learning Disability to excel in academics only to be successful in life and help the teachers to identify the students and look for alternative skills to be developed in the students.

This research will be a help to the teachers/parents to identify the students weak areas and thus organize remedial activities in school and at home to help them in their educational endeavours.

## **Bibliography**

1. **Denton, C. A., Faulkner J. M. (2006).** *Validity, reliability and utility of the observation survey of early literacy achievement.* Reading Research Quarterly,41, 8834.
- 2.**Denzer B and Walsh E.(1999)** NY, *Teaching adolescents with learning disabilities.* Deuver, Love Publishing Company.
- 3.**Downey, D. B., Bretha Bert (2004).** *Are schools the great equalizer? Cognitive inequality during the summer months and the school year.* American Sociological Review, 69 (5), 613-635.
4. **Deary P (2009)** *Comparative reading: Studies and processes in reading and writing.* New York: The Macmillan Company.
- 5.**Zacharia, A. M. (2000).** *Teaching struggling readers in elementary school classrooms: A review of classroom reading programs and principles for instruction.* The Reading Teacher, 52, 480-495.
- 6 **Langbers U and Florence V (1997)** *An estimation of Learning Disability and learning inequality,* Macmillan ,CA
- 7.**Elbro D.K.(2009)** *Predicting dyslexia:The importance of distinctness of phonological representations of lexical items.* Reading Research Quarterly, 33, 36-60.
8. **Pressely Hilden PK (2004)** *Revisiting the simple view of reading.* Paper presented at the annual meeting of the Society for the Scientific Study of Reading, Vancouver, BC, Canada
9. **Onita Nakra S.K. (May 2011) – Dyslexia Defined.** New Delhi. PHI Learning Pvt. Limited. (P.324)
- 10.**Goleman, Daniel (September 27, 2005) - Title : Emotional Intelligence Why it can matter more than IQ,** New York. Bantam Books; 10th Anniversary edition. (P.46)
- 11.**Elley, Weber (1998)** *The IEA study of reading-literacy and instruction in 32 school systems in Tenessey.* Oxford: Pergamon Press.
- 10.**Mellian D. B. (2003)** *A Comparative study of students with dyslexia in poor neighbourhood schools and private school in Chicago.* New York: McMillan.
- 11.**Felton, W (2016)** *Students with three types of severe reading disabilities: ten case studies.* Bartam publications, New York.

**12.Mangal, S.K. (2011)** – Title : ‘*Advanced Educational Psychology*’, New Delhi.PHI Learning Pvt. Limited. (P.324)

**13.Pandya, Shefali R. (2012)** “*Educational Research*”, APH Publishing House, Daryaganj, New Delhi

**14.Kaul, Lokesh. (2013) 3<sup>rd</sup> Edition** ‘Advanced Educational Research’, New Delhi,PHI Learning Pvt. Limited. (P.326)

## **Bibliography**

1. **Denton, C. A., Faulkner J. M. (2006).** Validity, reliability and utility of the observation survey of early literacy achievement. *Reading Research Quarterly*,41, 8834.
- 2.**Denzer B and Walsh E.(1999)** NY, Teaching adolescents with learning disabilities. Deuver, Love Publishing Company.
- 3.**Downey, D. B., Bretha Bert (2004).** Are schools the great equalizer? Cognitive inequality during the summer months and the school year. *American Sociological Review*, 69 (5), 613-635.
4. **Deary P (2009)** Comparative reading: Studies and processes in reading and writing. New York: The Macmillan Company.
- 5.**Zacharia, A. M. (2000).** Teaching struggling readers in elementary school classrooms: A review of classroom reading programs and principles for instruction. *The Reading Teacher*, 52, 480-495.
- 6 **Langbers U and Florence V (1997)** “ An estimation of Learning Disability and learning inequality”, Macmillan ,CA
- 7.**Elbro D.K.(2009)** Predicting dyslexia:The importance of distinctness of phonological representations of lexical items, *Reading Research Quarterly*, 33, 36-60.
8. **Pressely Hilden PK (2004)** Revisiting the simple view of reading. Paper presented at the annual meeting of the Society for the Scientific Study of Reading, Vancouver, BC, Canada
9. **Onita Nakra S.K. (May 2011)** – Title : ‘Dyslexia defined, New Delhi.PHI Learning Pvt. Limited. (P.324)
- 10.**Goleman, Daniel (September 27, 2005)** - Title : ‘Emotional Intelligence : Why it can matter more than IQ’, New York. Bantam Books; 10th Anniversary edition. (P.46)
- 11.**Elley, Weber (1998)** The IEA study of reading-literacy and instruction in 32 school systems in Tenessey. Oxford: Pergamon Press.
- 10.**Mellian D. B. (2003)** A Comparative study of students with dyslexia in poor neighbourhood schools and private school in Chicago. New York: McMillan.
- 11.**Felton, W (2016)** Students with three types of severe reading disabilities: ten case studies, Bartam publications, New York.

**12.Mangal, S.K. (2011)** – Title : ‘*Advanced Educational Psychology*’, New Delhi.PHI Learning Pvt. Limited. (P.324)

**13.Pandya, Shefali R. (2012)** “*Educational Research*”, APH Publishing House, Daryaganj, New Delhi

**14.Kaul, Lokesh. (2013) 3<sup>rd</sup> Edition** ‘*Advanced Educational Research*’, New Delhi,PHI Learning Pvt. Limited. (P.326)



**Dr Chidannand R. Desai** (MBBS, MD, MA(Psych))

Regd No -62009 RCI registered child counsellor, ECHE certified counsellor, visiting professor NIMHANS, Empanelled Consulting Behavioural therapist and counsellor with UP Govt. Shikshan Abhimandal Program

Name G. AYATRI REDDY, PUNE

Date 18/12/15

Age Ph.D

After going through the screening test, I suggest the following changes:-

- 1) There could be more questions on testing the phonetic understanding of the students
- 2) The paragraph for comprehension is too long
- 3) There could be some questions on word-meaning from the paragraph
- 4) There could be some 'pictures' to describe, instead of writing a few lines on my family.
- 5) Overall, a great endeavour

Wishing you all the best,

*CD Desai*  
18/12

Consultation Timings - Morning 11 a.m to 3 pm. Evenings 5-8pm. For appointments contact- 011 25762722 or 0-9112652572



## CENTRE FOR CHILD DEVELOPMENT AND LEARNING (CCDL)

1-227, Rainbow Residency, Sarjapur Road, Bangalore-  
562125. email- [ccd1@rediffmail.com](mailto:ccd1@rediffmail.com). Contact -9611213000/9611214500

To whomsoever it may concern

This is to certify that I, Dr Sathyanarash Reddy, Ph.D (Psychology), University of Western Michigan; went through and studied the screening test made by Mrs Gayaatri Reddy (PhD researcher, TMV, Pune) to identify standard four students with a reading disability and found it to be rather comprehensive and useful for teachers for preliminary, informal screening and beginning of remedial teaching in school.

However, as I have been asked to evaluate the test in my expert opinion, I would like to mention a few points as a professional counsellor and remediation expert. These are as follows:-

1. The test is indeed very comprehensive and both the screen test and the level II of phonic awareness and the Checklist will give any teacher a good idea about the reading abilities of the student or the lack of it and will be helpful in beginning a pull out programme.
2. The length of the test is just enough and can easily be finished in one period i.e. approximately 30 minutes and hence the teacher does not need to waste any time.
3. I would suggest increasing the font size for easy viewing and increasing the spacing too.
4. Using pictures in comprehension is a very good idea in catching attention and helps in retention and association of what is learnt with the written word, I suggest adding a few more and preferably in colour format.
5. I really liked the phonic word testing dictation which uses "nonsense words" but am doubtful whether teachers will be able to pronounce the words correctly.
6. Certain changes like length of the comprehension paragraph could be worked upon as I feel it is a bit too long although it is not too complicated and appropriate to Standard IV students as it is curriculum based.

Overall an impressive effort by the researcher and I wish her all the best!

Dated 14/01/16 .....

Dr Sathyanarash Reddy (Ph.D)





find out for certain if the pupil has a risk of developing a reading disability and take steps accordingly .

- I personally found the test quite comprehensive and I am of the opinion that it can be used to help many school going children in our country.
- I wish the researcher all the very best !



Dr Kamlesh Chaudhary

## **DR. (MRS) KAMLESH CHAUDHARY**

*MA ( Special Education,UK ),M.Ed, Ph.D (LD), Fulbright and Commonwealth Scholar(Post Doctoral Studies in Learning Disability), Ex-Director Nalanda Learning Facilitation Centre, Mumbai, Retd. Principal, HGM Azam College of Education, Ex-Reader Adarsh College of education , Pune. Ex- Director of Centre for Child Development, Pune.*

### EXPERT OPINION ON THE SCREENING TEST

The Screening test to identify students that might be at risk for dyslexia and to begin their remediation has several features that caught my interest and made it seem like a very useful and potent tool in screening out students with Learning Disability at an early stage and begin their remediation.

- The test is a group test and the cut-off level will help the teacher to know where the class stands in terms of reading and comprehending the written word and what are their weak areas apart from detecting "at risk" students.
- The test is divided into three components – Phonic awareness, Comprehension of the written word and "free" writing. All these together make sure that a student can read comprehend and write the language and also helps detects those that have difficulty in doing so.
- By dividing the test into these three broad parts, the teacher can easily find out where exactly the student has a problem and this will help the teacher to make a remedial plan accordingly.
- The next phase of the test which includes the individual testing of letters and the "sound" of the letters along with the "timed" reading test that makes sure that the teacher can know for certain where the pupil is having a problem.
- Apart from this the teacher also gets a comprehensive Checklist with 45 questions; which are divided into specific areas of "reading" "writing" and "comprehension difficulty and hence the aware teacher and the pupil's parent can use the checklist to



## A Group Screening Tool To Test the Reading Ability of Students in English

**TMV, PUNE**

**Department of  
Education**

**8 5 5 1 8 5 5 6 5 5**

**Gytrrddy31@ymail.com**

This group screening tool is a teacher administered group English language test for the students of class IV, for identifying students at risk of a reading disability (dyslexia).

This testing booklet contains

1. The screening test
2. Teachers Manual

\* It is an identification tool and not a certification/ diagnostic tool.

# A Curriculum based Group screening test for Reading Abilities in Class 4 students

Name of the Student:

School:

Gender:

Date of testing:

## PART (I) - Phonic Awareness Test



### 1. Phoneme Deletion

Marks- 2

#### Example

Remove the sound “**K**” in CLAP and you will get ----- **LAP**

a) Remove the sound of “**PH**” in FELL and you will get -----

b) Remove the sound of “**S**” in Sunshine and you will get-----

### 2. Phoneme Addition/ Substitution

Marks- 2

#### Example

Replace the sound of “**F**” in **Fell** with the **sound of “T”** and you get ----- **TELL**

a) Replace the sound of “**S**” in **Silly** with **sound of “M”** and you get -----.

b) Replace the sound of “**M**” in **Man** with **the sound of “P”** and you get -----.

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

### 3. Rhyme recognition

Marks-4

Example

Circle the same sounding words-Top, Crow ,lot, what

- a) Bed, Fed, Axe ,Lit
- b) Girl, Goat, Vote ,Get,
- c) Soap, Hope, Top, Put
- d) Sand, Right, Bind, Kind

### 4. Rhyme production

Marks-4

Example

Write one rhyming word for each- Funny-Sunny

Rain \_\_\_\_\_

Cake \_\_\_\_\_

Clock \_\_\_\_\_

Glass \_\_\_\_\_

### 5. Word recognition

Marks-3

Example

Circle the right words- Pouring of water from the sky-

Rain /Reign

- 1. Sunshine coming in - Rays/Raise
- 2. Listen to someone - Hear/Here
- 3. After a fever ,you feel - Week/Weak

**6. Auditory Phoneme recognition test**

Marks-5

Write as teacher calls out the nonsense words from the **Teachers manual** (pg 2)

Example

Loffy can be written as Loffie, Loffee , etc. Write\_as you hear!

1 \_\_\_\_\_

4 \_\_\_\_\_

2 \_\_\_\_\_

5 \_\_\_\_\_

3 \_\_\_\_\_

**PART(II) - Comprehension of the Written Word**



**7. Match the following words with their word-meanings**

Marks-5

- |              |   |                              |
|--------------|---|------------------------------|
| 1. Yell      | - | A. Daily work                |
| 2. Shivering | - | B. To shout loudly           |
| 3. Crash     | - | C. Go Forward                |
| 4. Proceed   | - | D.To Break                   |
| 5. Chores    | - | E. Shaking with cold or fear |

## 8. Reading Comprehension

Marks-5

### Read the following:

The sea is full of beautiful seashells. Seashells come in many different shapes, sizes, and colours. Many seashells are named after everyday things, like the comb shell and spider shell. The “comb shell” has points that are straight and close



together, and looks like a comb and is called a comb shell. The spider shell has long points that look like spider legs and is



therefore named so.



One day, when Shashi went to the beach, he saw a beautiful sea shell that looked like a little turtle’s shell and



he brought it home. The shell actually belonged to an Olive Ridley turtle that had died on its first journey from the beach to the sea.

Olive Ridley turtle babies walk from the beach to the sea after hatching. If they reach the sea they are saved otherwise they die and that is why they are in danger of being killed. They are killed by men and even birds as they try to walk towards the sea after hatching.

### Now, answer the following questions:-

1. Which shells are named after things we already know?

---

2. Who went to the beach and what did he get?

---

---

3. Whose shell was it?

---

4. What happens to the turtles while going to the sea?

---

---

**9. Sentence comprehension . Read and Tick the right option. \_ Marks-5**

1. My dad came home late, so we (**could /could not**) go to the party.

2. There are (**many /less**) states in our country.

3. I have a wonderful home in which I live and I ( **do not like / like**) my home.

4. There are five friends in my class, and each one has 2 dogs, so we

(**have/do not have**) 10 dogs in all.

5. I am 8 years old and my brother is ten, so I am ( **younger/ older** ) to him.

**10. Free writing .**

Marks- 5

**Write 5 lines on “My Family”**

---

---

---

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*



-----  
-----  
-----  
-----  
-----  
-----

**SCORE**

<b>Question</b>	<b>Marks</b>	<b>Question</b>	<b>Marks</b>
<b>1</b>		<b>6</b>	
<b>2</b>		<b>7</b>	
<b>3</b>		<b>8</b>	
<b>4</b>		<b>9</b>	
<b>5</b>		<b>10</b>	

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

# **TEACHER'S MANUAL AND SCORING INSTRUCTIONS**



*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

## **TEACHERS' MANUAL FOR THE GROUP SCREENING TOOL**

*(The test takes around 20- 30 minutes to complete in a classroom environment.)*

### Procedure

1. Test entire group at one time, give the papers to all the students and ask them to write their name, date and gender.
2. Explain to the students it is only for testing the reading ability and it will not be counted for anything and will help the teacher to help the students read better.
3. Use the question paper itself. At the end of part 1, teacher has to give dictation for the following words for Q no 6. Repeat each nonsense word thrice clearly

(List of NONSENSE PHONETIC words with teacher only) for DICTATION

<b>Lif      Spob      Krob      Mesk      Scrad</b>
---

### 4. While taking the test

- a) Explain the example before each question; use the black board if necessary.
- b) Use the word in a sentence so that its meaning is clear (i.e. “The meat/meet was too raw to eat.” So we will use meat and not meet)

### 6. Scoring

- a) Each test item is equally weighed at 1 mark,. Give 1 mark for right answer
- b). No negative marking.

### **SCORING (maximum marks 40)**

Over 70%marks	Good Readers	(marks 28 and more)
70-40% marks	Strugglers	(marks 16-27 )
Below 40% marks	At Risk	(less than 16)

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

- ❖ Good Readers are those that scored 28 and more out of 40 and have no problems in reading and comprehension.
- ❖ Strugglers are those students who scored between 16 to 27 and need help in reading passages and understanding them and also some extra time from teacher.
- ❖ “At Risk” students are those that scored 15 and below out of 40 and need remedial teaching in English.
- ❖ To ascertain Dyslexia or Reading disability, “At risk ” students can take the next test which is the Level – II Reading Probe and Checklist.

**Answer Key**

**( Maximum Marks 40, Pass Marks 16 and above)**

**Q1 Phoneme deletion (2 marks)**

- a) ELL
- b)Unshine

**Q2 Phoneme addition (2 marks)**

- a)Milly
- b)Pan

**Q3 Similar sounding words (4 marks)**

- a)Bed-Fed
- b)Goat-Vote
- c)Soap-Hope
- d)Bind-Kind

**Q4 Rhyming words (4 marks)**

- a) Pain, wane, mane, train,...( any **one** similar rhyming word is correct)
- b)make, lake, bake, shake.....
- c)lock, talk, walk, shock, stock, mock, block.....
- d)Pass, mass, brass....

**Q 5Select the right word (3marks)**

- a) Rays
- b)Hear
- c) Weak

**Q6 Nonsense words (5 marks)**

- 1.Lif 2. Spob 3.Krob 4.Mesk 5.Scrad

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

**Q7 Match the following (5 marks)**

- 1- B
- 2 -E
- 3- D
- 4- C
- 5- A

**Q8 Comprehension (5 marks)**

1. The Comb shell and the Spider shell are named after things we already know.
2. Shashi went to the beach and brought home a shell / turtle shell.
3. It was a turtle's shell.
4. They are killed by men and birds while going back to the sea.

**Q9 Tick the correct option(5 Marks)**

1. could not
2. many
3. like
4. have
5. younger

**Q10 Write 5 lines on my family (5 marks),** give 1 mark for each correct complete sentence without spelling mistake, deduct ¼ th for each spelling mistake.

*(Important – incase a student fails to score even 16 marks in this test ask him to take the level II test that follows)*

## **Teacher's Instructional Manual and Scoring Sheet for Level II**

### **➤ Instructions- Prior to testing:**

- Read the test directions and the scoring directions before administering the test.
- Provide the student with a copy of the reading test. Allow the student to practice reading the passage aloud before testing.
- Make another copy of the test that will serve as a place for you to make notes for scoring. This copy can also serve as a record of the student's performance.

### **➤ Instructions-During testing:**

- Put the student at ease. Tell him or her that you will be listening and taking notes as he or she reads .
- Record the number of word call errors the student makes while reading.

## **SCORING**

- Less than 25 marks in Level II out of 50 means the student is at risk of a reading disability.
- Now go through the checklist to be doubly sure if the students has a reading disability or dyslexia , more than 12 ticks means he is at a certain risk of dyslexia.



## Screening Tool –PART II

### INDIVIDUAL INFORMAL SCREENING TEST FOR READING ABILITIES

#### READING PROBE

Full Marks 50

*(Only those scoring less than 16 marks in the group screening test need to take this test)*

The test should take around 20-30 minutes. Marks are indicated for each sub test separately.

#### **Q1. Read the letters aloud**

*(1/2 mk for each) 10 marks for all correct*

-	T	M	L	Q	C	J
U	V	B	R	W	O	E
D	F	Z	S	H	X	N

#### **Q2 Make the SOUND of the letters aloud**

*(1/2 mk for each) 10 marks for all correct*

-	t	m	l	q	c	j
u	v	b	r	w	o	e
d	f	z	s	h	x	g

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

### Q3.High Frequency Words (HFW) or SIGHT WORDS

(1/2 mk for each) 10 marks for all correct

Read any ONE column of words

A	
above	feather
animal	listen
because	knew
which	whenever
sitting	from
through	seem
income	supper
cause	sweeper
centre	large
form	together

or

B	
across	forever
enough	animal
available	knife
form	because
from	sand
thought	sipper
cause	supper
centre	sure
listen	whichever
further	invite

### Q 4. Curriculum- based dictation

10 marks (1/2 mk each)

*(You will need a paper and pen for this)*

- |            |            |             |             |             |
|------------|------------|-------------|-------------|-------------|
| 1. mistake | 2.pair     | 3.while     | 4.skate     | 5.stayed    |
| 6. yell    | 7.island   | 8.different | 9. brought  | 10. leaves  |
| 11.anger   | 12.health  | 13.disease  | 14. calm    | 15. decide  |
| 16.final   | 17. circus | 18.increase | 19.slippery | 20. library |

Spelling Age = no. of correctly spelt words + 5 =

10

Real Age of the student =

Reading Gap ( Real age – Spelling Age )=

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*



## 5. Reading test!

Number of Words in the sentence	Sentences (Mark the words that the students could NOT read correctly)	Total Words Read wrong
10-	The winter sun was out for the first time today	
10-	But, Lata did not want to go to school. So she	
10-	acted sick and told her mother “ I have a fever”	
10-	“You do feel sick,” mother said. Lata tried hard to cough	
10-	“You sound sick, too,” mother said and went to fetch medicines	
10-	It was Dad’s holiday in office, so he too was home.	
10-	All day, Lata stayed in bed and rested. She got bored	
10-	and felt sad for lying to mom and dad and herself!.	
10-	Her friends Sunita and Anu stopped by on their way	
10-	from school. “We had the best day in school today, Lata,”	
Total words 100	Total mistakes	
	Reading Score 100- mistakes	

## Scoring

Subtract the mistakes from 100, for the score take the number in the ten’s place as the marks.

*(For Example – mistakes made is 23, then  $100-23 = 77$ , marks is 7*

*For Example- mistakes made is 71,  $100- 71 = 29$ , marks is 2*

*For Example- mistakes made is 41,  $100- 41 = 59$ , marks is 5)*



## STUDENT'S SCORE

<u>Question number</u>	<u>Marks (full marks -50)</u>
Q1	.....out of 10
Q2	.....out of 10
Q 3	.....out of 10
Q 4	.....out of 10
Q 5	.....out of 10
Total Marks	..... out of 50

- **Interpretation of the scores** - Students securing **less than 25** marks out of 50 should take the teacher's checklist next which identifies students "at risk" of dyslexia requiring specific remedial teaching.
- Other students need only extra coaching in English but do not have a reading disability or dyslexia.



*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

**Teacher's Checklist for Reading Disability (Dyslexia)\***  
*(Only for those scoring less than 25 in Level II)*

Name -----School-----

Age-----

✓ Health and Developmental History (Kindly Tick the appropriate option)

Any Physical Disability -----

General health:      Healthy -----      Weak-----

Does he/she wear      Glasses (Yes)-----      No-----

Attendance:      Regular-----      Irregular-----

Any other Observation -----

**( Tick the box, which is true for the student otherwise leave it empty )**

**1)Reading**

➤ Confuses similar-looking letters (*b and d, p and q, n and u*)

➤ Difficulty recognizing and remembering often used "sight" words

➤ Frequently loses place when reading

➤ Confuses similar-looking words (*bread and beard, though- thought*))

➤ Reverses words (reads *was* for *saw*)

➤ Has trouble finding letters in words or words in sentences

➤ Poor comprehension of main ideas and theme ,while reading

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

## 2) Speech and Language Comprehension

- Delays in learning to speak
- Does not modulate tone of voice appropriately; speaks in monotone, or too loud
- Has problems naming objects or people
- Uses vague, imprecise language; has a small vocabulary
- Speech is slow or halting; uses verbal “stalling” mechanism (“uh,” “um,” “you know” “ what”)
- Frequently mispronounces everyday, easy words
- Confuses words with similar sounds (such as *pressure* and *pleasure*)
- Often uses hand gestures and body language to help convey message as they cannot get the right word
- Avoids talking (especially in front of strangers, authority figures, or groups)
- Little interest in books or stories or self-reading
- Does not respond appropriately to questions (replies “Monday” when asked “Where do you go to school?”)
- Frequently does not understand or remember instructions, significant delays in responding
- Difficulty in naming letters
- Problems associating letters with sounds, discriminating between sounds in words, blending sounds into words
- Difficulty analyzing sound sequences; frequent sequencing errors (such as reading snug for sung)
- Makes Guesses of unfamiliar words rather than reading

\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)

- Reads very slowly; oral reading deteriorates within a few sentences (due to declining ability to retrieve sounds)
- Poor retention of new vocabulary words
- Dislikes and avoids reading

### 3) Writing

- Dislikes and avoids writing
- Delays in learning to write
- Papers are messy and incomplete; many cross-outs and erasures
- Difficulty remembering shapes of letters and numbers
- Frequent letter and number reversals
- Uneven spacing between letters and words
- Omits letters from words and words from sentences
- Inaccurate copying
- Poor spelling (spells phonetically)
- Cannot spot errors in own work
- Written assignments are short or incomplete; often characterized by brief sentences, limited vocabulary
- Ideas in written assignments are poorly organized, not logically presented
- Little theme development; have difficulty in free writing

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

- On tests, consistently does better with multiple-choice questions than essays type or fill in the blanks.



## Scoring

1. More than 12 ticks shows the student to be at risk of Dyslexia and in need of remedial education along with regular classroom instructions.
2. If however he suffers from poor health/ low attendance , physical disability etc then the reasons of poor reading could be those factors as well and need to be dealt with appropriately along with dyslexia remedial teaching.

## **Conceptual Background**

Learning disability involves disorders of learning that are intrinsic to the individual irrespective of the academic input provided. Specific learning disabilities includes Dyslexia, Dysgraphia, Dyscalculia, Dyspraxia. , it usually occurs in combination and are “not due to other factors like mental retardation, physical impairment, lack of opportunities or behavioral disturbances.”(*Brandley and Hallahan, 2011*) Dyslexia or Reading Disability can be identified and remedial education begun in order to help students to read. This is a group screening tool for early identification and interventional purposes only and its results cannot be used for certification or diagnostic uses. Early identification allows the teacher to teach in the way that the student can learn easily; especially those that have dyslexia. It is a useful tool to understand the reading difficulties of such children and engage in remedial teaching and intervention without delay .

## **The Group Screening Tool**

It is a teacher administered and scored test and the items in the screening tool are as per the Minimum Learning Levels in English in Grade 4 and have been accepted by the National Council for Educational Research and Training (NCERT). It can be given to the entire class or a group of students and is extremely easy to score and interpret .The total number of questions are small yet sufficient to detect the possibility of a student suffering from reading disability. It is especially helpful to detect the weak areas in reading /writing of English to help begin remedial education. ( *Rozario, Joe, 2004, Handbook of Dyslexia, Sage Publications, Delhi* )

## **Scoring**

The scoring is extremely simple , 1 marks for every right answer and the total scores are then interpreted. It is followed by a level 2 and checklist to be able to know the exact weak areas of reading in English.

## **Standardisation**

The Group screening tool was administered to a sample of 1045 students of grade 4 in English medium Maharashtra State Secondary Certification (SSC) Board schools in Pune city and usability testing was carried out with teachers from over ten different schools. The test- retest reliability of the tool at a gap of one month is .87 and its Cronbach's Alpha score is a at a high of .97 and the Usability average score is 95.33%.

( *References Rozario, Joe, 2004, Handbook of Dyslexia, Sage Publications, Delhi, )*

*\*(References from NIMHANS Directory of Specific learning Disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

# ANNEXURE

## High Frequency Words Class IV (Bal Bharati)

above	button	enough	kitten	nine	sea	such
across	camp	even	knew	nothing	seat	suit
address	cap	eye	knife	number	seem	supper
ago	care	family	knock	outside	seen	suppose
air	careful	feather	lake	page	send	sure
airplane	case	feel	land	pail	shake	sweep
almost	cause	felt	lap	path	shine	sweet
also	centre	few	large	pay	shook	teach
ant	chimney	field	late	peas	should	teeth
awake	chin	fight	lead	pen	shut	than
bad	city	finger	leaf	pencil	side	thin
bake	clock	foot	learn	people	silver	thought
banana	cloud	fresh	leave	pie	skin	through
bath	cook	front	leaves	piece	sky	throw
beans	cool	fur	led	place	slip	till
beat	count	gift	left	plain	slow	tired
began	country	gold	lift	plant	smile	trade
bend	course	gone	line	plate	smoke	tried
beside	cover	gray	listen	pond	soap	true
between	creek	grew	lost	poor	socks	twelve
bill	cross	hair	loud	pot	soft	wake
bit	cup	half	march	press	something	wall
blow	dead	hall	mark	queen	sometime	wave
bone	dear	hang	matter	question	sound	wear
born	deer	heavy	mean	quick	soup	week
bottom	desk	herself	meat	quiet	space	west
bowl	different	hid	meet	radio	spot	wheel
brave	dime	himself	middle	ready	stairs	while



<b>breakfast</b>	<b>dirty</b>	<b>hole</b>	<b>Miss</b>	<b>real</b>	<b>stand</b>	<b>whisper</b>
<b>brick</b>	<b>dream</b>	<b>hundred</b>	<b>most</b>	<b>remember</b>	<b>station</b>	<b>win</b>
<b>broke</b>	<b>drop</b>	<b>hung</b>	<b>mouth</b>	<b>rich</b>	<b>stay</b>	<b>wing</b>
<b>broken</b>	<b>dry</b>	<b>hungry</b>	<b>Mr.</b>	<b>river</b>	<b>still</b>	<b>winter</b>
<b>brought</b>	<b>dust</b>	<b>kept</b>	<b>Mrs.</b>	<b>rock</b>	<b>sting</b>	<b>without</b>
<b>bug</b>	<b>early</b>	<b>kick</b>	<b>nap</b>	<b>roof</b>	<b>stood</b>	<b>wonder</b>
<b>building</b>	<b>east</b>	<b>kill</b>	<b>neck</b>	<b>row</b>	<b>story</b>	<b>wool</b>
<b>built</b>	<b>edge</b>	<b>king</b>	<b>need</b>	<b>sand</b>	<b>straight</b>	<b>world</b>
<b>busy</b>	<b>else</b>	<b>kiss</b>	<b>nice</b>	<b>save</b>	<b>strong</b>	<b>yard</b>
<b>yet</b>						

•

## **MINIMUM LEVELS OF LEARNING – LANGUAGE (MLL)**

**As Proposed by Dr Dave committee (NCERT) ,1986 , accepted by SSC Board**

### **Reading :**

Reading Aloud : (i) Must read words, not read syllable by syllable.

(ii) End sentences appropriately when encountering full stop, exclamation mark, question mark.

(iii) Pause for comma.

(iv) Poetry - read with a sense of the rhyme.

(v) Answer questions from an unseen passage just read.

### **(v) Reading signposts.**

### **Listening and Speaking :**

It was felt that in many ways listening being a very subjective process, it cannot be tested in isolation and had to be dealt with speaking, reading and writing.

i) Story : must listen to stories of 5 pages from children's literature -- Must be able to ask relevant questions; must be able to dramatise a few scenes; must be able to narrate the story in simple language with attention paid to sequence, details and feelings,

ii) Dictation : The children should be able to listen to and write down at least five words as they are read out. (The work should be evaluated for the correct words, structure and punctuation marks.)

### **Speaking :**

**Narration** : The children must be able to narrate a story, incident or a set of connected facts in about 300 words . Must speak in full sentences that maintain tense.

The voice must be clear and audible and reflect at a simple level the mood of the narration.

**Description** : This would include describing a happening, person or scene in 100 words. While speaking the children must attend to sequence (in a happening), details and feelings and speak clearly and audibly.

**Giving Messages/Instructions/Commands** : The children must be able to give a set of six instructions or commands.

## **Writing**

i) **Stories** : must be able to write a story in 250 words -- the writing must have sequence, correct tense form, punctuation marks (.?! Capitals, full stops), legibility.

ii) **Rhymes and poems** : given a theme or some rhyming words, the children must be able to write a short poem or rhyme of 6 lines. The rhyming words must be appropriate to the theme.

iii) **Answers, facts, paragraphs on common topics** : Must be able to write an answer or convey information containing 3 or 4 main ideas. Be able to write a paragraph or procedure of 5 to 6 steps.

## **Copy of the Permission letter to Principals**

**To**

**The Principal**

---

**Sub: Request for collecting information for PhD research**

**Sir,**

**I am Gayatri Reddy, a bonafide PhD student of Tilak Maharashtra Vidyapeeth ,Pune ( photo id Xerox atch). For my research work on “*Development of a group screening tool to identify students at risk of reading disability in class 4- A study*” I need to visit your school for a few days as per your convenience.**

**May I request you to kindly give me permission to collect some data from your school in this regard.**

**I assure you that there will be no disturbance in your school routine because of my work. I will use the data for my personal research work and will not disclose it anywhere. Kindly also allow me to click a few photographs for record.**

**I will be greatly beholden.**

**Date:**

**Yours sincerely**

**Gayatri Reddy**

**0 9765988102, gytrrdy@yahoo.com**

DATA COLLECTION FOR SCREENING TOOL







Screening tool –level II

**READING PROBE**

Full Marks 50

*(Only those scoring less than 16 marks in the group screening test need to take this test)*

The test should take around 20-30 minutes. Marks are indicated for each sub test separately.

**Q1. Read the letters aloud**

*(1/2 mk for each) 10 marks for all correct*

-	T	M	L	Q	C	J
U	V	B	R	W	O	E
D	F	Z	S	H	X	N

**Q2 Make the SOUND of the letters aloud**

*(1/2 mk for each) 10 marks for all correct*

-	t	m	l	q	c	j
u	v	b	r	w	o	e
d	f	z	s	h	x	g

*\*(References from NIMHANS Directory of specific learning disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*



**Q3.High Frequency Words (HFW) or SIGHT WORDS**

*(1/2 mk for each) 10 marks for all correct*

Read any ONE column of words

A	
above	feather
animal	listen
because	knew
which	whenever
sitting	from
through	seem
income	supper
cause	sweeper
centre	large
form	together

or

B	
across	forever
enough	animal
available	knife
form	because
from	sand
thought	sipper
cause	supper
centre	sure
listen	whichever
further	invite

**Q 4. Curriculum- based dictation**

**10 marks (1/2 mk each)**

*(You will need a paper and pen for this)*

- |            |            |             |             |             |
|------------|------------|-------------|-------------|-------------|
| 1. mistake | 2.pair     | 3.while     | 4.skate     | 5.stayed    |
| 6. yell    | 7.island   | 8.different | 9. brought  | 10. leaves  |
| 11.anger   | 12.health  | 13.disease  | 14. calm    | 15. decide  |
| 16.final   | 17. circus | 18.increase | 19.slippery | 20. library |

Spelling Age = <u>no. of correctly spelt words</u> + 5 =
10
Real Age of the student =
Reading Gap ( Real age – Spelling Age )=

*\*(References from NIMHANS Directory of specific learning disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

### Q 5. Reading test!

Number of Words in the sentence	Sentences (Mark the words that the students could NOT read correctly)
10-	The winter sun was out for the first time today
10-	But, Lata did not want to go to school. So she
10-	acted sick and told her mother “ I have a fever”
10-	“You do feel sick,” mother said. Lata tried hard to cough
10-	“You sound sick, too,” mother said and went to fetch medicines
10-	It was Dad’s holiday in office, so he too was home.
10-	All day, Lata stayed in bed and rested. She got bored
10-	and felt sad for lying to mom and dad and herself!.
10-	Her friends Sunita and Anu stopped by on their way
10-	from school. “We had the best day in school today, Lata,”
Total words 100	Total Mistakes in reading

### Scoring

Subtract the mistakes from 100, for the score take the number in the ten’s place as the marks.

*(For Example – mistakes made is 23, then  $100-23 = 77$ , marks is 7  
For Example- mistakes made is 41,  $100- 41 = 59$ , marks is 5)*

## SCORE

<u>Question number</u>	<u>Marks (full marks -50)</u>
Q1	.....out of 10
Q2	.....out of 10
Q 3	.....out of 10
Q 4	.....out of 10
Q 5	.....out of 10
Total Marks	..... out of 50

- **Interpretation of the scores** - Students securing **less than 25** marks out of 50 should take the teacher’s checklist next which identifies students “at risk” of dyslexia requiring specific remedial teaching.
- Other students need only extra coaching in English but do not have a reading disability or dyslexia.

## **Teacher's Manual and Scoring for Level II**

### **➤ Instructions- Prior to testing:**

- Read the test directions and the scoring directions before administering the test.
- Provide the student with a copy of the reading test. Allow the student to practice reading the passage aloud before testing.
- Make another copy of the test that will serve as a place for you to make notes for scoring. This copy can also serve as a record of the student's performance.

### **➤ Instructions-During testing:**

- Put the student at ease. Tell him or her that you will be listening and taking notes as he or she reads .
- Record the number of word call errors the student makes while reading.

### **Scoring**

- Less than 25 in the total out of 50 puts the student in the at risk of a reading disability and in need of remediation and also a candidate to go through the checklist.

## Teacher's Checklist for Reading Disability (Dyslexia)\*

Name -----School-----

Age-----

✓ Health and Developmental History (Kindly Tick the appropriate option)

Any Physical Disability -----

General health:        Healthy -----        Weak-----

Does he/she wear        Glasses (Yes)-----        No-----

Attendance:        Regular-----        Irregular-----

Any other Observation -----

( Tick the box, which is true for the student otherwise leave it empty )

### 1)Reading

- Confuses similar-looking letters (*b and d, p and q, n and u*)
- Difficulty recognizing and remembering often used "sight" words
- Frequently loses place when reading
- Confuses similar-looking words (*bread and beard, though- thought*)
- Reverses words (reads *was* for *saw*)
- Has trouble finding letters in words or words in sentences
- Poor comprehension of main ideas and theme ,while reading

*\*(References from NIMHANS Directory of specific learning disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

## 2) Speech and Language Comprehension

- Delays in learning to speak
- Does not modulate tone of voice appropriately; speaks in monotone, or too loud
- Has problems naming objects or people
- Uses vague, imprecise language; has a small vocabulary
- Speech is slow or halting; uses verbal “stalling” mechanism (“uh,” “um,” “you know” “ what”)
- Frequently mispronounces everyday, easy words
- Confuses words with similar sounds (such as *pressure* and *pleasure*)
- Often uses hand gestures and body language to help convey message as they cannot get the right word
- Avoids talking (especially in front of strangers, authority figures, or groups)
- Little interest in books or stories or self-reading
- Does not respond appropriately to questions (replies “Monday” when asked “Where do you go to school?”)
- Frequently does not understand or remember instructions, significant delays in responding
- Difficulty in naming letters
- Problems associating letters with sounds, discriminating between sounds in words, blending sounds into words
- Difficulty analyzing sound sequences; frequent sequencing errors (such as reading snug for sung)
- Makes Guesses of unfamiliar words rather than reading
- Reads very slowly; oral reading deteriorates within a few sentences (due to declining ability to retrieve sounds)
- Poor retention of new vocabulary words
- Dislikes and avoids reading

\*(References from NIMHANS Directory of specific learning disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)

### 3) Writing

- Dislikes and avoids writing
- Delays in learning to write
- Papers are messy and incomplete; many cross-outs and erasures
- Difficulty remembering shapes of letters and numbers
- Frequent letter and number reversals
- Uneven spacing between letters and words
- Omits letters from words and words from sentences
- Inaccurate copying
- Poor spelling (spells phonetically)
- Cannot spot errors in own work
- Written assignments are short or incomplete; often characterized by brief sentences, limited vocabulary
- Ideas in written assignments are poorly organized, not logically presented
- Little theme development; have difficulty in free writing
- On tests, consistently does better with multiple-choice questions than essays type or fill in the blanks.

### Scoring

1. More than 12 ticks shows the student to be at risk of Dyslexia and in need of remedial education along with regular classroom instructions.
2. If however he suffers from poor health/ low attendance , physical disability etc then the reasons of poor reading could be those factors as well and need to be dealt with appropriately along with dyslexia remediation teaching.

*\*(References from NIMHANS Directory of specific learning disability,2011; RCI Manual of Learning Disability,2009 ,NCLD(National Council of Learning Disability ,USA) Checklist 2011)*

**Initial Screening Tool ( Before Pilot testing)**

**A Curriculum based Group screening test for Reading Abilities in Class IV**

**Name:**

**School:**

**Gender:**

**Grade/class-**

**Date of Birth**

**Date of Test:**

**Primary Language spoken at home:**

**Teacher Name:**

**(I) Phonic Awareness Test**

1. Phoneme Deletion Marks- 2  
Remove the sound "K" in CLAP and you will get -----LAP

a) Remove the sound "PH" in Floor and Fell and you will get -----, -----

b) Remove the sound of "S" in Score, Sunshine and you will get-----,-----

2. Phoneme Addition/ Substitution Marks- 2

Replace the sound of "F" in **Fell** with the sound of "T" and you get ----- TELL

a) Replace the sound of "M" in **Man** with the sound of "K" and you get -----

b) Replace the sound of "S" in **Silly** with "M" and you get -----

3. Auditory Phoneme recognition test (5)

Write as teacher calls out the name of Aliens from the galaxy.....

Example LOFFY- can be written as LOFFIE, LOFFEE, write as you hear.....

1.----- 2.----- 3.-----4.----- 5.-----6.-----

7----- 8.----- 9.-----10.-----

**( list of words with teacher only )**



Lif    ig    tam    taf

Spob    krob    mesk    fouse

Scrad    scroble

4. **Rhyme recognition** – circle the rhyming words (4)

Example- top, crow, lot, what

- a) Bed, fed, axe, lit
- b) Goat, girl, get, vote
- c) Soap, top, hope, put
- d) Bind, sand, right, kind

5. **Rhyme production** (4)

Write a **rhyming word** for each

**Example- funny- sunny**

**Pain**            -----

**Cake** -----

**clock**           -----

**grapes** -----

6. **Word recognition**

Circle the right words (3)

Example- Pouring of water from the sky - Rain /Reign

Sunshine coming in - Rays/Raise

Listen to someone - Hear/Here

Maintaining silence - Quiet/Quite

(II) **Comprehension**

7. **Word comprehension** (5)  
**Match the following words with the word-meaning**

- a) Yell                    -                    daily work
- b) Shivering            -                    To shout loudly

- c) Crashed - A group of people going somewhere
- d) Procession - To bump into something violently
- e) Chores - shaking a lot

**8. Reading Comprehension**

**Read the following passage and answer the questions:**

Seashells come in many different shapes, sizes, and colours. They are like a rainbow in the ocean. Sea shells are made of calcium and fine sand. Many seashells are named for other things we already know. For example, ‘the spider shell’ is one example. The spider shell has long points that look like spider legs.

‘The comb shell’ has points, too. Its points are straight and close together, just like those in a comb and it is very white and varies in size greatly. The other day when Sashi went to the beach, he saw a beautiful sea shell that looked like a little turtle’s shell and he brought it home. The shell actually belonged to an Olive Ridley turtle that had died on its maiden journey from the beach to the sea. Olive Ridley turtles travel the distance from its hatching site to the sea. If they reach the sea they are saved otherwise they die and that is why they are in danger of becoming extinct. They are killed by men and even birds as they try to walk towards the sea after hatching.

Answer the following questions

1. Which shells are named after things we already know? (1)

-----  
---

2. Who went to the beach and what did he get? (1)

-----

3. Whose shell was it? (1)

-----

4. What happens to the turtles while going to the sea? (2)

-----

**9. Sentence comprehension . Choose the right option and write it. (5)**

1. My dad came home late, so we -----( could/could not) go to the party.
2. There are .....( many/less)States in our country.
3. I have a wonderful home in which I live and I .....( do not like / Like) my home.
4. There are five friends in my class, and each one has 2 dogs, so we .....( have/do not have) 10 dogs in all.
5. I am 8 years old and my brother is 10 , so I am .....( younger/ elder ) t o him.

**10. Free writing .**

**(5)**

**Write 5 lines on “Any Topic”**

-----  
-----  
-----  
-----  
-----

-----**Thank you ☺**

High Frequency words (HFW) from Balbharti textbook in class IV

above	button	enough	kitten	nine	sea	such
across	camp	even	knew	nothing	seat	suit
address	cap	eye	knife	number	seem	supper
ago	care	family	knock	outside	seen	suppose
air	careful	feather	lake	page	send	sure
airplane	case	feel	land	pail	shake	sweep
almost	cause	felt	lap	path	shine	sweet
also	centre	few	large	pay	shook	teach
ant	chimney	field	late	peas	should	teeth
awake	chin	fight	lead	pen	shut	than
bad	city	finger	leaf	pencil	side	thin
bake	clock	foot	learn	people	silver	thought
banana	cloud	fresh	leave	pie	skin	through
bath	cook	front	leaves	piece	sky	throw
beans	cool	fur	led	place	slip	till
beat	count	gift	left	plain	slow	tired
began	country	gold	lift	plant	smile	trade
bend	course	gone	line	plate	smoke	tried
beside	cover	gray	listen	pond	soap	true
between	creek	grew	lost	poor	socks	twelve
bill	cross	hair	loud	pot	soft	wake
bit	cup	half	march	press	something	wall
blow	dead	hall	mark	queen	sometime	wave
bone	dear	hang	matter	question	sound	wear
born	deer	heavy	mean	quick	soup	week
bottom	desk	herself	meat	quiet	space	west
bowl	different	hid	meet	radio	spot	wheel
brave	dime	himself	middle	ready	stairs	while

<b>breakfast</b>	<b>dirty</b>	<b>hole</b>	<b>Miss</b>	<b>real</b>	<b>stand</b>	<b>whisper</b>
<b>brick</b>	<b>dream</b>	<b>hundred</b>	<b>most</b>	<b>remember</b>	<b>station</b>	<b>win</b>
<b>broke</b>	<b>drop</b>	<b>hung</b>	<b>mouth</b>	<b>rich</b>	<b>stay</b>	<b>wing</b>
<b>broken</b>	<b>dry</b>	<b>hungry</b>	<b>Mr.</b>	<b>river</b>	<b>still</b>	<b>winter</b>
<b>brought</b>	<b>dust</b>	<b>kept</b>	<b>Mrs.</b>	<b>rock</b>	<b>sting</b>	<b>without</b>
<b>bug</b>	<b>early</b>	<b>kick</b>	<b>nap</b>	<b>roof</b>	<b>stood</b>	<b>wonder</b>
<b>building</b>	<b>east</b>	<b>kill</b>	<b>neck</b>	<b>row</b>	<b>story</b>	<b>wool</b>
<b>built</b>	<b>edge</b>	<b>king</b>	<b>need</b>	<b>sand</b>	<b>straight</b>	<b>world</b>
<b>busy</b>	<b>else</b>	<b>kiss</b>	<b>nice</b>	<b>save</b>	<b>strong</b>	<b>yard</b>
<b>yet</b>						

•

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
n	t	net	t	ten	e
e	ten	e	n	net	t
net	net	t	e	t	ten
t	n	n	net	e	net
ten	e	ten	ten	n	n

Read the word and write down a rhyming word!

hen	dad	cat	sun	mat

Read the word and write down a rhyming word!

net	nut	top	cap	hat

Read the word and write down a rhyming word!

pen	fan	pan	ten	pig

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5
n	ten	net	n	net
t	e	ten	e	ten
n	t	net	t	n
e	n	ten	e	e
e	e	ten	n	t

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5
n	t	n	t	net
in	ten	e	in	n
t	e	in	n	in
e	in	ten	net	ten
net	n	t	e	e

Read the word and write down a rhyming word!

cup	nut	dad	net	cat

Read the word and write down a rhyming word!

sun	fan	ten	pan	hen

1	2	3	4	5
n	in	in	n	in
in	ten	in	e	ten
t	in	ten	in	in
in	t	net	t	net
in	n	in	in	in

- n in nut
- n in net
- n in nest
- n in sun



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

n in hen

n in fan

n in ten

n in pan

1	2	3	4	5
n	net	ten	p	in
e	pet	pen	pot	for
t	o	o	e	in
p	pot	ton	pet	top
o	not	ten	t	ten

Read the word and write down a rhyming word!

pen	cap	cup	net	pig

Read the word and write down a rhyming word!

sun	fan	pan	top	hen

1	2	3	4	5
p	in	for	for	in
in	p	t	e	n
n	e	in	p	t
in	n	o	in	for
for	in	p	t	P

n for net

p in cup

n in sun

n for nut

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

ten	p in cap	p in cup	t for ten
p for pen	n in hen	n in pan	t for top
ton	p for pig	p for pan	t in net
p for pig	o in top	n in ton	p for pan
top	o in for	t in net	n for net
n in ten	n in sun	e in hen	e in pen
pot			
o in ton			
pet			
p for pen			
pen			
p in cup			
ten			

1	2	3	4	5
net	in	pot	in	n
opt	<i>the</i>	in	pot	in
ten	in	for	ten	<i>the</i>
top	for	e	p	the
not	pot	t	is	<i>the</i>

Read the word and write down a rhyming word starting with “*the*”!  
!

<i>the pen</i>	<i>the sun</i>	<i>the top</i>	<i>the net</i>	<i>the hen</i>

Read the word and write down a rhyming word starting with “*the*”!

<i>the cup</i>	<i>the cap</i>	<i>the pan</i>	<i>the pig</i>	<i>the fan</i>

Read loudly

1	2
<i>the n in ten</i>	<i>the o in not</i>

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

*the o in pot*  
*the p in top*

*the e in net*  
*the n in pen*

*the fan in the pan*  
*the pig in the net*

*the pet in the pan*  
*the hen in the pan*

*the pen in the cup*  
*the fan in the pan*

*the pen in the cup*  
*the hen in the pan*

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

Practice Reading

1	2	3	4	5	6
the	pot	a	net	tap	the
ant	top	an	not	nap	tan
pat	ten	ant	pet	pan	ant
tan	net	pant	pot	pat	at
tap	pet	at	pat	a	pan

a cat	a bat	a cap	a dad	a fan

a hat	a hand	a pan	a mat	a pant

a bat in a hand

a cat in the pan

a dad in a pant

a hat for the dad

a cap for nat

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
pot	and	a	net	and	pant
and	a	pot	not	tap	pan
net	tap	and	and	at	ten
pen	ten	pen	pot	ant	tent
pot	nap	at	pat	a	and

Write rhyming words for both!

a hand and a bat	a dad and a mat	a cat and a hat

a cap and a fan	a pant and a pan	a cat on a mat

the tent.

the tent for dad.

dad in the tent.

dad on the mat in the tent.

---

the cat.

the cat on the mat.

the ant not on the mat.

the ant in the cat.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

---

Practice Dictation ( Five words Only)

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
mat	tam	mom	net	and	in
map	tom	and	not	for	am
man	mom	am	<i>I</i>	am	<i>I</i>
<i>I</i>	Top	<i>I</i>	on	<i>I</i>	and
am	<i>I</i>	map	tent	mop	the

<i>I am nat</i> <i>I am a man</i> <i>I am not a mon</i> <i>I am a dad</i>	<i>I am pam</i> <i>I am not a man</i> <i>I am not a dad</i> <i>I am a mon</i>	<i>I am tam</i> <i>I am a man</i> <i>I am not a mom</i> <i>I am a dad</i>

<i>I am tom</i> <i>I am not a man</i> <i>I am not a dad</i> and <i>I am not a mom</i> <i>I am ten</i>	<i>I am pom</i> <i>I am not a man</i> and <i>I am not a mom</i> <i>I am 6</i>	<i>I am mom</i> <i>I am not a man</i> <i>I am not mom</i> <i>I am eleven</i>
---	--	---

*I am not a man*

*I am a mom*

*I am a mom*

*I am not a cat*

and *I am a cat*

*I am a hen*

*I am a mom-cat*

*I am a mom-hen*



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
<i>I</i>	<i>he</i>	<i>he</i>	mop	<i>he</i>	mop
am	<i>I</i>	ant	<i>he</i>	<i>he</i>	mat
not	mom	mat	<u>is</u>	<i>I</i>	map
<i>he</i>	dad	<i>he</i>	not	tent	pam
<u>is</u>	<u>is</u>	mom	<i>he</i>	a	pom

<i>he</i> <u>is</u> a man <i>he</i> <u>is</u> not a dad and <i>he</i> is not a mom	<i>he</i> <u>is</u> dad dad <u>is</u> a man <i>he</i> <u>is</u> not a mom	<i>she</i> <u>is</u> not a man <i>she</i> <u>is</u> not a dad and <i>she</i> is not a mom
--	---	---

a dad and a mom <i>he</i> <u>is</u> the dad <i>he</i> <u>is</u> not the mom	tom and pam <i>he</i> <u>is</u> not pam <i>he</i> <u>is</u> tom	tammy and mom <i>he</i> <u>is</u> not the mom <i>he</i> <u>is</u> tammy
---	---	---

pop the ant.

it is pop.

pop is the ant.

pop is a man.

he is a man-ant.

ant is on the mop.

it is on the mop.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
set	as	he	pot	the	ant
son	am	and	net	she	pant
sop	sam	is	is	mom	tent
he	pam	ten	son	dad	ten
the	tam	net	a	he	pen

Write rhyming words!

Two notes	Two fans	Three pans	Two pigs	Five pens

Write rhyming words!

ants	dogs	hats	cats	bats	pans

1	2	3	4	5	6
pan	pig	dad	he	she	ten
man	pens	moms	cat	son	l
bats	fans	hats	pig	sons	tops
fan	nets	ant	hats	he	for
nets	cat	pans	ant	am	mops

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
he	ten	top	<i>she</i>	in	and
<i>she</i>	tent	tap	mom	for	<i>she</i>
I	pan	taps	moms	the	he
sat	pant	dad	sat	<i>she</i>	in
sam	pans	dads	the	sat	is

pam is in the tent.

she is not a mom.

she is not a man.

she is in the tent.

the tent is on the mat.

and the fan is on the mat.

the fan is not on.

on the mat is a cat.

and a hat is on the cat.

the cap is on the man and the men is on the mat.

the ant is in the pan.

he is in the pan.

and the pan is on the mat.

the fan on the mat is on.

pam is on the mat.

She is not in the tent.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
on	she	<i>no</i>	for	and	<i>I</i>
toy	<i>I</i>	ten	she	dads	<i>no</i>
<i>no</i>	on	tent	<i>no</i>	<i>no</i>	and
tap	he	sent	is	moms	not
pat	<i>no</i>	pen	the	sat	pans

in the pot is no sap.  
 the sap is not in the pot.  
 is the sap in the pan?  
 no, the sap is not in the pan.

Is the sap in the tap?  
 The sap is in the tap.  
 The tap is on.

is the sap in the tap?  
 no, the sap is not in the tap.  
 the sap is in the pan.

sam sent the sap for mom.  
 sam sent the sap for dad.

is the sap in the tap?  
 no, the sap in the pot?  
 is the sap in the pot?  
 no, the sap is not in the pot.

the sap is in mom.  
 the sap is in dad.  
 and the sap is in sam.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
<i>can</i>	<i>I</i>	not	<i>can</i>	mat	no
som	met	pot	toy	sat	<i>can</i>
pom	net	top	no	pat	ten
tom	pet	<i>can</i>	on	sat	net
mop	<i>can</i>	she	not	<i>can</i>	tap

can nat sit on the mat?

nat can sit on the mat.

is nat a man?

no, nat is not a man.

mat is a tot.

is the pot on the mat?

no, the pot is not on the mat.

is nat, the tot, on the mat?

no, nat, the tot, is not on the mat.

is the pot on the mat?

no, the pot is not on the mat.

can the pot on nat, the tot.

the pot can on nat, the tot.

the pot is on nat, the tot.

is nat, the tot, on the mat?

no, nat, the tot, is not on the mat.

can mom sit on the mat?

is mom on the mat?

no, mom is not on the mat.

mom is on the mat.

nat, the tot, is on the mat.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

is the pot on nat, the tot?

no, the pot is not on nat, the tot.

1	2	3	4	5	6
six	toy	this	for	sis	mix
mix	this	can	six	the	ox
this	ox	pot	this	in	top
next	<i>I</i>	sat	she	nets	this
text	sit	and	pots	this	and

This is sis.  
 She is six.  
 I am not six.  
 I am 5.  
 I sit next sis.

in this pan is the sap.  
 and in this pot is sap.  
*I* can mix the sa.  
  
 the sap is in the pot.  
 and the sap is in the pan.  
  
 it is a sap-pan and  
 it is a sap-pot.

this is tos.  
 it tos an ox?  
 tos is not an ox.  
 tos is a toy.  
 he is a toy-ox.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

this is an exit.

1

The N is the n  
 The E is the e  
 The P is the p  
 The O is the o  
 The A is the a

2

The M is the m  
 The S is the s  
 The I is the i  
 The Y is the y  
 The X is the x

1	2	3	4	5	6
Six	Mix	Can	Sis	Sis	Mix
Toy	This	For	The	The	Ox
This	Next	Six	In	In	Top
For	Text	She	This	Nets	This
Sis	I	Tents	And	This	and

1	2	3	4	5	6
Mix	Mix	This	For	Can	I
And	Ox	Can	Six	For	He
This	I	Pot	This	It	Fan
Next	Sit	Sat	She	She	Top
Text	Mix	And	Pots	I	Sis

1	2	3	4	5	6
Net	Pom	For	Sam	Can	For
Top	Tes	Can	Tin	I	Text
Man	Son	Pots	Pen	Pom	Spot
Sis	In	This	Sap	This	Ox
Ox	Ten	Is	Ten	Top	i

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
He	Ten	Sat	In	In	Ox
Pant	Tent	In	Sat	Sat	Six
Mom	Pan	Tap	Sam	She	And
Dad	Moms	For	She	Tent	In
She	The	She	The	Ten	Pom



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1

The N is the n  
 The E is the e  
 The P is the p  
 The O is the o  
 The A is the a

2

The M is the m  
 The S is the s  
 The I is the i  
 The Y is the y  
 The X is the x

1	2	3	4	5	6
Six	Mix	Can	Sis	Sis	Mix
Toy	This	For	The	The	Ox
This	Next	Six	In	In	Top
For	Text	She	This	Nets	This
Sis	I	Tents	And	This	And

7	8	9	10	11	12
Mix	Mix	This	For	Can	I
And	Ox	Can	Six	For	He
This	I	Pot	This	It	Fan
Next	Sit	Sat	She	She	Top
Text	Mix	And	Pots	I	Sis

13	14	15	16	17	18
Net	Pom	For	Sam	Can	For
Top	Tes	Can	Tin	I	Text
Man	Son	Pots	Pen	Pom	Spot
Sis	In	This	Sap	This	Ox
Ox	Ten	Is	Ten	Top	i

19	20	21	22	23	24
He	Ten	Sat	In	In	Ox
Pant	Tent	In	Sat	Sat	Six
Mom	Pan	Tap	Sam	She	And
Dad	Moms	For	She	Tent	In
She	The	She	The	Ten	Pom

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
dog	see	pad	get	man	got
dot	ted	mad	see	he	sit
den	tod	sad	mad	for	sat
did	dod	dad	dog	can	sad
dig	God	get	dig	see	dad

I See Tod.

Tod is a dog.

I see Sam.

Sam is not a dog.

Sam is the man and Tod is the dog.

He is Sam's dog.

Sam digs and Tod digs.

Tod digs as a mad-dog.

Sam not.

Tom digs.

He digs and digs.

He can see a pen.

The pen is in the sand.

Tom digs.

He got the pen.

The pen is not in the sand.

The pen is Tom's

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
<i>put</i>	see	<i>I</i>	get	man	got
dot	<i>put</i>	mad	see	he	pit
dod	if	<i>put</i>	pad	for	sat
see	God	dad	pads	<i>put</i>	sad
Dig	he	sad	<i>put</i>	see	<i>put</i>

<p>Dan can see dots. He can see dots on pads.</p>	
<p>He can see dots on pots, and he can see dots on pans.</p>	
<p>Dan put dots on Pat and Dod. He put dots on Sam and Nan.</p>	
<p>Dan can put dots on pots and pans. He sat and put dots on pots and pans.</p>	
<p>Can Dan put dots on Dad?</p>	

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

<p>Dan can not put dots on Dad          Dad is mad          Dan is sad</p>	
--	--

1	2	3	4	5	6
put	He	<i>I</i>	get	man	top
dot	put	<i>from</i>	see	he	stop
<i>from</i>	if	put	<i>from</i>	<i>from</i>	<i>from</i>
see	<i>from</i>	add	tap	put	got
got	she	sad	put	see	pit

*I* am Tes.  
*I* see toys.  
 Mom, can *I* get a toy?  
 Dad, can *I* get a toy?  
*I* can get toys.  
*I* got a toy *from* mom,  
 and *I* got a toy *from* dad.

This is Sim.  
 Sim can see the toys.  
 He got the toys from his mom and dad.  
 He sees a cap.  
 He got the cap form Mom.  
 He sees a pen.  
 He got the pen form Dad.  
 He sees a bat.  
 He got the bat from Dad.  
 He sees a dog,  
 it is not a toy-dog.  
 The dog is Tim.  
 Tim is not a toy, he is a dog  
 Sim got Tim, the dog, form Mom and Dad.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

---

Get in.

Mom is in it.

Dad is in it.

Sis is in it.

I got in.

And, Tip, the dog, got in

---

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
<i>you</i>	from	did	can	got	man
can	<i>you</i>	from	Toy-dog	pen	sat
in	dog	<i>you</i>	toys	Toy-pen	<i>you</i>
it	dig	sees	<i>you</i>	<i>you</i>	sees
see	did	mom	from	it	form

Can *you* see the toys?

Can *you* see Sas?

Can Sas see toys?

Sas can see the toys.

Sas got a toy-dog from Dad.

Sas can not see the toy-dog.

Can *you* see the toy-dog?

Can Sas see the toy-dog?

Mom, *I* can not see the toy dog *I* got from Dad.

Mom, can *you* see the toy-dog?

Mom can not see the toy-dog?

I can not see the toy-dog, Sas?

Did *you* put the toy-dog in it?

I did not put the toy-dog in it.

Sas, I see the toy-dog

*You* put it on the cap.

The toy-dog sits on *you*



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
hen	hot	hat	hit	has	has
you	hop	ham	hip	hot	hid
the	<i>stop</i>	has	him	hip	hop
<i>stop</i>	for	had	his	hen	hat
she	you	<i>stop</i>	hid	his	hit

I see the hen.

It is a big hen.

The hen is not in the pen.

The hen can hop.

It hops, it hops not in the pen.

Hop, hop, hop.

The hen can not *stop*.

*Stop*, hen, *stop*, it is hot

The hen gets hot.

Ooooooooooooooooooooooooooooo

Can the hen get sap?

The hen gets sap.

The hen is not hot.

The hen can hop.

Hop, hop, hop.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
<i>with</i>	his	you	ten	dog	you
stop	him	can	tap	pot	<i>with</i>
hit	hit	<i>with</i>	tom	dig	is
hop	hip	<i>I</i>	it	him	<i>with</i>
ham	hid	stop	its	<i>with</i>	you

Tom has ten pets in a pen.  
 He can set the pan in the pen.  
 He can set the pan *with* the pets.

Ooooooooooooooooooooooooooooo  
 Tom can not get the ten pets

Tom gets a net.  
 Tom can get the ten pets.  
 He can get the pets *with* the net.

Don can see the \_\_\_\_.  
 The \_\_\_\_ is at the pen.  
 The \_\_\_\_ is at the pen *with* the pets.  
 Can the \_\_\_\_ get the ten pets?

Don gets the men.  
 The men, with the caps,  
 can get the \_\_\_\_ *with* the net.  
 The \_\_\_\_ is not in the pen.  
 The \_\_\_\_ can not get the ten pets.  
 The \_\_\_\_ is not a pet.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
fog	fin	fat	dig	fan	hit
fox	fit	fan	dog	pan	hat
fan	hit	fog	dad	man	hid
fat	him	fox	dot	mat	hop
with	his	fin	don	fat	has

This is Sam and this is Nan.

Sam can hop and Nan can hop.

Sam can hop with Nan.

Sam hops at the dam.

Nan hops at the dam.

Nan hops with Sam.

Pam, can you hop?

Pam can hop.

Pat, can you hop?

Pat can hop.

Sam and Nan can hop with Pam and Pat.

It is hot!

Hop, hop, hop.

Hop in the dam.

In the dam it is not hot!

Pam, hop in the dam.

Pat, hop in the dam with Pam.

Sam, hop in the dam with Pat and Pam.

Nan, hop in the dam with Pat, Pam and Sam.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
with	see	<i>they</i>	he	in	see
stop	this	pots	<i>I</i>	<i>they</i>	he
you	<i>they</i>	hops	and	stop	<i>they</i>
<i>they</i>	she	hens	the	with	<i>I</i>
put	he	fans	<i>they</i>	you	his

Pam and Pat sit.  
 on a mat at the dam.  
 They sit on the mat.  
 It is hot. They had to get hats.  
 Pam and Pat sit with hats at the dam.

Sam and Nan sat on the dam.  
 They sit with Pat and Pam.  
 They had to get hats.  
 With hats it is not hot.

It is not hot with the hats.  
 Sam and Nan can get a tan.  
 Pat and Pam can get a tan.  
 They can get a tan.

They had ham at the dam.  
 With the ham they had sap.  
 They sit on the mat at the dam.  
 They sit with sap and ham.  
 They sit with hats.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

With hats it is not hot!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
nut	gun	they	mug	you	sun
tug	gum	sun	mug	they	mud
mud	hup	you	sun	you	mop
mug	sun	fun	gum	they	I
sun	fun	mud	gun	you	get

Fun in the mud.

Mom, I had fun.

I had fun with Mud.

I had fun with Mud in the mud.

I sat on Mud.

I sat on Mud in the sun.

*Now make your own sentences using "Mud" and write it here-*

- 1.
- 2.
- 3.
- 4.

It is hot in the sun.

In the mud it is not hot.

Muf can hop in the mud.

Hop, Muf, hop.

Hop in the mud.

The mud is on Muf.

The mud is not on Tim.

Tim ists on Muf.



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

Mom can see the mud.

Mom is sad.

The mud is not fun.

The mud is not fun for mom.

1	2	3	4	5	6
<i>put</i>	fun	sis	dog	mom	net
ten	hut	fish	dad	mix	ten
pen	nut	<i>put</i>	dig	mug	pen
men	sun	tin	dot	mud	<i>put</i>
den	<i>put</i>	tan	<i>u\put</i>	<i>put</i>	top

Pam *put* on a hat with dots.

It is a fat hat.

It is a fat hat with dots.

It is not fat.

I am mad.

I am mad with you, Sam.

Sam *puts* on the fan.

The fan is on.

Pam can not get the hat.

Get the fat hat, Sam.

Get it from the

Sam can not get in the

He can not get the fat hat.

Get the fat hat, Sam.

Get it from the man.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

The man sat on the fat hat.

They got the hat from the man.

*Put* it on, Pam.

*Put* on the fat hat with dots.

1	2	3	4	5	6
nit	pin	mit	sit	did	his
nip	pit	mip	sip	dig	hid
tin	pim	mis	sis	hit	fin
tip	pig	mid	sid	hip	Fit
tim	min	sin	Dip	him	fix

Min had a pin.

The pin had a tin fin.

The pin fit on Min's hat.

The hat fit on Min.

I am not sad with this pin.

I am not sad with the pin with the tin fin.

-----

Nip was in the pit with Min.

Nip and Min sat on a mat in the pit.

Min sat the hat on the mat.

Nip got the hat and bit it.

He bit the tin pin on the hat.

No, Nip, No!!! Stop it! Stop it!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

Min was sad.

Mom, can you fix the pin?

If I sit with you than can you fit it?

Mom can. Mom can fix the pin.

-----

Min is not sad. She put on the hat with the pin.

The hat with the pin with the tin fin!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
his	hid	hit	fit	fix	sit
did	said	sis	said	him	said
mit	dig	mis	hip	sin	mip
pin	sip	Pim	sid	said	fin
said	pit	tin	mid	min	dip
nit	nip	said	pig	Tim	tip

“This is a hat”, said the dog.

“It is not a hat”, said the cat.

“It is tin pot”, said the rat.

“It is not a hat”, said the pig.

Did it fit the dog? No, it did not fit the dog.

“This is a hat”, said the pig.

“It is not a hat”, said the cat.

“It is the top of a pot”, said the rat.

“It is not a hat”, said the dog.

Did it fit the pig? No, it did not fit the pig.

“This is a hat”, said Tim.

“It is a hat”, said the cat.

“With a tin pin on it”, said the rat.

“And a fig on it”, said the dog.

“It is a hip hat”, said the pig.

Did it fit Tim? It did fit Tim.

Tim had a hip hat on.

“It is a big hit”, said the cat and the rat.

The hip hat did not fit the pig and the dog.

On Tim it was hip!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
Ben	bon	bin	bun	bat	put
Bet	Bob	bit	but	bam	said
bed	bom	big	bump	bad	from
beg	box	said	bus	bag	you
said	you	pin	bug	said	they

“This is a hat”, said the dog.

“It is not a hat”, said the cat.

“It is tin pot”, said the rat.

“It is not a hat”, said the pig.

Did it fit the dog? No, it did not fit the dog.

“This is a hat”, said the pig.

“It is not a hat”, said the cat.

“It is the top of a pot”, said the rat.

“It is not a hat”, said the dog.

Did it fit the pig? No, it did not fit the pig.

“This is a hat”, said Tim.

“It is a hat”, said the cat.

“With a tin pin on it”, said the rat.

“And a fig on it”, said the dog.

“It is a hip hat”, said the pig.

Did it fit Tim? It did fit Tim.

Tim had a hip hat on.

“It is a big hit”, said the cat and the rat.

The hip hat did not fit the pig and the dog.

On Tim it was hip!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
bat	<i>what</i>	big	box	<i>what</i>	fit
<i>what</i>	bad	bit	bon	bin	big
Ben	said	bin	<i>what</i>	pin	box
bin	bed	<i>what</i>	bed	tin	Ben
bus	bin	bon	beg	fin	<i>what</i>

Can you see box 1?

*What* is in box 1?

In box 1 is a big hat.

Put the hat on, Ben.

Can I see?

The hat from box 1 is big.

Can you see box 2?

*What* is in box 2?

In box 2 is a *long* \_\_\_\_\_ hat.

Put the hat on, Ben.

Can I see?

The hat from box 2 is *long*.

Can you see box 3?

*What* is in box 3?

In box 3 is a *small* \_\_\_\_\_ hat.

Put the hat on, Ben.

Can I see?

The hat from box 3 is *small*.



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

What is in box 4?

In box 4 is a hat that fits

1	2	3	4	5	6
cot	cut	said	what	cat	she
can	cup	me	said	me	me
cat	cub	put	me	cap	they
cap	Me	from	this	cot	with
me	cap	cup	stop	they	cut

This is Dan. Dan has a pet hen.

“Dan, can I get a pet?” said ned.

“Can you get me a pet?”

“Can you get me this cub?” said Ned.

“I can not get you this cub” said Dan.

“Then, can you get me this cub?” said Ned.

“I can not get you this cub” said Dan.

“I can see 1 fun cub?”

“Can you get me this fun cub?” said Ned.

“I can not get you this cub” said Dan.

Dan gets a pan.

A bird is on the pan.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

On Ned and at the bed sit 10 birds.

Ned has ten pets!

“Dan, you got me ten pets!” said Ned.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
cap	stop	me	cut	what	stop
cot	this	cap	with	cap	me
cup	see	cat	they	me	from
cub	said	can	me	cat	this
cut	what	me	she	cot	cat

The fat cat is Matt.

The pig is Pam.

Matt is in the den with Pam.

Mat the cat has a hat.

It is a top hat, the hat is not big.

Pam the Pig has a hat.

Her hat is not big.

Mat the cat had cod from a can.

He puts the cod in a pan.

The cod gets hot.

Matt the cat has the hot cod.

He has it in the den.

Pam the Pig has a can.

She puts the corn from the can in a pot.

The corn gets hot.

Pam the Pig has the hot corn.

She has it in the den.

The cat and the pig put off the hats.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

They get the caps.

They put on the caps.

1	2	3	4	5	6
cap	stop	me	cut	what	stop
cot	this	cap	with	cap	me
cup	see	cat	they	me	from
cub	said	can	me	cat	this
cut	what	me	she	cot	cat

The fat cat is Matt.

The pig is Pam.

Matt is in the den with Pam.

Mat the cat has a hat.

It is a top hat, the hat is not big.

Pam the Pig has a hat.

Her hat is not big.

Mat the cat had cod from a can.

He puts the cod in a pan.

The cod gets hot.

Matt the cat has the hot cod.

He has it in the den.

Pam the Pig has a can.

She puts the corn from the can in a pot.

The corn gets hot.

Pam the Pig has the hot corn.

She has it in the den.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

The cat and the pig put off the hats.

They get the caps.

They put on the caps.

1	2	3	4	5	6
red	ran	rag	run	from	red
Ron	goes	rip	goes	goes	goes
rot	rap	goes	ran	this	what
rob	rap	rib	red	stop	run
goes	ram	red	rot	what	rat

Road the rat robs a bag with eggs.

Ren the red hen had ten eggs and a bag.

“I will put the ten eggs in the bag” said Ren the red hen.

Ren the red hen said: “The bags of eggs is a gift for Nan.”

Rod the rat was a bad rat.

Rod the rat said: “I can rob the bag with eggs.

I can run and rob the bag with eggs from Ren the red hen.

Rod the rat ran. He goes fast.

He ran and robs the bag with eggs.

he robs the bag with eggs fast.

“Stop!” said Ren the red hen. “Stop!”

You can not rob the bag with ten eggs. This bag is for Nian.”

But Rod the rat did not stop. He goes fast with bag with eggs.

Red hen ran to Ron ram. Red hen sadi:

“Ron, run and get Rod the rat.

He is a bad rat. He has the bag with ten eggs. He goes fast.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

The bag is not for Rod the rat. The bag is for Nan.”

Rom the ram ran to Rod the rat. Ron goes fast.

He got the bag with eggs from Rod the rat.

Ron the ram got the eggs for Red hen.

1	2	3	4	5	6
far	card	goes	far	car	run
part	goes	Star	Fast	Goes	bun
car	turn	start	bar	fast	burn
cart	burn	bar	barn	barn	last
goes	torn	Bart	goes	Bart	goes

Mark is in a car

and Bart is in a car.

Mark’s car goes fast

and Bart’s car goes fast.

Mark’s car is a cart-car.

Bart’s car is a cart-car.

Get set, Mark.

Get set, Bart.

Get set, start!

Bart’s car goes fast.

Mark’s car goes not fast.

Mark can not pass Bart.

But, Bart’s car hits a bump.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

He tips! He can not turn fast.

Mark can pass Bart.

Mark's car goes fast.

Bart is sad but Mark is the star!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

leg	lost	lamp	Pill	slap	plot
let	land	lamb	Fill	slam	plant
less	fell	plug	Hill	slum	belt
left	yell	plugs	clip	slot	glass
Lip	Bell	bell	milk	flag	lock
lid	hill	doll	limp	bulb	block

Jill goes up the hill and Bill goes up the hill

Bill goes up the mill on the hill

Jill has a pan to fill

The lid is not on the pan.

Jill holds the pan at the tap

The tap fills the pan

Jill holds the pan at her lip

Tom the dog ran from the mill.

The dog jumps on Jill.

Jill fell and she yells. She yells: "help, help!"

Jill tips Bill. Bill fell. They fell of the hill.

Jill hurt her hip, she limps. She yells:

"help, I hurt a leg. I hurt a hip, I'll limp."

Bill did not hurt a hip but Bill yells:

"help, I fell of the hill and my cap is torn."

"Yep, Yep, Yep", said the dog, "I'll help you!"

Tom goes of the hill. He goes fast on his small legs.

Tom got help. He got a doc-tor for Jill and a hat for Bill.

The doc-tor had a pill for Jill and a bill.

Jill and Bill said:

"Tom is not a bad dog. He is fun."



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

But... Tom can not jump on Jill and Bill.

bulb	lid	limp	doll	hill	lid
flag	lip	milk	my	bell	lip
slot	left	clip	plugs	yell	left
my	less	hill	plug	fell	less
slam	my	my	lamb	my	my
slap	leg	pill	lamp	lost	leg

my	my	my	my	my	my
bed	den	bet	bell	beg	deck
fed	hen	get	fell	leg	neck
led	men	let	sell	less	peck
Ned	pen	net	yell	mess	egg
red	ten	met	tell	Tess	yes

“Mom, put on the bulb.

It is dark. I can not see my doll”.

Mom puts on the bulb. It is not dark.

Lis can see the doll.

The doll is ill, she is sick.

“Sis, you can not hold my doll.

She is sick, my doll is ill.

But, she had a pill and a glass of milk.

Don’t yell, Sis, you must not yell.”

“Sis, you can fan my doll with this fan.

She is hot. If you fan she is not hot.”

Mom and Sis fan the doll. They fan fast with the fan.

The doll is not hot. She is not sick and she is not ill.

“Sis, let’s walk with my doll.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

She is not sick and she is not ill.”

Tom the dog, Sis and Lis walk the doll.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
web	win	do	we	why	do
well	wig	wax	win	what	well
do	will	wag	wind	with	wall
went	do	war	won	why	will
wept	wimp	warm	we	do	we
wet	wall	warn	do	what	wimp

The man yells. What did he yell?

He yells: "If you hit hard you can win my wig.

Wox the dog said: "I will hit well."

He said: "I will win the wig. I will hit well.

I will try." He went and hit. But, he did not hit well.

Why not? It was a bad hit.

Than, will the pig said: "I will hit well. I will try."

"Wox the dog can not hit well but I will hit well".

Will the pig went to try. He said: "I will win the wig."

"Let me try", said Wix the rat, "I will win the wig.

I will hit well. I will try".

And Wix did well. He won the wig.

His hit was big!

The man put the wig on Wix but Wix the rat got mad

"I don't want the wig", said Wix the rat.

Why not?

The wig did not fit.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

The wig was big!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
he	why	me	he	dry	he
she	what	we	cry	sky	she
we	won	she	me	try	me
me	me	he	try	why	we
why	she	buy	we	cry	try
try	we	cry	my	you	why
buy	he	try	dry	we	cry

This is me and my dog Wox. We run on top of the hill. The ball \_\_\_\_ rolls of the hill. We run to get the ball \_\_\_\_\_. I yell: "Get the ball \_\_\_\_\_, Wox. Run and get the ball \_\_\_\_\_ for me." If the ball \_\_\_\_\_ goes of the hill I will cry. You will get the ball \_\_\_\_\_ for me. Get is fast, Wox. Run fast. you can run with the small legs." Wox runs as fast as he can. Wox goes down the hill to get the ball \_\_\_\_ and he got the ball \_\_\_\_\_. "You did well, Wox I will let you catch the ball \_\_\_\_\_.

Catch, Wox. But Wox did not catch the ball. Wox got hurt. His lip got hurt. Wox will cry. His lip got big. Wox is sad but Wox will not cry. Wox is a dog and dogs can not cry.

This is Nat, my cat. My cat is not a bad cat but he is a fat cat. Why? My cat will get rats. That's why my cat is a fat cat.

If my cat wants a pat he will tap on my arm. Then I will sit on the mat with my cat on my lap and I will pat my cat.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

My cat will nap on my lap. The cat is not a bad cat but he is a fat cat.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

cub	bug	do	bun	but	do
tub	hug	gum	fun	cut	up
do	mug	hum	gun	hut	us
sub	do	mum	run	do	yum
rub	tug	sum	sun	nut	fuss
hub	rug	rum	do	rut	sun

Bud is at the \_\_\_\_ (tree)  
 In the \_\_\_\_ (tree) is a nut.  
 Can Bub get the nut?  
 Can Bub get in the \_\_\_\_ (tree)?  
 It is a big \_\_\_\_ (tree) but Bub is not big.  
 Bub! Can you do it?  
 Will you do?  
 Bub said: "I can get the nut.  
 I can get it if I can get in the \_\_\_\_ (tree). I will do it!"

Yes, bub can get in the \_\_\_\_ (tree).  
 He got in it.  
 Bub, can you cut the nut from the \_\_\_\_ (tree)?  
 Can you do it?  
 Yes, bub can cut the nut from the \_\_\_\_ (tree).

The nut fell on top of a hut.  
 The nut fell of the hut.  
 The nut fell in the tub.

Bub, can you get the nut from the tub?  
 Can you do it?  
 Will you do it?  
 Bub got off the hut.  
 He said: "I can get the nut in the tub. I cant do it. I will do it."  
 Bub got the nut from the tub.  
 He cut the nut and bit.

Bub said: "Yum, yum, yum."  
 It is fun if you can get a nut.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

The nut is yum yum!



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

to do will want wox	what will you do to	do to will what hop	can why yes no what	ball hall call tall fall	do what to when why
---------------------------------	---------------------------------	---------------------------------	---------------------------------	--------------------------------------	---------------------------------

“What will I do?”, said Tom. “Will I hop? Why not!”  
“I can hop”, said Will. “Do you hop, Wox? Can you do it?”  
I will hop to the mop. I will hop on top of the mop.  
Can I hop to the mug? Can I hop to the pot? Can I hop to the pan?  
Yes, I will hop to the pan!

Can I hop on top of the pan? No, I can not hop on top of the pan.  
The pan will be hot. It will hurt!

But, I can hop to Wox. I can hop on top of  
Wox. That will be fun! I can hop on Wox to  
Hop on the pan. Than it will not hurt!”

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
Jit	jar	jog	to	what	to
Jill	likes	jug	do	why	likes
Jeff	jet	do	like	with	jog
Jog	to	likes	job	Jeff	do
Likes	job	Jen	jog	like	to

Jim has jam. The jam is in a pot.  
 Jeff, the dog, has jam. Jim likes  
 Jam and Jeff the dog likes jam.  
 Jim and Jeff like jam. The jam is yum!

Jill, the rat will like jam as well.  
 She likes it. The jam is yum! Jon, the pig will  
 Like jam as well. He likes it.  
 The jam is yum! Jull and Jon like jam

Jim has a big pot. He puts the jam in it.  
 It is a big jam-pot. The jam is yum! Jim  
 Likes the jam. Jim likes to do this

Jeff, the dog, Jon the pig and Jill the rat like jam.  
 Jeff, Jon and Jill jump in the big jam-pot.  
 No, no! Don't jump in the big jam-pot. Jim will  
 not like it"

Jim is mad. He can not like it if the dog,  
 The rat and the pig swim in his jam. Jim said:  
 "Stop! I do not like it! I am mad at you!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
toy	like	we	jog	he liked it	she
joy	likes	he	job	she liked it	he
boy	liked	me	with	boy	me
Roy	she likes	be	why	toy	we
Jenn	he likes	she	what	toys	be

Roy is a boy. He likes his toys. He has a toy-rat,  
 A toy-pig and a toy-dog. Roy said:  
 "I like to put my toy-rat in a bag and I like to gift it to Jenn  
 Jenn will like it. She will be glad! I like to do that!"

Roy went to Jenn. Jenn got Roy's rat,  
 But Jenn did not like it. She was mad.  
 "I don't like rats", she said. Roy said : "It is just a toy-rat  
 If you do not like toys I will not gift it to you."  
 Roy left with his toy-rat.

Roy likes to gift his toy-dog t Dan. Roy said:  
 "I will put my toy-dog in a pan and I like to gift  
 It to Dan. He will like it. He will be glad. He will not be  
 mad. I like to do that!"

Roy went to Dan. Dan got Roy's dog and Dan liked it.  
 He was not mad. "I like dogs", he said. Roy said:  
 "It is just a toy do." Dan likes the toy-dog. He is  
 Not mad but he is glad! Roy is glad and Dan is glad.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
birthday	sack	tack	kiss	snack	birthday
sock	snack	lack	kill birthday	kit	gift
duck	sick	snack	kit	kim	kim
buck	lick	lock	snack	kiss	sit
duck	birthday	birthday		birthday	sock

This is Jack. He has a big, fat pig. Jack said:

“I do not like my pig. It is fat and it is big.

I do not like big, fat pigs.”

This is Kim. She is Jack’s big sis. Kim has a pet.

Kim said: “I do not like my pet.

I like Jack’s big, fat pig.”

“Can I get Jack’s pig? Jack can get my pet.

He likes my pet.”

Kim got Jack’s big fat pig

And Jack got Kim’s pet.

Kim likes it and Jack likes it.

Kim will kiss and

Hug her big fat pig.

Jack will kiss and hug his new pet.

The pig and the pet like it.

The pig likes a kiss and a hug.

The pet likes a kiss and a hug.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
birthday	sack	tack	kiss	snack	birthday
lock	snack	lack	kill	kit	gift
duck	sick	snack	birthday	Kim	Kim
buck	lick	lock	kit	kiss	sit
duck	birthday	birthday	snack	birthday	sock

Kim got up. It is her birthday.

She put on a birthday dress.

Then she went up to see the su.

“I like it to be my birthday”, Kim said. “I am glad.”

When she went up, Kim got on the bus. Kim said:

“The bus will stop at Buck and Duck’s hut.”

Kim went on the bus and the bus went to Buck and Duck’s hut. But Buck is not in the hut and ‘ Duck is not in the hut. Kim can not spot Buck And Kim can not spot Duck.

Then, Buck jumps from a rock and Duck jumps from A rock. “I am glad it is Kim’s Birthday”. Said Buck. And Duck said: “I’am glad it is Kim’s birthday.” Kim, Duck and Buck had a lot of fun.

Hen, Buck and Duck’s mom had birthday gift.

It was fun to be in Buck and Duck’s hut. In the hut

Buck and Duck’s mom had snacks. Kim had snacks,

Buck had snacks, Duck had snacks and the mom had snacks

A birthday is a lot of fun!

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
van	sack	out	neck	with	the
vat	snack	do	sick	said	out
vin	sick	what	buck	goes	shy
out	lick	why	jack	they	like
Vick	out	with	out	do	be

**Vick and Vin in the van.**

Vick is in the van with Vin. They like to be in the

Van and they like to go out of the van.

With the van they will go to a hill. On the hill is a hut and a vat.

Get out of the van, Vick. Get out of the van, Vin.

Vick is out of the van and Vin is out of the van. They  
Put sap in the vat and they put the vat with the sap in the  
Van. With the vat in the van Vick and Vin will go back.

Vick said: "Let's go in and let's go out. I like to go  
In and I like to go out." The van goes in and the van goes out.

But, the van went in the mud. The van with Vick and  
Vil got in the mud. Get out, Vick, get out, Vil, get out of the van.  
The van is in the mud. Get out, Vick, get out, Vil, get out  
Of the van. The van is in the mud. Get the van out of the  
Mud, Vick. But, the van will not go out of the mud.

Vick went to get Buck. Can Buck get the van out of the mud?

Yes, he did it Buck got the van out of the mud. Vick is not sad

And Vil is not mad. Let's go The van is out of the mud. Vic

Sits in the van and Vil sits in the van. They like to go.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
the out vick sack why play	van play vat vin out do	jack lack lock rock frog play	play goes they like shy with	van be birthday play sick lick	vin vat van frog rock play

**Vop likes to play.**

Vop has fun with a rat. He likes to play with the rat.

The rat runs and O runs. The rat sees a pot and runs to the pot. Vop sees the pot. He runs to the pot. They run to the pot. Will the rat jump in the pot? Yes, the rat jumps

In the pot and he jumps out of the pot. Will Vop jump in the pot? No, Vop can not jump in the pot. Vop is big and the pot is not big. Vop likes to play with the rat.

Jull says: "VOp, you can not play with the raqt. A rat is not for fun. Do not play with a rat. Let the rat go." Vop looks at Jill. The rat runs. VOp can not play with the rat. The rat ran. Now Vop can not play. Vop is a bit sad. Go, Vop, go and play. Go to the pond.

Vop went to the pond. At the pond is a rock. At the rock is a frog. Vop likes the frog. Can Vop play with the frog? A frog is not to play with. A frog can jump but a frog can not paly

Jill went to Vop. She said: "Vop, you can not play with a frog. A frog can jump but a frog can not play. Vop is a bit sad. He likes to play. But, Vop can not play with the rat and he can not play with Vop. Vop is sad. Go, Vop, go with Jill

Vop went with Jill. They went to the grass. Vop can Play with Jill and Jull will play with Vop. They like To play. It is fun to play. Vop can not lay with a rat and not with a frog, but Vop can play with Jill. Play, Vop, play with Jill

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
yes yam do you want yin yum	yum yam yes Yin do you want	dig sit rat do you want ant	cat dog tick tag dad	do ou want yes top yam cap	yum has play dig this

A yam is yum!

Yam, is a vegetable, grows mainly in Nigeria, also known in India as ratalu or violet yam.

Mom said: "Yin, what do you want? Do you want yams?

Do you want yams from a big red pan?" "No", says Yin,

'I do not want yams from a big red pan. I do not like yams from a big red pan. A yam from a pan is not yum.'

Mom said: "Yin, what do you want? Do you want yams?

Do you want yams from a tin can?" "No", says Yin, "I do not want yams from a tin can. I don not like yams from tin

Can. I want yams from a big pot. A yam from a can is not

Yum but yams from a big pot is yum, yum, yum."

Mom puts yams in a big pot. Mom said : "Yin, what do you want? Do you want yams from a big pot?" Yin said:

"Yes, I want yams from a big pot. Yum, yum I like yams From a big pot."

"Stop, mom, stop I do not want sap on my yams. I do not like sap on my yams. That is not yum. Yams with sap is not what

I want." Mom said: " yin, do you like jam on the yams? I

Can put jam on the yams. Do you want jam on the yams?"

"Yes, mom, I do want jam on my yams. Yams with jam is yum, yum, yum."

The ox went to see Yin. Yin said: "Ox, do you Want yams? Do you like yams?" The ox said: "Yes, I do want yams. I want yams with sap."

Yin has yams with jam and the ox has yams with sap.

They like yams. This is what they want. The ox wants

Yams with sap and Yin wants yams with jam.



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
man	don't	yam	do	yes	yum
pan	fun	yum	don't	run	don't
can	sun	yum-yum	do you want	yam	play
fan	gun	do you want	don't want	don't	dig
do you want	run	yes	yum-yum	get	don't

A yam is

Yam, is a vegetable, grows mainly in Nigeria, also known in India as ratalu or violet yam.

On the pan is a yum-yum man. It is Nell's yum-yum-man.

She wants him for her birthday. But, the yum-yum-man said:

"I don't want to be on the pan. I want ot run "The yum-yum-man got up and ran.

"No, yum-yum-man, don't run", said Nell. "I don't

Want you to run. I want you on the pan. You can not

Run. I want you back on the pan. I must stop you. I want you to

be on my birthday. I don't want you to run."

But the yum-yum-man, did not want to be back on the

pan. He dod not want ot be on Nell's birthday.

He ran and ran. He ran fast.

Nell want s the yum-yum-man

Back. She asks Tom for help.

She said: "Tom, do you want to help me? I

Want my yum-yum-man back on the pan.

I don't want him to run. He must be on my

Birthday. I don't want to miss him on my birthday."

Tom can see the yum-yum-man and he an see a the fox. The fox wants the yum-yum-man. Tom said: "Run, yum-yum-man, run from the fox. The fox want to get you. Don't let the fox get you. Run fast." But, the yum-yum-man can not run fast. The fox is big and the yum-yum-man is not fast. Run, yum-yum-man, don't' let the fox get you. Nell went to help the yum-yum-man. She said: "Stop, fox, stop I want to get you I want to hit you I don't want you to get my yum-yum-man. I will hit you."

The yum-yum-man was glad with Nell's help. He wants to go back with Nell. He said: "I don't want to run, I want to be with Nell on th pan and on her birthday.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
man pan can fan do you want	don't fun sun gun run	yam yum yum-yum do you want yes	do don't do you want don't want yum-yum	yes run yam don't get	yum don't play dig don't

Yam, is a vegetable, grows mainly in Nigeria, also known in India as ratalu or violet yam.

Quill, the dog, wants to play in the sand. That is what he wants. He wants to dig. He can dig quick. "Sto, "Quill, stop", said Bill. "I want you to quit. I don't want you to dig. That is not what I want. Quit quick I don't want you to dig pits. I don't want you to dig in the sand." But Quill can not quit. He can not quit to dig. He digs quick.

Bill went to the vet. A vet is a doc for dogs and cats. Bill said: "Doc, this is my dog "Quill. He wants to play in the sand, but when he can lay in the sand he want to dig pits. He will do it quick. That is not what I want. I don't want him to dig pits. I don't like pits. I don't like Quill to dig pits quick. I want him to quit

The vet likes Quill the dog and the dog likes the vet. "Stop, Quill, I like you but I don't want you to lick me. That is not what I want. Quit, Quill, don't lick me", said the vet. But Quill will not quit. The vet said: "Bill, I can not help you. Quill is a dog and dogs will not quit to dig. That is what dogs want."

Bill has a plan. He said: "If Quill can not quit to dig I will plant A tree. I the pit, that Quill digs, I can plant a tree. That is what I want to do. I want Quill to dig pits quick. I waqnt him to play in the sand. He can dig pits quick. I don't want him to quit. That is what we will do.

Quill and Bill went in to the sand. "Dig, Quill, dig quick. " said Bill. "I don't want oyou to quit to dig. Dig quick. I can put trees in the pits." Quill was glad. He jumps in the sand. You can see that Quill is glad that he can dig. He digs quick and he will not quit.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
go	want	wants	quick	don't go	rack
up	don't	this	go	don't want	hill
this	that	want	quit	will	flat
that	go	don't	wants	will not	go
will	up	go	don't	go	<u>fall</u>

Don't fall, Sill.

This is Sill. Sill wants to go up the rack. Don't go, Sill, don't go up. You must quit. Dad will not want you to go up on the rack. But Sill wants to go up. She puts her left hand on top of the rack. She went up quick. Stop, Sill, don't go up. Don't go up rack. Dad will not like it. Dad went to see Sill. He told her: "You can not go up this rack. It is not for you You can fall. You can fall from the rack. I don't want you to fall."

Sill went up in the tree. She is not on the rack but in the tree. She went up quick. Sill, you must quit. Dad will tell you not to go in the tree. You must not go up in the tree. Dad went to see Sill. He told her: "You can not go up in this tree. Don't go in the tree. It is not for you. You can fall from the tree. I don't want you to fall."

Sill went up to the flag. No, Sill, don't go up. Dad told you not to go on the rack. He told you not to go in the tree. He will tell you not to go up to the flag. Dad told you that you can fall. Do you want to fall, Sill? Sill said: "No, I don't want to fall. I will not go up on the rack. I will not go up in the tree. I will not go up in the flag. I will go and see my dad."

Dad went to a toy-rack with Sill. Dad said: "See, Sill, you can go up in this toy-rack. You can not go up on the rack. You can not go up in the tree and you can not go up to the flag, but you can go on this toy-rack." Sill went up quick. She is glad to be up on the toy-rack. Dad is glad that Sill is glad. Dad said: "yes, Sill, this toy-rack is for you. You can go up on this toy-rack. But, don't fall. I don't want you to fall. Don't go quick." Sill said: "No, dad, I will not fall. I don't want to fall. I will not be glad if I fall."

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
ox	have	ox	bus	ant	bell
fox	ex	fall	ten	pot	tell
box	next	have	big	sap	pin
six	text	go	dot	fan	can
fix	axe	don't	have	sun	have
mix	fax	quit	van	pen	top
have	sax	quick	zip	have	fox

Max said to Rex: "Have you seen a fox cut a log with an axe? Rex said: "No, I have not seen a fox cut a log with an axe. Have you seen a fox cut a log with an axe?"

Max said to Rex: "Have you seen a fox get a fax? "No", said Rex, "I have not seen a fox get a fax. Have you seen a fox get a fax?"

Max said to Rex: "Have you seen a fox play a sax in a tux?" Rex said: "No, I have not seen a fox play a sax in a tux. Have you seen a fox play a sax in a tux?"

Max said to Rex: "Have you seen a fox mix fish with jam?" "No", said Rex, "I have not seen a fox mix fish with jam. Have you seen a fox mix fish with jam?"

Max said to Rex: "Have you seen a fox in a box with 6 yaks?" Rex said: "No, I have not seen a fox in a box with 6 yaks. Have you seen a fox in a box with 6 yaks?"

Rex said to Max: "Have you seen a fox jump On a log?" Max said: "No, I have not seen a Fox jump on a log. Have you?" "Yes", said

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

Rex, "I have"

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
sax	go	fox	fall	bell	frog
fax	no	have	tall	cell	jump
mix	so	box	ball	jell	glad
tax	have	six	call	sell	with
axe	fox	fix	small	tell	have

Fox wants a small ball.

Fox sits at the pond. He told frog that he is not glad. He said: "I want to have a small ball. I will call the big rat and tell him to sell me a small ball. Yes, I want to do that. I will go. Will you go with me, frog?" "Yes", said frog, "I want to go with you. Let's go and call the big rat and tell him to sell you a small ball. Let's go quick." The frog and the fox went to the big rat. They run and they jump. They go quick. But, they had to go on a log. On a log at the pond.

The frog jumps quick. He can do it. He can jump well. The fox can not jump well. He can do it a bit but he can not do it well. He said to the frog: "Stop, frog, don't go quick. Stop, I can not go so quick. I can not jump on the log like you can. You must help me. I can not go with you to the big rat. I want to go but I can not go. I want you to call the big rat to sell me a small ball".

The frog said: "Stop to tell me that you can not go. Just jump. You can do it Jump quick." "No", said the fox, "I am big and I am tall, I am not like you. You can do it, you can jump quick. I can not do it. You can call the big rat. Will you go for me and tell him to sell me the small ball?" But the frog said: "Fox, you must do it. You must jump. If you don't jump I will not go. So, jump" Than the fox jumps. But, he can not do it. He is big and tall, so not small like the frog, so the fox fell in the pond. The fox said to the frog: "I am cold. I have drops on me, cold drops. I don't want to go to the big rat. I want to go back. I don't want to tell big rat to sell me a small ball. If you fall, you don't want to get a small ball. If you fall you want to go back. Frog said: "I don't want you to put the drops on me. If you do that I will also be cold. I will not go to the big rat but I want to go back with you." The fox jumps and the frog jumps. The fox is glad to go back and the frog is glad to go back. They went back quick.

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

1	2	3	4	5	6
zim	tall	fuzz	bell	zap	duck
zam	ball	fizz	tell	zip	tuck
jazz	call	fuzz	cell	zam	luck
zig	hall	fazz	sell	zim	rack
zag	small	fuzz	yell	zug	lack

Have you seen the Zim-Zam-Man?  
 The Zim-Zam-Man can play jazz on a sax.  
 Zim, zam, zig, zag, zon, zin, zax.  
 See the Zim-Zam-Man play jazz on his sax.

Have you seen the Zim-Zam-Man?  
 The Zim-Zam-Man can zig-zag on a mat.  
 Zim, zam, zug, zon, zin, zag, zat.  
 See the Zim-Zam-Man zig-zag on mat.

Have you seen the Zim-Zam-Man?  
 The Zim-Zam-Man can zap nuts in a bag.  
 Zom, zug, zim, zam, zig, zon, zag.  
 See the Zim-Zam-Man zip nuts in the bag.

Have you seen the Zim-Zam-Man?  
 The Zim-Zam-Man can put yams in a pan.  
 Zon, zig, zam, zug, zam, zin, zan.  
 See the Zim-Zam-Man put yams in a pan.

Have you seen the Zim-Zam-Man?  
 The Zim-Zam-Man can zap a fig.  
 Zim, zug, zin, zam, zog, zag, zig.  
 See the Zim-Zam-Man zap a fig.

Have you seen the Zim-Zam-Man?  
 The Zim-Zam-Man can buzz as he runs.  
 Zim, zam, zig, zag, zan, zon, zuns.  
 See the Zim-Zam-Man buzz as he runs.



YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

Have you seen the Zim-Zam-Man?  
 The Zim-Zam-Man likes fuzz on his bun.  
 Zim, zam, zig, zag, zon, zuns, zun.  
 See the Zim-Zam-Man with fuzz on his bun.

net	sis	fix	lick	this
neck	six	fill	lack	see
not	sick	fan	wet	put
nod	sun	fat	well	go
nor	sum	fall	win	for
nap	den	fun	wig	no
nip	deck	bed	kiss	the
nut	dot	bell	kid	I
tell	dog	box	kill	and
top	doll	bin	kick	fall
tap	dam	bit	vet	this
tag	dad	bill	van	from
tin	did	but	yet	stop
till	dig	bus	yes	you
ten	duck	bat	yell	they
tuck	get	bad	yum	ball
pen	got	bag	yam	with
pet	gap	can	yak	said
pot	gun	cat	quit	goes
pan	gum	cap	quick	my
pin	hen	red	quiz	what
Pit	hot	rot	zip	call
pill	hop	rock	zap	like
pick	hit	run	big	be
met	hip	ran	will	do
man	him	rat	wax	to
map	his	rap	jet	play
mad	hid	rag	jug	tall
miss	hill	rack	jam	out
mud	hat	let	kit	don't
set	has	less	gas	fall
sell	had	lot	it	go
son	hut	loss	at	have
sop	hug	luck	up	no

YEAR LONG REMEDIAL TEACHING LESSONS GRADE 4

sat	fox	log	is	you
sap	fog	lock	he	can
sad	fin	lip	she	do
sit	fit	lid	we	it

स्थापना : १९८६



कर्मवीर

प्राचार्य

डॉ. अरविंद बुरुंगले


एम.एस्सी., पीएच.डी.

रयत शिक्षण संस्थेचे,

**एस. एम. जोशी कॉलेज, हडपसर, पुणे**

पुणे ४११ ०२८, महाराष्ट्र (भारत)

संस्थापक : पद्मभूषण डॉ. कर्मवीर भाऊराव पाटील, डी.लिट.

Reaccredited by NAAC  Grade (CGPA 3.09)

सावित्रीबाई फुले पुणे विद्यापीठाशी संलग्न ID No. (PU/PN/SC/069/1986)

कार्यालय

☎ : ०२०-२६९९९००१

: ०२०-२६९९९२५५

फॅक्स : ०२०-२६९९९००१

Email

rayatmjoshicollege@rediffmail.com

smjoshicollege@gmail.com

संदर्भ क्रमांक :

दिनांक : 7/10/15

RAYAT SHIKSHAN SANSTHA,S

S. M JOSHI . COLLEGE ,HADAPSAR PUNE-28

JR. COLLEGE (COMMERCE) (*Hearing Disability*)

Dear Mam,

Thank you very much , for your excellent presentation. Again, we very much appreciate your being able to join us today; it would be a privilege indeed if you could return to address us again sometime in the future.

Thank You.



Regards,

SM Joshi Jr College (Commerce Dept)



Shree Sai Education Trust

# Vatsalya School

Near Haven Park, Opp. Mountain Restaurant Mohmmadwadi, Pune. (SSC)

Tel: +91 8600197949, 9545902099

To whomsoever it may concern

This is to certify that Ms. Gayatri Reddy of TMV, Pune (ID No. - 19513007762) conducted her Ph.D. research in Education on the students of class IV in our school.

Date.  
27/1/16



Manik

Principal  
Vatsalya School  
Pune-411 040.

Estd. 1994

"Education through selfhelp is our motto" KARMAVEER  
Rayat Shikshan Sanstha's

Founder



# Sadhana English Medium School



Hadapsar, Pune - 411 028.

Ph. : 020 - 26999194  
020 - 26996120  
Fax : 020 - 26999194

S.S.C. Index - 11.15.171  
Email Id - sems.hadapsar@gmail.com

Padmabhushan  
Dr. Karmaveer  
Bhaurao Patil

School Regd. No. V.L.S. 1095/491/P.E.3 dt. 13-11-95

Ref. No. E72094-9E

Date : 99/09/209E

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms Gayaatri Reddy (PhD researcher in Education) of TMV , Pune; conducted her school research in our school on the students of class IV-A,B,C,D and E.

**Principal**

Sadhana English Medium  
Secondary School, Hadapsar, Pune-28

Principal

Deen Dyal Upadhaya English Medium School


Paud Phata

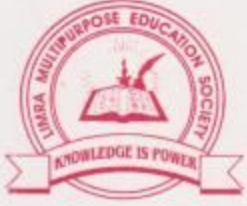
Pune

**To whomsoever it may concern**

This is to certify that Ms Gayatri Reddy conducted her research in our school, Deen Dyal Upadhaya English medium school , Paud Phata, Pune; on the following days 23 th October and 2<sup>nd</sup> November 2015 .

Dated: 2<sup>nd</sup> November 2015

  
**HEAD MASTER  
PANDIT DINDAYAL UPADHYA  
ENGLISH MEDIUM SCHOOL  
PAUD PHATA. PUNE-411 039**



# LIMRA

Multipurpose Education Society's  
**NEW ENGLISH SCHOOL**

(Govt. Reg. No. : F - 18524) VSL-1001/(551/2003) P.E.-3, Dt. 23 July, 2003

Sr. No. 73/3. Gulam Ali Nagar, Behind Suwarn Mangal Karyalay, Mohammad Wadi, Road, Hadapsar, Pune-28.

Outward, No. :

Date : 15/09/2015

To Whomsoever It May Concern

This is to certify that Ms Gayatri Reddy conducted a pilot testing for her PhD research work in Education; in our school on the following dates:-

1. 21<sup>st</sup> August 2015
2. 8<sup>th</sup> September 2015

Dated 8<sup>th</sup> Sept 2015

**NAZIM M. SHAIKH**  
SECRETARY  
imra Multipurpose Education  
Society's



# WISDOM SCHOOL

Regd No R- 17824, Survey no 12/4, Undri Road ,Pisoli ,Hadapsar, Pune- 28  
(Run By the Iyengar Samajam Educational Trust)

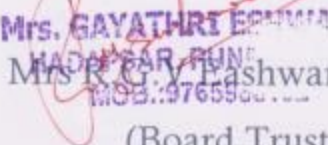
---

Ref No GEN/WSP/012/2016

Date 14<sup>th</sup> Jan' 2016

To whomsoever it may concern

This is to certify that Ms Gayaatri Reddy of TMV Pune conducted her PhD research in our school on 11-12 January 2016 on the students of class IV.

  
Mrs. GAYATHRI ESWARAN  
HADAPSAR, PUNE  
Mrs R.G.V. Kashwaran  
MOB.: 976596...  
(Board Trustee)





O. E. M. S.

Oscar Education Society's

**OSCAR ENGLISH MEDIUM SCHOOL**

S. No. 5, KESHAV NAGAR, MUNDHWA, PUNE - 411 036.

Ref. No:

Date: 13.01.2016

To whomsoever it may concern

This is to certify that Ms. Gayatri Reddy (ID No 19513067762) conducted her Ph.D research in Education on the students of Class IV in our school. We wish her all the best for her research.



*For Catherine*

**CATHERINE CLARET**  
(Headmistress)

Oscar English Medium School  
S. No. 5, Keshav Nagar,  
Mundhwa, Pune 411 036



Estd. 1926 :

Regd. No. 1183/PN

# Saraswati Vidyalaya English Primary School

153, Ghorpadi, Pune- 411 001. ☎ : 020 - 26840611

(Recognised by Govt. of Maharashtra)

(Run by Saraswati Vidyalaya Tamil Panchayat)

Ref. No. : SV/een/142/2016

Date : 08/10/2016

To whomsoever it may concern

This is to certify that Ms. Gayatri Reddy of T.M.V, Pune (ID No 19513007762) conducted her educational research in our school on the students of standard IV A and B on 7<sup>th</sup> and 8<sup>th</sup> Jan 2016 respectively.

*Saibani*

**HEAD MISTRESS**  
SARASWATI VIDYALAYA ENG. PRI. SCHOOL  
GHORPURI, PUNE-1



SARATHI SHIKSHAN PRASARAK MANDAL'S  
**PHOENIX ENGLISH MEDIUM SCHOOL**

(Govt. Recognized)

Sant Tukaram Nagar, Kharadi, Pune - 411 014.

Govt. Reg. No. VSL 1004/(260/2004) Date : 22/06/2004

**SURESH JAGTAP**  
Founder Chairman

**RAMESH PATHARE**  
Dy. Chairman

**JANRAO CHOUDHARI**  
Executive President

**MAHESH JAGTAP**  
Secretary

**D. N. JAGTAP**  
Jt. Secretary & Treasurer

**PRAKASH SALUNKE**  
Chief Executive Officer

**Mrs. Pratipa Vyas**  
Principal

Date: 14/1/16

**PHOENIX SECONDARY ENGLISH MEDIUM SCHOOL**

Tukaram Nagar, Kharadi, Pune - 14

*'To Whomsoever it may Concern'*

This is to certify that  
Ms. Gayatri Reddy of TMV,  
Pune conducted her Ph.D  
(Education) research on  
Students of Class IV in  
our school on 14/1/16.



  
Gayatri Reddy  
Phoenix English Medium School  
Tukaram Nagar, Kharadi, Pune



Jai Jawan Education Society's

# MOTHER THERESA SCHOOL & JUNIOR COLLEGE

(English Medium)



*Founder: Mathews Rosevilla*

Date :- 16 Jan 2016

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Gayatri Reddy (Ph.D) researcher in Education) of TMV, Pune, conducted her School Research in our School on the students of class IV – A and B.

Mrs. Jayarani J.  
Principal  
MOTHER THERESA S.  
JUNIOR COLLEGE  
GALANDE NAGAR, VADGAON SHERI  
PUNE - 14.



Galande Nagar, Old Mundhwa Road, Vadgaon Sheri, Pune - 14., Mob.: 7775088712 / 9960912110  
( Reg. No.: VLS 1004/1(8)/2004/PE-3 & EMS/2010/23/10/MS-1 )

Website : [www.mothertheresaschool.in](http://www.mothertheresaschool.in), Email : [theresa.mother@gmail.com](mailto:theresa.mother@gmail.com), [mtspune14@gmail.com](mailto:mtspune14@gmail.com)



# BASANT PRIMARY SCHOOL

(ENGLISH MEDIUM)

(Regd. by Govt. Maharashtra)

76/1, Small Ghorpadi, Pune - 411 001. Phone : 26361664

Out No. Edu.2/22/20 Date 7th Oct. 1958

CONDUCTED BY T.K. EDUCATIONAL TRUST REGD./BOM.372/PN

Ref. No.: BPS 940/1528/2016.

Date: 11.01.2016.



To Whomsoever it may Concern.

This is to certify that. Mrs. Gayatri Reddy,  
of T.M.V, Pune (ID No. 19513007762)  
conducted her Ph.D research in Education.  
on the students of class IV in our School.

S. Lata  
Headmistress.

Headmistress  
Basant Primary School  
76/1, Ghorpadi, Pune - 411 001.



SIDDHIVINAYAK SEVA PRATISHTHAN'S

R. No. Mah. 398/99, Pune

(Recognised by the Govt. of Maharashtra)

# Sunrise English Medium School

S. No. 20/21, Shree Swami Samarth Colony, Raghoba Patil Nagar, Near Hotel Ashoka, Kharadi, Pune-14

Ref.:

Date: 12<sup>th</sup> Jan 2016

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms Gayaatri Reddy (PhD researcher in Education) of TMV , Pune; conducted her school research in our school on the students of class IV-A and B.



*Mishra*  
- PRINCIPAL -

Sunrise English Medium School  
Sainath Nagar, Kharadi, Pune-14

Ref. no.: UPS/O.W./028.

Date: 11/01/2016.

The Principal  
Vatsalya School  
BT Kawade Road  
Devaki Palace rd.  
Pune

शाळा मान्यता क्र.  
व्ही.एल.एस. १०९९/(१२७)/प्राशि-३  
दिनांक २७ मे १९९९

To whomsoever it may concern

This is to certify that Ms. Gayatri  
Reddy of TMV, Pune (ID No 19513007762)  
conducted her Ph.D research in Education  
on the students of class IV in our  
school.

DATE: 11/1/16



HEADMISTRESS

Ms. SHILPA VENUGOPAL.

Head - Mistress

**VATSALYA PUBLIC SCHOOL**

Devaki Palace B.T. Kawade Road,  
Ghorpuri, Pune

SHREE  
DHANAJI SANTAJI EDUCATION SOCIETY'S  
Register No. Maharashtra/317-2000/Pune

# VARDHAMAN ENGLISH MEDIUM SCHOOL

(Govt. Recognised)  
Hingane mala, Sasanenagar, Hadapsar, Pune 28.

OUTWARD NO.

Date:- 14/1/2016

TO WHOMSOEVER CONCERNED

This is to certify that Ms Gayaatri Reddy of TMV Pune conducted her PhD research in our school on 11-12 January 2016 on the students of class IV A,B,C on 13-14 th January 2016.



PRINCIPAL

PRINCIPAL

Vardhaman English Medium School  
Sasane Nagar, Hadapsar, Pune-28



## ANNEXURE

### Student Achievement Levels( extracted from SPSS tables)

List of 177 students who failed to get 16 passing marks and less in the group screening tool

Group 1- 15-13marks

Group 2 -12- 9 marks

Group 3- less than 9 marks

S. No.			
	Group 1	Group 2	Group 3
1	Atharva Kanade	Nikhil Chite	Sanket Khude
2	Sahil Prajapati	Tejas kale	Sovik Subhash
3	Kiran Shankar	Shravan Ramesh raut	Meghna Agnur
4	Om Anil Raut	Prajapati Naresh	Stuti Sanjay
5	Harshada machhindra Khude	Shruti S.B	Shrushti dabhade
6	Ashwini Rathod	Gayatri D Bhosale	
7	Priya Prahlad samudre	Sayali Umesh Chandane	
8		Srushti deepak Ghonge	
9		Ankita M Gudami	
10		Archana Arjun Kanade	
11		Piyusha	
12		Varsha rathod	
13		Akanksha Sachin	
14		Tanvi Dattatray	
<b>Total Students (in Percentage)</b>	<b>27%</b>	<b>54%</b>	<b>19%</b>

S. No.			
	Group 1	Group 2	Group 3
1	Narendra Anand A	Sahil balu Tagale	Sajan Chaouhan
2	Shiva kanaujiya	Parth Vende	Nikhil
3	Hitesh	Sahil K	Piyush Pawale
4	Esha Santosh	Anwar	Raj Sahani
5	Roshni Ramdas Bodke	Narayan Sharma	Vaishnavi
6	Srushti D	Prathmesh A wadekar	Anuradha Ashok Popkar
7	Bharati	Atharva	
8	Rani Gaekwad	Priti Amol	
9	Anuja Yadav	Sandhya Dudhade	
10		Revati Jori	
11		Janhavi Jadhav	
12		Srushti Kalekar	
13		Khushi Arun	
14		Komal Pawar	
<b>Total Students (in Percentage)</b>	<b>31%</b>	<b>48%</b>	<b>21%</b>

S. No.			
	Group 1	Group 2	Group 3
1	Tanish	Sahil Gorkhe	Sahil Bhandari
2	Sarthak	Vaibhav	Nilesh
3	Anish Sahani	Yash Deepak Karanjkar	Amit M Habib
4	Atharva A V Jori	Prarambha B Waghmare	Rohit S Kamble
5	Omprakash	Amol Yadav	Junaid Ashfak Momin
6	Tushar Sanjay Ghir	Abhay	Atharva B
7	Samruddhi S Pathak	Dhiraj	Shravani Chavhan
8	Sarika Sainath Bore	Aryan Dilip Singh	Siddhi Nitin Mohite
9		Manish Prajapati	Vedika
10		Chandan	Tanvi Maruti Shamlikar
11		Sakshi	Rishi
<b>Total Students (in Percentage)</b>	<b>26%</b>	<b>37%</b>	<b>37%</b>

S. No.			
	Group 1	Group 2	Group 3
1.	Prem Sachin	Samrat Bahadur	Aniket Dattatray
2.	Sahil Bagwa	dada Umesh Chaudane	Atharva Kshirsagar
3.	Sahil H Bagwan	Soham Shankar Kadu	Santosh
4.	Devendar	Atharv Sampat	Prajakta Bahadur
5.	Chetan Choori	Sathark Sanjay	Tanzim A shaikh
6.	Pratik Kamble	Sushant C Sable	
7.	Atharv Khandale	Shreekant R Shinde	
8.	Aman	Vishal Ashok Shinde	
9.	Kaustubh Pawar	Atharv Chougule	
10.	Aditya Ganesh	Sujal	
11.	Ayaz	Riya	
12.	Pravesh	Vaishnavi B Pasalkar	
13.	Durvankur Ram Batunge	Vaishnavi Anil Pawar	
14.	Ganesh Aol Wadekar	Prerna Prakash	
15.	Snehal Arjun Kanade		
16.	Vaishnavi Mahakar		
17.	Aishwarya Thorat		
<b>Total Students (in Percentage)</b>	<b>47%</b>	<b>39%</b>	<b>14%</b>

S. No.			
	Group 1	Group 2	Group 3
1.	Aashish Gorakh Khude	Ajay Chavan	Aashay Joglekar
2.	Gauri S Chavan	Aniket Dilip Singh	Aajinkya
3.	Omkar Karushna Garud	Aarti Kishor Bidkar	Prathmesh P Kadam
4.	Reshma S Gholap	Ganesh D Khude	Rudresh C Goudnour
5.	Sanket Tanaji Gawhane	Niraj A Ubhe	Sanket A
6.	Suhas S Chavan	Raviraj D Waghmare	Shivam Londhe
7.	Vinit S Patel	Sakshi Sandeep Indulkar	Vaishnavi Vinod K
8.		Santosh H Sheldel	
9.		Shahid S Attar	
10.		Shrishti S Vedake	
<b>Total Students (in Percentage)</b>	<b>29%</b>	<b>42%</b>	<b>29%</b>

S. No.			
	Group 1	Group 2	Group 3
1.	Shrawani Bapu Kamble	Sayali Balu Charghe	Shruti Amol Bansode
2.	Savni K Kudale	Pooja Prithviraj Chaudhary	Shrawani D
3.	Anamika S Pawar	Tanvi Santosh Pongare	Sakshi K Gorkhe
4.	Nilam Phoolchand Nishad	Sushmita Dhananjay Pawar	Sakshi Satish Inje
5.	Aakash J Nanawat	Aniket V K	Saurav Santosh Patale
6.		Dhiraj	
7.		Guru S Limble	
8.		Kaushal M Vaidya	
9.		Mayur Sanjay Dhamale	
10.		Sandeep Datta Waghmare	
11.		Sarthak Maruti Kamble	
12.		Suyash Baba Choughe	
13.		Yash Raichand	
<b>Total Students (In Percentage)</b>	<b>22%</b>	<b>56%</b>	<b>22%</b>

S. No.			
	Group 1	Group 2	Group 3
1.	Mamta Nishad	Sanskriti Tukaram Bhikole	Harshada Navnath Bhiwade
2.	Vaishnavi Sunil Sadakle	Dimple Ram Batunge	Preeti Chaudhary
3.	Altiya Chand Shaikh	Sanjana Chauhan	Anjali Sharma
4.	Omkar Vinod Chavan	Mahek Deepak Gaikwad	Shraddha V Sathe
5.	Aditya Deepak Gaikwad	Nupur Tukaram Kamble	Sohan Mashar Kumar Sahani
6.	Nikhil N Kende	Purva Prakash Mandavkar	Kunal Anil Pawar
7.	Lalit Palte	Hiral Bharat Pasalkar	Akhilesh Yadav
8.	Pranav Prasad Rawade	Supriya C Sable	
9.	Sunil Vilas Thorat	Pooja Rajnath	
10.	Himanshu Yadav	Rani R Sahani	
11.		Pooja Prakash Thorat	
12.		Rohit Baswaraj Choori	
13.		Yash Machutre	
14.		Sunil Prajapati	
15.		Harsh Sanjay Suryawanshi	
16.		Jayesh Eshwaar Veer	
17.		Om Naresh Valmiki	
<b>Total Students (in Percentage)</b>	<b>29%</b>	<b>50%</b>	<b>21%</b>

S. No.			
	Group 1	Group 2	Group 3
1.	Aditya Sandeep Bhosale	Sachin Indulkar	Anuj Dhananjay Pawar
2.	Pruthvi Dodamani	Omkar Dilip Satpute	Abhishek A Popkar
3.	Aditya Kamble	Vivek Sharma	Yasar Ajj Sayyed
4.	Mukund Bharat Rai	Neeraj P Tamatta	Anaya Umesh Kale
5.	Sunny Ramvilas Sahni	Shreyans Dattawade	Sanjana Yogesh S
6.	Aniket Rajesh Yadav	Priyanka Bharat Bahadur	
7.		Rutuja Gajanan C	
8.		Sandhya Somnath G	
9.		Aditi Dilip G	
10.		Nikita Anil Kolekar	
11.		Sakshi Sanjay Padwal	
<b>Total Students (in Percentage)</b>	<b>27%</b>	<b>50%</b>	<b>23%</b>

S. No.			
	Group 1	Group 2	Group 3
1.	NarendraAnand A	SahilbaluTagale	SajanChaouhan
2.	Nikhil	ParthVende	Raj Sahani
3.	Shiva kanaujiya	Hitesh	JanhaviJadhav
4.	Sahil K	Anwar	KomalPawar
5.	Bhagyashree	PiyushPawale	
6.	PritiAmol	Narayan Sharma	
7.	SandhyaDudhade	Prathmesh A wadekar	
8.	BharatiMannu Das	Atharva	
9.	AnujaYadav	Vaishnavi	
10.		RoshniRamdasBodke	
11.		Srushti D	
12.		Rani Gaekwad	
13.		RevatiJori	
14.		SrushtiKalekar	
15.		KhushiArun	
16.		Anuradha Ashok Popkar	
17.		Siddhi	

S. No.			
	Group 1	Group 2	Group 3
1	AkashPrajapati	Niranjan Bhikole	Sovik Subhash
2	Deepak Kumar	Nikhil Chite	Shravan Ramesh raut
3	PrajapatiNaresh	Tejas kale	Meghna Agnur
4	Archana Arjun Kanade	Atharva Kanade	Ashwini Rathod
5	HarshadamachhindraKhude	Sanket Khude	Stuti Sanjay
6	Samiksha gaikwad	Sahil Prajapati	Tanvi Dattatray
7		Kiran Shankar	Shrushti dabhade
8		Om Anil Raut	
9		Shruti S.B	
10		Gayatri D Bhosale	
11		Sayali Umesh Chandane	
12		Srushti deepak Ghonge	
13		Ankita M Gudami	
14		Piyusha	
15		Priya Prahlad samudre	
16		Akanksha Sachin	
<b>Total Students (in percentage)</b>	<b>21%</b>	<b>55%</b>	<b>24%</b>

S. No.			
	Group 1	Group 2	Group 3
1	Tanish	Sahil Bhandari	Nilesh
2	Prarambha B Waghmare	Sahil Gorkhe	Amit M Habib
3	AmolYadav	Yash Deepak Karanjkar	Rohit S Kamble
4	Sarthak	Anish Sahani	Vaibhav
5	Omprakash	Atharva A V Jori	Junaid Ashfak Momin
6	Samruddhi S Pathak	Dhiraj	Abhay
7		Aryan Dilip Singh	Atharva B
8		Manish Prajapati	Shravani Chavhan
9		Tushar Sanjay Ghir	Siddhi Nitin Mohite
10		Chaitali Yogesh Kamble	Tanvi Maruti Shamilkar
11		Vedika	Rishi
12		Sarika Sainath Bore	
13		Sakshi	
<b>Total Students (in percentage)</b>	<b>20%</b>	<b>43%</b>	<b>37%</b>

S. No.			
	Group 1	Group 2	Group 3
1	Prem Sachin	Sahil Bagwa	Aniket Dattatray
2	Soham Shankar Kadu	Sahil H Bagwan	dada UmeshChaudane
3	Pratik Kamble	Samrat Bahadur	Shreekant R Shinde
4	Atharva Kshirsagar	Devendar	Vaishnavi B Pasalkar
5	Kaustubh Pawar	Chetan Choori	Tanzim A shaikh
6	Sushant C Sable	Atharv Khandale	
7	Ayaz	Atharv Sampat	
8	Vishal Ashok Shinde	Sathark Sanjay	
9	Pravesh	Aman	
10	Atharv Chougule	Santosh	
11	Sujal	Durvankur Ram Batunge	
12	Ganesh Aol Wadekar	Riya	
13	Prajakta Bahadur	Vaishnavi Mahakar	
14	Snehal Arjun Kanade	Vaishnavi Anil Pawar	
15	Aishwarya Thorat	Prerna Prakash	
<b>Total Students (in percentage)</b>	<b>43%</b>	<b>43%</b>	<b>14%</b>

S. No.			
	Group 1	Group 2	Group 3
1	Ajay Chavan	Aashay Joglekar	Aishwarya Vijay Gadhve
2	Aajinkya	Aniket Dilip Singh	Ganesh D Khude
3	Aarti Kishor Bidkar	Manasi Vijay Pawar	Niraj A Ubhe
4	Aashish Gorakh Khude	Nisha Mujawar	Raviraj D Waghmare
5	Gauri S Chavan	Prathmesh P Kadam	Rudresh C Goudnour
6	Omkar Karushna Garud	Sanket Tanaji Gawhane	Vaishnavi Vinod K
7	Santosh H Sheldel	Shrishti S Vedake	Vinit S Patel
8	Shivam Londhe	Suhas S Chavan	
9		Tushar S L	
<b>Total Students (in percentage)</b>	<b>33%</b>	<b>38%</b>	<b>29%</b>

S. No.			
	Group 1	Group 2	Group 3
1	Shrawani Bapu Kamble	Shruti Amol Bansode	Tanvi Santosh Pongare
2	Savni K Kudale	Sayali Balu Charghe	Kunal Sudam Rathod
3	Nilam Phoolchand Nishad	Pooja Prithviraj Chaudhary	
4	Aniket V K	Shrawani H	
5	Guru S Limble	Sakshi Satish Inje	
6	Mayur Sanjay Dhamale	Sara Shabbir Khan	
7	Saurav Santosh Patale	Anamika S Pawar	
8	Suyash Baba Choughe	Sushmita Dhananjay Pawar	
9	Shrawani Bapu Kamble	Aakash J Nanawat	
10		Kaushal M Vaidya	
11		Sandeep Datta Waghmare	
12		Sarthak Maruti Kamble	
13		Yash Raichand	
<b>Total Students (in percentage)</b>	<b>38%</b>	<b>54%</b>	<b>8%</b>



S. No.			
	Group 1	Group 2	Group 3
1	Nupur Tukaram Kamble	Sanskriti Tukaram Bhikole	Harshada Navnath Bhiwade
2	Mamta Nishad	Mahek Deepak Gaikwad	Dimple Ram Batunge
3	Pooja Prakash Thorat	Purva Prakash Mandavkar	Sanjana Chauhan
4	Nikhil N Kende	Hiral Bharat Pasalkar	Preeti Chaudhary
5	Lalit Palte	Supriya C Sable	Anjali Sharma
6	Pranav Prasad Rawade	Vaishnavi Sunil Sadakle	Aditya Deepak Gaikwad
7	Sunil Vilas Thorat	Pooja Rajnath	Sohan Mashar Kumar Sahani
8	Om Naresh Valmiki	Rani R Sahani	Kunal Anil Pawar
9	Himanshu Yadav	Altiya Chand Shaikh	Sunil Prajapati
10	Asmita Pawar	Shraddha V Sathe	
11		Omkar Vinod Chavan	
12		Rohit Baswaraj Choori	
13		Harsh Sanjay Suryawanshi	
14		Gaurav Sharma	
15		Jayesh Eshwaar Veer	
16		Akhilesh Yadav	
<b>Total Students (in percentage)</b>	<b>28%</b>	<b>46%</b>	<b>26%</b>

S. No.			
	Group 1	Group 2	Group 3
1	Sachin Indulkar	Aditya Sandeep Bhosale	Sunny Ramvilas Sahni
2	Aditya Kamble	Anuj Dhananjay Pawar	Vivek Sharma
3	Yasar Ajj Sayyed	Abhishek A Popkar	Anaya Umesh Kale
4	Neeraj P Tamatta	Mukund Bharat Rai	
5	Shreyans Dattawade	Omkar Dilip Satpute	
6	Priyanka Bharat Bahadur	Anish Shaikh	
7		Ashraf S	
8		Aniket Rajesh Yadav	
9		Rutuja Gajanan C	
10		Sandhya Somnath G	
11		Aditi Dilip G	
12		Nikita Anil Kolekar	
13		Sakshi Sanjay Padwal	
14		Sanjana Yogesh S	
15		Amisha Santosh S	
<b>Total Students (in percentage)</b>	<b>25%</b>	<b>63%</b>	<b>12%</b>

S. No.	Group 1	Group 2	Group 3
1	NarendraAnand A	SajanChaouhan	Hitesh
2	Shiva kanaujiya	SahilbaluTagale	Raj Sahani
3	Sahil K	ParthVende	Komal Pawar
4	Atharva	Anwar	
5	Vaishnavi	PiyushPawale	
6	Bhagyashree	Narayan Sharma	
7	PritiAmol	Prathmesh A wadekar	
8	SandhyaDudhade	Srushti D	
9	Bharati	RevatiJori	
10	Rani Gaekwad	JanhaviJadhav	
11	KhushiArun	SrushtiKalekar	
12	Anuradha Ashok Popkar	Siddhi	
13	AnujaYadav		
<b>Total Students (in percentage)</b>	<b>46%</b>	<b>43%</b>	<b>11%</b>

S. No.	Group 1	Group 2	Group 3
1	Deepak Kumar	Niranjan Bhikole	Tejas kale
2		Nikhil Chite	Sovik Subhash
3		Atharva Kanade	Om Anil Raut
4		Sanket Khude	Shravan Ramesh raut
5		Akash Prajapati	Prajapati Naresh
6		Kiran Shankar	Meghna Agnur
7		Shruti S.B	Ashwini Rathod
8		Sayali Umesh Chandane	Stuti Sanjay
9		Srushti deepak Ghonge	Shrushti dabhade
10		Ankita M Gudami	
11		Piyusha	
12		Harshada machhindra Khude	
13		Priya Prahlad samudre	
14		Akanksha Sachin	
15		Tanvi Dattatray	
16		Samiksha gaikwad	
<b>Total Students (in percentage)</b>	<b>4%</b>	<b>61%</b>	<b>35%</b>

S. No.	Group 1	Group 2	Group 3
1	Amit M Habib	Tanish	Sahil Bhandari
2	Yash Deepak Karanjkar	Sahil Gorkhe	Nilesh
3	AmolYadav	Rohit S Kamble	Junaid Ashfak Momin
4	Sarthak	Vaibhav	Aryan Dilip Singh
5	Dhiraj	Ali Shaikh	Atharva B
6	Omprakash	Prarambha B Waghmare	Siddhi Nitin Mohite
7	ChaitaliYogeshKamble	Anish Sahani	Vedika
8	Samruddhi S Pathak	Atharva A V Jori	Tanvi Maruti Shamilkar
9	Sarika Sainath Bore	Chandan	Rishi
10		Tushar Sanjay Ghir	
11		Shravani Chavhan	
12		Sakshi	
<b>Total Students (in percentage)</b>	<b>30%</b>	<b>40%</b>	<b>30%</b>

S. No.	Group 1	Group 2	Group 3
1	Prem Sachin	Sahil Bagwa	Aniket Dattatray
2	Kaustubh Pawar	Sahil H Bagwan	Devendar
3	Pravesh	Samrat Bahadur	Atharva Kshirsagar
4	Sujal	dada Umesh Chaudane	Vishal Ashok Shinde
5	Ganesh Aol Wadekar	Soham Shankar Kadu	Tanzim A shaikh
6	Prajakta Bahadur	Pratik Kamble	
7		Atharv Khandale	
8		Atharv Sampat	
9		Sathark Sanjay	
10		Aman	
11		Ayaz	
12		Shreekant R Shinde	
13		Santosh	
14		Atharv Chougule	
15		Durvankur Ram Batunge	
16		Riya	
17		Vaishnavi Mahakar	
18		Vaishnavi B Pasalkar	
19		Vaishnavi Anil Pawar	
20		Aishwarya Thorat	
21		Prerna Prakash	
<b>Total Students (in percentage)</b>	<b>19%</b>	<b>65%</b>	<b>16%</b>

S. No.	Group 1	Group 2	Group 3
1	Shrawani D	Shruti Amol Bansode	Sayali Balu Charghe
2	Sakshi K Gorkhe	Pooja Prithviraj Chaudhary	Kunal Sudam Rathod
3	Savni K Kudale	Shrawani H	
4	Nilam Phoolchand Nishad	Sakshi Satish Inje	
5	Sushmita Dhananjay Pawar	Shrawani Bapu Kamble	
6	Dhiraj	Sara Shabbir Khan	
7	Guru S Limble	Anamika S Pawar	
8	Suyash Baba Choughe	Tanvi Santosh Pongare	
9		Aakash J Nanawat	
10		Kaushal M Vaidya	
11		Mayur Sanjay Dhamale	
12		Sandeep Datta Waghmare	
13		Saurav Santosh Patale	
14		Yash Raichand	
<b>Total Students (in percentage)</b>	<b>33%</b>	<b>58%</b>	<b>9%</b>

## QUESTIONNAIRE

### **Usability of the group screening tool for identifying students at risk of dyslexia (reading disability) for teachers.**

**Name of the teacher**-----

**Name of the school**-----

**Aim :** To study the usability of the group screening tool for identifying students at risk of dyslexia (reading disability) in class IV in your school.

**Note:** This questionnaire was used to get feedback from the teachers who have used the group screening tool and the Level II reading probe in a class setting . The questions listed in this questionnaire have been classified under the different aspects of usability components as follows:

A. Understandability

D. Object achievement

B. Learnability

E. User satisfaction

C. Operability

F. Applicability

#### **A. Understandability of the tool**

1. Is the group screening tool easy to understand and follow?

**Yes**

**No**

If no , then please state your reason-----  
-----

2. Were you able to understand the principles on which the screening tool tests the reading ability of the students?

**Yes**

**No**

If no, please state the reason -----  
-----

3. Were the phonetic principles of reading easy to understand in the screening tool?

**Yes**

**No**

If no, please state the reason -----  
-----

4. Did you go through the teachers manual and procedure well before starting ?

**Yes**

**No**

5. Do you think that the steps given in the screening tool are easy to follow and implement in a class?

**Yes**

**No**

6. Do you think it was easy for the students to go through the various parts in the screening test ?

**Yes**

**No**

7. Is the teachers Manual given along with the test self explanatory?

**Yes**

**No**

8. Will the English language teachers be able to use the Screening tool on their own ?

**Yes**

**No**

If no, please state the reason -----  
-----

**B. Learnability**

1. Was the screening tool able to measure the learning levels of the students in english reading and writing?

**Yes**

**No**

If no, please state the reason -----  
-----

2. Were you able to achieve the objectives of identifying students with a reading disability?

**Yes**

**No**

If no, please state the reason -----  
-----

3. Do you think it will be helpful to you in developing a remedial program for the students that fail the screening test?

**Yes**

**No**

If no, please state the reason -----  
-----

4. Will the developed tool be useful in identifying and giving extra attention to those at risk of a reading problem?

**Yes**

**No**

**C. Objective achievement**

1. Have the objectives for identifying students with problems in English reading been achieved?

**Yes**

**No**

If no, please state the reason -----  
-----

2. Does this tool help the teacher to fulfil the goal of effectively teaching her class by giving extra remedial teaching to students of different abilities?

**Yes**

**No**

If no, please state the reason -----  
-----

**D. Operability**

1. Is the sequence of questions in the group screening tool in appropriate order ?

**Yes**

**No**

If no, please state the reason -----  
-----

2. Was it easy to score and interpret?

**Yes**

**No**

3. After going through the testing process do you think it is possible to successfully identify students with a reading disability and start extra remedial teaching for them?

**Yes**

**No**

If no, please state the reason -----  
-----

4. Do you think that the target of this test – that is the students will benefit from the use of this screening tool?

**Yes**

**No**

If no, please state the reason -----  
-----

**E. User Satisfaction**

1. Do you think that the screening tool will be a handy tool in the hands of the teachers in a classroom setting?

**Yes**

**No**

If no, please state the reason -----  
-----

2. Do you like the overall presentation of the screening tool ?

**Yes**

**No**

If no, please state the reason -----  
-----

3. Do you think that the target audience which is the students will benefit from the screening tool in the end?

**Yes**

**No**

If no, please state the reason -----  
-----

**F. Applicability**

1. Can such a screening tool be applied for other subjects like Mathematics and Marathi etc?

**Yes**

**No**

If no, please state the reason -----  
-----

2. After reading the instructions and the teachers manual, do you think that this screening tool can be effectively used and adopted by schools for early identification of students with reading disability?

**Yes**

**No**

If no, please state the reason -----  
-----

3. What do you think are the special features of this group screening tool?

-----  
-----  
-----

4. Would you like to suggest any points to add or delete in this test?

-----  
-----



5. Do you think any activity, step or sequence is unnecessary in the tool?

-----  
-----

6. Would you like to suggest any activity or step or sequence to add in this screening tool?

**Yes**

**No**

If Yes , please state them here -----

-----  
-----  
-----

7. In addition to the above answers would you like to add anything more about the group screening tool developed to identify students with a reading disability and begin early remediation?

-----  
-----