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Development and Validation of Graded Reading Test for Children with Learning Disabilities

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ABSTRACT Formal reading tests are unavailable in the country. This study seeks to develop, standardize and validate a reading protocol to profile reading errors and ascertain grade level performance. A standard group comparison design is used to empirically validate 'foundation' and 'intermediate' levels of a proposed 3-layered protocol comprising of 17-item examination list covering a sample of 302 children with learning disabilities with lag in reading between nursery-class four. Following standard procedure of tool construction, the developed instrument is shown to be amenable for routine clinical administration, scoring and interpretation based on norms derived in this study. Results show a developmental trend in achieving reading competencies with an identified list of errors. The reliability-validity estimate of the tool and qualitative observations on item analysis are reported while claiming its utility in diagnostic decision making as well as for planning remediation programs for such affected children.

INTRODUCTION

Reading assessment is a complex phenomenon. It covers various processes. It may target different linguistic and clinical groups (Rathvon 2004). It could address overt or covert components, such as, phonological and phonemic aspects, articulation, speed and fluency, oral and orthographic dimensions, comprehension or expression, alphabet, word, or sentence levels (Caldwell 2014). There can be variations in what such assessments tell us about reading performance, the age/grade levels they address, the potential or demonstrated utility that they show in predicting reading acquisition and/or help in identifying reading problems. They also differ in terms of subtests, administration, scoring and interpretation, technical adequacy, standardization details, usability and psychometric properties. Standard diagnostic tests are available as criterion referenced, or norm referenced tools. Intervention oriented tests profile strengths and weaknesses in individual or groups of individuals in order to recommend reading remedial programs (Fuchs and Fuchs 2004).

Historically, interest in assessment of reading is shown by several contributions (Daniel 1915; Gates 1921; Vogel and Washburne 1928; Johnson 1930; Mc Laughlin 1969; Pray and Ross 1969; Nation and Snowling 1997). It is debated whether reading measurements must be psychometric or educationally based (Carver 1972). Examples of formal reading tests are: Early Grade Reading Assessment (EGRA; World Bank and RTI International 2009), Standardized test for Assessment of Reading (STAR; Renaissance Learning 2009), Diagnostic Test of Reading Disorders (DTRD; Mehta and Swarup 2004), Curriculum-Based Measurement (CBM) of Oral Reading (Hosp and Hosp 2003), Early Reading Diagnostic Assessment (ERDA; Jordan et al. 2003), Basic Early Assessment of Reading (BEAR; Riverside Publishing Company 2002), Predictive Reading Profile (PRP; Flynn 2001), Test of Early Reading Ability (TERA; Reid et al. 2001), Group Reading Assessment and Diagnostic Evaluation (GRADE; Williams 2001), Gray Oral Reading Tests (GORT; Wiederholt and Byrant 2001), Gates-Mac Ginitie Reading Test (GMRT; Mac Ginitie et al. 2000), Standardized Reading Inventory (StRI; Newcomer 1999), Test of Word Reading Efficiency (TOWRE; Torgesen et al. 1999),

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Scholastic Reading Inventory (SRI; Salvia and Ysseldyke 1998), Grade Level Assessment Device (GLAD; Narayan 1997), Graded Non Word Reading Test (Snowling et al. 1996), Dyslexia Early Screening Test (DEST; Fawcett et al. 1993) and its upward revision as Dyslexia Screening Test (DST; Nicolson and Fawcett 1997), Nelson Denny Reading Test (NDRT; Brown et al. 1993), Burt-Vernon and Schonell Graded Word Reading Tests (Shearer et al. 1975), Test of English Reading Skills (TERS; Rae and Potter 1973), The Kansas Silent Reading Tests (KSSR; Kelly 1916), Monroe's Standardized Silent Reading Tests (Monroe 1918), etc.

Informal reading assessment include use of qualitative procedures covering observation, use of interest inventories, checklists, interviews, anecdotal notes, and/or involving perusal of portfolios and miscue analysis. It could use cloze technique, gap filling, multiple choice questions, scanning, skimming, matching, ordering of tasks, editing, free recall, summarizing, information transfer formats from text to charts, diagrams, flow charts, or maps (Kamil et al. 2000). Examples: Basic Reading Inventory, Bader Reading-Language Inventory, Yopp-Singer of Phoneme Segmentation Test, etc. Available reports suggest that the use of informal estimates by teachers tend to overestimate the reading proficiency in their students (Bates and Nettelbeck 2001; Feinberg and Shapiro 2009).

Research on reading in Indian school children are scanty (Venkatesan 2010; Karanth 2012). An exposure to English book reading practices in Indian bilingual children was shown to improve their narrative and literacy development (Kalia 2007). Dyslexic readers of Hindi are reported to be significantly poor in terms of speed and accuracy compared to their age matched controls (Gupta and Jamal 2006). A survey in South India found that 8.2 percent of children between 8-12 years had reading difficulties linked to socio-demographic correlates like age, gender, poverty, parent education, school attendance, physical health, and academic failure (Bhakta et al. 2002). The most exhaustive and authentic national survey on reading achievements of children in 5-16 year age group from rural India is reflected in Annual Status of Education Report (Pratham 2014). By using a criterion based approach, an ASER-Reading Test aligned to primary school level text books used in the country categorized children on an ordinal scale indexing mastery in basic reading skills ranging from 'nothing', 'letter', 'word', 'paragraph' (grade one level text), and 'story' (grade two level text). Their findings indicate that 50 percent of children in class five could not read class one level text although longitudinal trends showed a steady increase over years. The situation was serious for children from government than private institutions (Ramachandran 2016). Assessment of reading competencies in children with special needs is an area of unique challenge (Wrightstone et al. 1963; Lane and Baker 1974; Richman et al. 1988; Conners 1992; Spencer and Tomblin 1997; Musselman 2000; Marschark and Spencer 2003; Nation et al. 2006; Kyle and Harris 2010).

From the foregoing, it is evident that the scenario of English reading research vis-à-vis primary school children in India is unexplored arena. While few precursors to standardized age or grade based assessment of academic achievement in spelling, arithmetic and numeracy (Venkatesan and Purusotham 2010; Venkatesan and Holla 2011; Venkatesan and Vasudha 2014) are available, behaviorally based reading lists for individual assessment of children 'at risk; or those with reading problems, delays and/or disabilities are non-existent in the country. From a clinical perspective, increasing numbers of such children with reading, writing and/or spelling difficulties, academic delay, scholastic underachievement, and learning disabilities are being referred for diagnostic decision making or for securing educational benefits and concessions offered to them following certification by competent authorities.

Objectives

In view of this need, rationale and justification, it was the proposed aim of this study:

- To develop and administer a Reading Protocol to ascertain the grade level performance in a clinical population of children identified as 'learning disabilities';
- To profile the frequency and types of reading errors shown by the clinical population of children identified as 'learning disabilities' in relation to variables like their age, gender, curriculum, grade placement, and stream of schooling;
- To establish internal/external validity and reliability of the protocol developed and

administered on the clinical sample of children identified as 'learning disabilities'.

METHODOLOGY

This study uses standard group comparison research design with an ingredient of test construction to develop and standardize a Graded Reading Protocol for screening, identification, diagnosis as well as profiling common errors in children identified as 'learning disabilities' in the country.

Operational Definitions

The term 'learning disabilities' as used in this study, denote a sample of referred clinical cases of students with scholastic problems from regular schools, with no apparent sensory impairment, physical, multiple or intellectual disabilities, autism, chronic health problems, missed schooling, change of school or medium of instruction, poor study habits or examination taking skills, impoverished or unsupportive educational environments, first generation learners, absent teaching, transient or long standing emotional/behavior problems, parent discord, or such other intervening factors. It excludes students identified as functioning at below average intelligence (slow learners), or those with associated disturbances in conduct or emotion, conditions like seizure disorder or on long term medication (Venkatesan 2011).

Sample

The targeted sample of children regularly approach the department undertaking this study for various purposes, such as, certification, home or clinic based reading remediation, psycho-education, small group interventions, or reading empowerment programs. The occasion of their first consultation was used as an occasion and opportunity for data collection covering the period between January, 2014-June, 2015.

This study covered a clinical sample of 302 children (Age Range in months: 30-192; Mean Age: 108.32; SD: 38.57) including 158 boys (Mean Age: 107.29; SD: 41.37) and 144 girls Mean Age: 109.75; SD: 32.35)(t: 0.6374; df: 300; SEM: 4.302; p:>0.05). There were 132 children (43.71%) studying under the stream of state government recommended syllabus and 170 children (56.29%) under Central Board of Secondary Education (CBSE) or Indian Council of Secondary Education (ICSE) syllabi scheme. Their grade placements ranged from Pre-Nursery to class X (Mean: 4.7 grade). But, their reading grade performance levels ranged between pre-reading levels and class four. The difference between sitting grade and the student's actual grade level performance on the test for each child was calculated as 'Grade Discrepancy Score' (GDS). This was measured as mean of 3.87 grade (SD: 2.01) for the study sample. The boys (N: 198; Mean: 4.12; SD: 2.21) did not show any significant difference from the girls (N: 104; Mean: 3.64; SD: 1.93) either in terms of their mean sitting grades vis-à-vis their grade discrepancy (t: 1.8713; df: 300; SEM: 0.257; p: >0.05).

Tools

Data on reading difficulties in the recruited sample of children was collected by administering the 'Graded Reading Protocol' along with another exclusively prepared tool to gather personal demographic details of individual cases. The 3-layered 'Graded Reading Protocol' comprises of 17-item examination list beginning 'foundation' level (12 items covering pre-reading, nursery level through LKG and UKG), 'intermediate' level (5 items covering grades 1-4) and proposed 'advanced' level (14 items) respectively. While a tentative sample of items for the proposed 'advanced' level is given under results, this report seeks to highlight empirical data related only to first two levels of the protocol. The items under each level are drawn from the typical reading curriculum of children in English medium schools between Nursery and class four (Table 1). Adequate representation was given in the ground level testing kit for culturally appropriate pictures, visible font size of alphabets, words, phrases, sentences and/or passages to enable use of the reading lists in such a manner that it would match against a hypothetical standard comparison group of normative children representative of a larger similar population in the country. The items or contents of the reading list were arranged in age-cum-grade level escalation. The minimum score that a child can achieve on this tool is zero and the highest is 200.

Procedure

Data collection involved individualized administration of the 'Graded Reading Protocol'. The testing was carried out in designated plac-

Table 1: Outline of the 'Graded Reading Protocol'

Foundation	*Item*	*Description*	*Score*	*Maximum*
Pre-Reading	1	Matches similar pictures (5 Pairs) pair matched correctly	1 mark for each	5
	2	Points/identifies/names pictures of 3 letter-sound words belonging to various lexical categories (5 Pictures)	1 mark for each picture performed correctly	5
	3	Identifies ½ closed pictures (5 Pictures) identified correctly	1 mark each picture	5
	4	Spots single differences between pairs of 5 pictures	1 mark for each spotting correctly	5
	5	Attempts, mumbles and pretends, but cannot read at all	5 marks for attempted reading	5
		Sub Total		25
Nursery	6	Describes action pictures (5 Pictures) description	1 mark for each correct	5
	7	Arranges pictures sequentially to form coherent story/ narration (5 Pictures)	mark for each correct 1 arrangement	5
	8	Detects absurdities in 5 pictures detection	1 mark for each correct	5
	9	Points/identifies 5 letters in upper-lower case response	1 mark for each correct	5
	10	Reads 5 letters but not form words reading	1 mark for each correct	5
		Sub Total		25
LKG	11	Reads 2-3 letter word list of 25 words read correctly	1 mark for each word	25
		Sub Total		25
UKG	12	Reads at least 5 sentences each having 2-3 letter words	5 marks for each sentence read correctly	25
		Sub Total		25
Intermediate	*Item*	*Description*	*Score*	*Maximum*
Grade I	13	Reads 4 letter list of 10 words read correctly	1 mark for each word	10
	14	Reads at least 5 sentences each having 3-4 letter words	3 mark for each sentence read correctly	15
		Sub Total		25
Grade II	15	Reads at least 5 sentences each having 3-5 letter words	5 marks for each sentence read correctly	25
Grade III	16	Reads at least 5 sentences each having 3-6 letter words	5 marks for each sentence read correctly	25
Grade IV	17	Reads at least 5 sentences each having 3-7 letter words	5 marks for each sentence read correctly	25
		Grand Total Score		200

es free from disturbances or distraction. The examiners were holders of at least post graduate degree in psychology or upwards. The testing for any given child takes place in the department sequentially on three occasions. At first, in 'Out Patient Section', examiners merely screen the child through a brief case history format and present status examination. In the next 'Detailed Assessment Section', often over 2-3 sittings, the same child undergoes in-depth individualized testing on various parameters typically covering intelligence, adaptive behavior, academic achievement, grade level performance, adjustment, aptitude, interest, and/or problem behavior mapping. This is followed in an authentication exercise carried out individually over a period of at least half an hour along with the test protocols already in place by a senior faculty in clinical psychology.

The commonly used psychological tests included administration of an intelligence scale (such as, Malin's Intelligence Scale for Indian Children, Raven's Progressive Matrices, Gesell's Drawing Test, or Seguin Form Board), adaptive behavior measures (such as, Vineland Social Maturity Scale, Indian Adaptation), and achieve-

ment tests (such as, Graded Math, Reading and Spelling List). All these procedures require 3-5 hours per instance is carried out in the physical presence of parents accompanying the child. The escorts were instructed to remain passive observers to provide moral support and NOT to offer verbal or non-verbal assistance to the child during testing. The mandated informed consent was taken and response anonymity was assured (Venkatesan 2009).

All testing was undertaken in amiable, non-threatening and reassuring milieu. The testing rooms had adequate lighting, furniture, temperature, and the ready-to-use test materials in place. Pre-testing preparations typically covered rapport building, orienting the child and parent escort on what is in store during test sessions. It was assured that 'failed' answers would not end up into their being 'taken to task'. They had to simply put up their best performance. Rapport was given prime importance. Time breaks were provided when required. Simple and positively stated instructions like 'Please listen to what I say', or 'please begin when I say start!' were preferred to direct commands like 'Sit Down!' Small courtesies and praise statements were profusely used, such as, 'Good Work!', 'Great Attempt!', 'Thank you!' Records on test observations and findings were frequently perused and exchanged between the examiners and the consultant. All analysis was done on SPSS/PC (Sarma 2010).

RESULTS

This section is presented under the following headings: (a) Reading Performance for overall sample as well as in relation to associated variables; (b) Comparative Norms and Grade Level Equivalents; (c) Reliability-Validity of the Tool; and, (d) Profile of Common Reading Errors.

(a) Reading Performance

The mean score for overall sample (N: 302) on 'Graded Reading Protocol' is 127.50 (SD: 6.50). In relation to gender variable, the scores of girls (N: 158; Mean: 130.50; SD: 6.75) is similar to boys in this sample (N: 144; Mean: 129.75; SD: 5.50)(t: 1.054; df: 300; SED: 0.71; p: >0.05). A comparison of children hailing from State syllabus (N: 132; Mean: 120.75; SD: 5.75) and ICSE/CBSE stream (N: 170; Mean: 142.25; SD: 7.25) shows statistically significant differences given the superior performance of the latter (t: 27.925; df: 300; SED: 0.77; p: <0.0001). Similarly, older children show higher scores than younger age/grade peers as confirmed through Tukey's Post Hoc Analysis (p: <0.001; Table 2).

(b) Comparative Norms and Grade Level Equivalents

Based on the obtained comparative norms and grade level equivalents (Table 3), the interpretation of test scores achieved by a given child can be carried out in the following manner. For example, wherein a child secures an overall score of 29 out of the maximum 200 possible on this tool, it would mean that his reading is at 'nursery' level. On the other hand, another child scoring 37, for instance, would mean that his reading level is 'definitely above nursery but below LKG'. To take another example, a score of 130 indicates reading level in a child at class two, just as the score of 143 would imply above class two but below class three.

(c) Reliability and Validity

The inter-rater reliability for scoring on the 'Graded Reading Protocol' was estimated by using Pearson's Correlation between ratings given by two independent mutually blind raters on a subsample of 50 children representing the same proportions of the graded categories as in the final sample of this study. The inter-rater reliability coefficient was found to be high (r: 0.91; p: <0.001). Another 2-week test retest reliability exercise undertaken on a sample of 25 children equally representing all the grades as in the original sample was found to be 0.90 (SEM: 1.44; p: >0.05; NS).The pattern of higher intra-class and inter-class correlations (r>0.75; p: 0.01) derived from test scores from students between groups or across their peers in higher or lower grade levels indicate the internal consistency and homogeneity of items in the tool (Table 4).

The concurrent validity of scores achieved on the 'Graded Reading Protocol' against respective class teacher (N: 25) and parent (N: 25) estimates for ratings of their reading competencies in a randomized sub-group of this sample as against an assumed group of 100 grade peers was found to be a correlation coefficient equivalent of r: 0.88 and 0.912 respectively.

Table 2: Mean and standard deviation for 'Graded Reading Protocol' in relation to various variables

Variables	*N*	*Mean*	*SD*	*Probability*
Overall	*302*	*127.50*	*6.50*	
Gender				
Boys	158	130.50	6.75	t: 1.0542; df: 300;SED: 0.713; p: 0.2935; NS
Girls	144	129.75	5.50	
Stream				
CBSE/ICSE	170	142.25	7.25	t: 27.9245; df: 300;SED: 0.770; p: 0.0001; VHS
State	132	120.75	5.75	
GES				
Pre-reading	9	17.25	3.25	F (7,294):2787.548; p: <0.0001; VHS;R=0.901;Tukey $HSD_{.05}$= 3.736; $HSD_{.01}$=4.372
Nursery	12	31.50	4.50	
LKG	14	64.25	5.50	
UKG	13	80.25	6.25	
Grade I	67	110.00	4.75	
Grade II	61	135.25	6.50	
Grade III	64	160.00	4.25	
Grade IV	62	184.25	6.50	
GDiS				
Two	68	145.25	6.75	F (6,295):1144.058; p: <0.0001; VHS;R=0.791;Tukey $HSD_{.05}$: 3.294; $HSD_{.01}$: 3.890
Three	57	130.50	5.75	
Four	52	124.25	5.25	
Five	45	111.25	4.00	
Six	36	95.50	4.50	
Seven	26	78.75	4.75	
Eight	18	52.75	3.50	
Change of School				
NIL	134	140.75	5.75	F (3,298):677.8; p: <0.0001; VHS;R: 0.69145579;Tukey's $HSD_{.05}$=1.885; $HSD_{.01}$=2.346
One	82	128.25	4.75	
Two	54	122.75	3.75	
Three or More	32	98.75	3.25	

[R: refers to intra-class correlation for ANOVA given the between groups, within groups mean square and number of subjects in each group; Tukey's Honestly Significant Difference value denotes the minimum difference between the groups that can be considered statistically significant]

Table 3: Approximated norms and GES conversion for 'Graded Reading Protocol'

Mid-points	*Grade equivalent level*	*Normalized value*	*Raw score range*
17	Pre-Reading	-1.00 to +1.00	14-21
31	Nursery	-1.00 to +1.00	27-36
64	LKG	-1.00 to +1.00	59-70
81	UKG	-1.00 to +1.00	75-87
110	I	-1.00 to +1.00	105-115
135	II	-1.00 to +1.00	129-142
160	III	-1.00 to +1.00	156-165
184	IV	-1.00 to +1.00	178-190

Table 4: Inter-correlation matrix between grades on 'Graded Reading Protocol'

	PR	*N*	*LKG*	*UKG*	*I*	*II*	*III*	*IV*
PR	1.00							
N	0.96	1.00						
LKG	0.93	0.97	1.00					
UKG	0.91	0.92	0.94	1.00				
I	0.84	0.88	0.89	0.88	1.00			
II	0.79	0.84	0.86	0.85	0.92	1.00		
III	0.74	0.81	0.79	0.79	0.88	0.94	1.00	
IV	0.71	0.78	0.76	0.75	0.85	0.89	0.89	1.00

** All correlation is significant at the 0.01level

(d) Profile of Common Reading Errors

A perusal of protocols obtained in this study revealed that the respondents made 42 types of reading errors (Table 5). Even though most of them fall approximately into the well-known 'Substitution-Omission-Distortion-Addition' (S-O-D-A)type errors (Terepocki et al. 2002); additionally, as supported in literature, difficulties related to planning, regulating, monitoring and directing through skimming, scanning, summarizing, visualizing, using text features and contextual clues, error identification, initiating corrections, and/or not using sub-vocalization were also found (Lovett 2013). This was demonstrated by their tendency to follow text with finger, loosing place while reading, missing whole chunks or reading the same chunk twice, reading letter by letter or word by word with no change in intonation, showing inability to synthesize letters into coherent words, mispronouncing words, putting stress on wrong syllable, reading slowly or reading text in present tense although it was written in past tense, guessing wildly at words, reading words backwards, putting words in wrong order confusing short vowels, misreading words of similar appearance, substituting another word of similar meaning, ignoring punctuations, omitting prefixes and suffixes, distorting sound syllables, adding affixes, etc. (Thorndike 1917, 1971; Bennett 1942; Weber 1968; Leu 1982).

Table 5: Common errors in reading

S. No.	*Type of error*
1	Adds prefixes and suffixes
2	Adds sounds, words, letters, or phrases
3	Fails in alphabet/letter identification
4	Blending difficulty
5	Confuses consonants
6	Confuses vowels
7	Difficulty with multi syllable words
8	Distorts sounds, words, letters, or phrases
9	First reading wrong, then corrects self spontaneously
10	Follows reading text with finger
11	Foreshortens words
12	Guesses wildly at words
13	Ignores punctuation
14	Inability to synthesize
15	Lacks alphabet sound correspondence or print sound
16	Lacks fluency or flow
17	Lacks intonation/rise and fall of voice/does monotonous reading
18	Lacks rhythm or prosody
19	Lacks sound alphabet correspondence
20	Letter by letter reading
21	Loses place (line or word)
22	Memorization of text
23	Mispronunciation or faulty articulation
24	Misses whole chunks (words, phrases or sentence)
25	Omits prefixes and suffixes
26	Omits words, letters and punctuation
27	Poor in tracking errors
28	Puts letter in wrong order
29	Puts stress on wrong syllable
30	Reads rapidly or fast reading
31	Reads same chunk twice
32	Reads slowly or slow processing
33	Reads text in present tense although given in past tense or vice versa
34	Reads words in wrong order
35	Replaces words
36	Reversed reading
37	Shows faulty sequencing
38	Shows no pitch or rise and fall in voice
39	Substitutes words, letters or phrases
40	Whole word errors
41	Word by word reading
42	Word identification

Going by the empirical experience of this investigation combined with perusal of available protocols, and although not targeted in this enquiry, it appears that there is scope for extension and validation of this preliminary reading testing format into an 'advanced' level at least for unaffected or typical middle and high school students since many of these items (Table 6) were not found to be applicable for the respondents included in this study.

Table 6: Proposed list of items for 'advanced' level of the 'Graded Reading Protocol'

S. No.	*Proposed sample items*
1	Answers questions after reading comprehension passages
2	Hobby reading present
3	Paraphrases or summarizes read material
4	Participates in reading programs or competitions
5	Reads and translates into another language
6	Reads comics, novels, and story books.
7	Reads dictionary, pictionaries, thesaurus, technical do-it-yourself self-instructional manuals, etc.
8	Reads for others
9	Reads with appropriate pronunciation, intonation, pauses and halts
10	Reads with speed (measured in terms of number of words per minute)
11	Shows meta-reading skills by answering questions on what, how, where or when to read
12	Silent reading present
13	Takes or makes notes while reading
14	Uses skimmed reading

DISCUSSION

The development of mastery in reading is posited to progress through typically orderly, sequential and predictable phases (Stuart and Coltheart 1988; Seymouret et al. 2003). Beginning from pre-emergent reading activities like page turning of favorite books, make believe book flipping, listening to activities involving being read aloud by others, imitating postures of reading aloud, it proceeds into movement of fingers in the direction along a given text, making vocal utterances to mumble sounds in imitation of older readers, matching similar pictures; pointing, identification or naming pictures; identifying half closed pictures; spotting single differences between pairs of pictures, reading sight words, mapping of speech sounds to parts of words, reading rhyming words, to eventually achieving fluency, pronunciation, intonation and comprehension (Lesaux and Seigel 2003; Paris 2005). In the beginning, it appears that all stimulus pictures must be necessarily only 3-letter sound words (Examples: cow-dog-pen-man-ant-fan-gun-hen). At *nursery level*, action filled still pictures are described, or arranged sequentially by children to form a coherent story or narration. They are then beginning to detect absurdities in pictures, and later understand that each alphabet has a distinct character, and only then, they can point, identify or read at least a few alphabets in their lower or upper case. At this stage, children are seen to associate sounds with a given alphabet, but are not be still ready to read words. By LKG, they appear to appreciate that stringing or assembling letters together will form words, or that words together form phrases and that phrases conjoin to form sentences and paragraphs. Of course, the number of letters within given words that a given child can proficiently read seems to progressively increase with their growing age and/or grade (Graham and Kelly 2008; Morrison and Wilcox 2012).

Of course, there are individual differences in acquisition of reading skills (Share et al. 1984). This is evidenced even by the present study given the hierarchical nature of reading performance as well as errors in this sample of children with learning disabilities. Reading is much more than decoding of black marks on a page. It is about deciphering the print. A non-sense text can be also read. But it must make sense. It is a quest for meaning which requires the reader to be an active participant. Reading is observed to be also culturally shaped to a great extent thereby making it a social activity (Cox 1991; Harinath 2007; Mahakud 2013).

CONCLUSION

Although a presumably preliminary exercise, this study enunciates the development and validation of 'Graded Reading Protocol' applicable for diagnostic evaluation of students with academic problems, especially those with reading delays and difficulties. It covers a grade level range between 'nursery' and 'class IV'. It is normatively based in so far as the actual reading grade level of a given child or groups of students can be ascertained before being made as the basis for their remediation. Further, this study has shown that there is a more or less relatively discernable developmental sequence in the reading acquisition as well as performance in students. Gender does not, even though the stream of syllabus does emerge as a significant variable to differentiate reading competencies in the sample of children covered in this study. The developed tool has been demonstrated to have hierarchical structure and content, procedure for administration, scoring, interpretation and norms for interpretation of test results in individual cases along with adequate psychometric properties, such as, reliability and validity for regular use on children in Indian settings.

RECOMMENDATIONS

Evidently, this tool can go as a parallel as well as part of the battery of achievement tests already made available by the same investigator(s) for undertaking numeracy, arithmetic and spelling related diagnostic as well as in interventional planning assessments for children with learning disabilities in the country. Admittedly, there is need for undertaking expanded research on larger samples, more diverse populations covering other languages as well as rural settings.

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