Analysis of Bibliography on Specific Learning Disability in India

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ABSTRACT

Aim: This study attempts a comprehensive qualitative and quantitative analysis of un-annotated bibliographic listing of books and citations compiled on specific learning disability published by researchers in India.

Method: An online and offline survey covering ISSN journals and ISBN marked books available in print or electronic media was compiled, coded, categorized, and classified by title, theme, year, journals, and names of author/s.

Results: The bibliographic search yielded 450 research articles drawn from 196 national and international journals of Indian origin and 29 book titles on the topic of learning disability and/or its equivalents covering themes related to their nature-characteristic (N: 184; 40.89%), therapy-intervention (N: 115; 25.56%), causes-correlates (N: 57; 12.67%), screening-assessment-identification (N: 52; 11.56 %), and epidemiology-prevalence (N: 42; 9.33%). A decade wise timeline analysis shows an increasing trend in the quantum of publications on learning disability by almost four times from the base years of <=1990s to the contemporary period, along with corresponding shift in the increased use of the term ‘learning disability’ in preference for other older terms (p:<0.05).

Conclusion: On the whole, there seems to be much unused information available about learning disabilities in the country, which now lies widely scattered.

Limitations & Recommendation: Although no claim is made that the bibliographic listing is all inclusive, it is recommended that the first step is to have an information gathering mechanism, creation of a dynamic repository, or archival system with retrieval systems in place for prospective researchers on a subject matter of great importance within the country.

Key Words: Reference Listing, Dyslexia, Learning Disability, Scholastic Problem.

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INTRODUCTION

Bibliographic databases on the theme of disability are meager. An online web-based listing of over 2500 citations covering cultural and historical origins of disability concepts in countries of Asia, Middle East and southern Africa is available (Miles, 2008). While some bibliographic compilations are generic (Khailova, 2014; Brown, 1995), others have targeted specific themes, such as, disability history (Burch, 2005), testing accommodation and accessibility (Laitusis et al. 2012), portrayals of persons with disabilities (Friedberg, Mullins & Sukeiennik, 1992; Robertson, 1992), violence and disability (Armstrong, 2008; Sobsey, Wells, Lucardie, & Mansell, 1995), children’s literature and inclusion practices (Bunch, 1996). The Library and Documentation Division of National Institute of Education under National Council of Educational Research and Training, New Delhi, issued a ‘Bibliography on Inclusive Education’ in 2013, covering learning disabilities, dyslexia, emotional problem, gifted child, illness, impairments, etc. However, it carries little on contributions from Indian researchers in professional journals within the country.

The subject matter of specific learning disabilities in relation to bibliographic searches is limited or non-existent (Miles & Miles, 1999). In India, an extensive bibliographical survey of research in the field of intellectual disabilities (then called ‘mental retardation’) undertaken by Indian investigators on populations within the country and published in over 100 national journals spanning sixty years is available (Venkatesan & Vepuri, 1994). In the surveyed period, there were only 4 (0.24%) on learning disabilities. The study concluded that learning disability is a neglected area of study. There continues to be a dearth of evidenced-based data on themes like early identification, prevention, inclusion, consumer behavior, professional conduct, changing perspectives or definitions, mainstreaming, community based initiatives, access, empowerment issues, impact evaluations, historical analysis, and others (Venkatesan, 2009a).

From the aforesaid, it is evident that a complete, systematic, and well organized stock-taking on available bibliography on published research by Indian investigators on the subject matter of specific learning disabilities is unavailable. The questions which can be raised are: Is any ongoing research or published books on the subject matter within the country? If so, where are the researches being published? What is the nature and frequency of themes or concerns raised by researchers regarding the problem of learning disability? What has been the overall trend over the years pertaining to the matter of research concerns that has
been engaging the attention of Indian researchers? What is their quality of these research and/or book publications?

These questions are now all the more pertinent because specific learning disability is being proposed to be accorded as a category of disability under the newly revised Bill on Rights of Persons with Disabilities in India (PRS India, 2014). The different Boards of High School Education are already beginning to extend educational benefits and concessions for students with specific learning disability even as the various State Level Courts are ensuring their implementation for deserving persons (Live Law, 2016; New Indian Express, 2016).

It is the aim of this study to compile a bibliographic list of research titles for articles and books published on learning disabilities and related conditions in India; and to study broad trends in the distribution of the publications in relation to specific variables, such as timeline or years, type, themes or area of research.

**METHOD**

The key term used for bibliographic search included ‘specific learning disability’ and/or its equivalents like ‘dyslexia, word blindness, academic disorder, dyscalculia, dysgraphia, reading-writing difficulty, specific developmental disorder of scholastic skills, academic skills disorder, receptive-expressive speech disability, central sensory processing disorder and/or minimal brain dysfunction’. This study combines a comprehensive qualitative and quantitative analysis of un-annotated bibliographic listing of books and reference citations compiled on the theme of specific learning disability and/or its equivalents as contributed by researchers from India by surveying journals and books within the country available with either print and/or electronic ISSN/ISBN.

**Procedure:**

Data collection involved approaching every known or available source of information and documentation for procuring old issues of journals, visiting online archives, validating cross references, and listing citations by names of authors, year of publication, title of book, article and journal, recording their volume, issue and page numbers. Additional information on DOI, ISSN/ISBN, Impact Factor (if available) and periodicity of journal, place of origin, internet source, and year of commencement of the journal was also collected. The inclusion/exclusion criteria for collection of the bibliographic database are given in Table 1.
Table 1: Inclusion/Exclusion Criteria

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any or all authored, co-authored, written or published research articles or book titles mentioning learning disability or its equivalent terms obtained from national and/or international journals and books of Indian origin having print and/or electronic ISSN/ISBN from within the country</td>
<td>Research titles by Indian authors on learning disability and its equivalent terms appearing in periodicals, newsletters, magazines, proceedings of seminars, webinars, or conferences, mimeographs, video or audio materials, and unpublished pre-doctoral doctoral or post-doctoral dissertations, scientific journals of foreign origin</td>
</tr>
<tr>
<td>The last year and end date of inclusion is 2016</td>
<td>Research titles carrying authors with foreign affiliation even if in the area of learning disability covering India</td>
</tr>
<tr>
<td></td>
<td>Incomplete, misleading, repeated, and unverified cross references from available full text articles and books</td>
</tr>
</tbody>
</table>

The collected list of references was compiled in Microsoft Excel spread sheet under appropriate headings along with distinct codes to enable their categorization and classification. Based on titles, the references were classified into eight categories: (1) Academic Problem; (2) Developmental Disorder of Scholastic Skills; (3) Dyslexia; (4) Emotional Disturbances or Disorder; (5) Learning Disability; (6) Mathematical Disability; (7) Reading Disability; and, (8) Speech Disability. To facilitate analysis, the references were also assigned to one of the five thematic categories: (1) Epidemiology-Prevalence; (2) Nature-Characteristics; (3) Causes-Correlates; (4) Screening-Identification; and, (5) Therapy-Intervention. For example, a research article titled ‘learning disability in rural primary schools’, or ‘prevalence of specific development disorder of scholastic skills in school children’, was coded as falling under theme of ‘Epidemiology-Prevalence’. Another research article on ‘innovative pedagogical strategies’, ‘effect of structured teaching programme’, or ‘remedial instruction’ were grouped under’ Therapy-Intervention’. The data on year of publication for a given research article or book was coded under decade based class intervals beginning <=1990 and 2011+

The codification, categorization, and classification of the themes reflected by the titles included in the study were subjected to inter-observer reliability checks by involving two more mutually blinded independent coders for at least 50 entries
each out of the overall sample of research articles. The tone and tenor of ethical issues pertaining to bio-behavioral research as enshrined in the official mandate within the investigating institution was scrupulously adhered to (Venkatesan, 2009b). A descriptive and interpretative statistical analysis was carried out by applying measures of non-parametric statistics using SPSS/PC (Carver & Nash, 2009).

RESULTS
Out of the overall list of 510 research articles sourced, the bibliographic literature search yielded 450 research titles related to the field of specific learning disability and/or its equivalents from 196 national and international journals (Mean: 2.42 articles per journal) with ISSN having authors as well as publication of Indian origin. Likewise, the search also yielded titles of 29 books on or about the subject matter of specific learning disability and/or its equivalents with ISBN, and authored/ co-authored and published within the country. A flow diagram on inclusion of research articles is given in Figure 1.

Figure 1: Flow Diagram on Sourcing & Retention of Research Articles
(a) Nomenclature:
Out of the overall compiled bibliography of 450 research article entries, 247 (54.89%) titles mentioned the term ‘learning disability’. This was followed by 56 (12.44%) articles mentioning ‘dyslexia’. There are relatively fewer research papers with exclusive focus only on ‘reading disability’ (N: 50; 11.11%), ‘mathematical disability’ (N: 26; 5.78%) and ‘speech disability’ (N: 13; 2.89%). A limited number of authors preferred using the term ‘Developmental Disorder of Scholastic Skills’ (N: 14; 3.11%) recommended by 10th Revision of International Classification of Diseases (ICD-10; WHO, 2015; 1994). Although known by several other terms, there were no research articles titled ‘word blindness, academic skills disorder, central sensory processing disorder and/or minimal brain dysfunction’.

(b) Time Lines:
Analysis of publications based on decade wise timeline preoccupations of Indian researchers show a gradually increasing trend in the quantum or frequency of research publications on the subject matter related to learning disabilities by almost four times from a base rate of 40 articles (8.89%) before the 1990s to 182 contribution (40.44%) in the contemporary period after 2011 in the country (p:<0.05).

Table 2: Area and year wise frequency distribution of target groups addressed by research papers

<table>
<thead>
<tr>
<th>Population Addressed</th>
<th>Abbreviation</th>
<th>N</th>
<th>Time Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;=1990</td>
</tr>
<tr>
<td>Academic Problem</td>
<td>AP</td>
<td>32 (7.11)</td>
<td>13 (32.50)</td>
</tr>
<tr>
<td>Developmental Disorder of Scholastic Skills</td>
<td>DDSS</td>
<td>14 (3.11)</td>
<td>1 (2.5)</td>
</tr>
<tr>
<td>Dyslexia</td>
<td>DYS</td>
<td>56 (12.44)</td>
<td>3 (7.50)</td>
</tr>
<tr>
<td>Emotional Disorder or Disturbances</td>
<td>ED</td>
<td>12 (2.67)</td>
<td>6 (15.00)</td>
</tr>
<tr>
<td>Learning Disability</td>
<td>LD</td>
<td>247 (54.89)</td>
<td>6 (15.00)</td>
</tr>
<tr>
<td>Mathematical Disability</td>
<td>MD</td>
<td>26 (5.78)</td>
<td>-</td>
</tr>
</tbody>
</table>

www.dcidj.org
Vol. 28, No.2, 2017; doi 10.5463/DCID.v28i2.540
<table>
<thead>
<tr>
<th></th>
<th>RD</th>
<th>11.11%</th>
<th>17.50%</th>
<th>12.28%</th>
<th>13.45%</th>
<th>7.14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Disability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech Disability</td>
<td>13</td>
<td>2.89%</td>
<td>10.00%</td>
<td>3.51%</td>
<td>3.51%</td>
<td>0.55%</td>
</tr>
<tr>
<td>Total</td>
<td>450</td>
<td>8.89%</td>
<td>12.67%</td>
<td>38.00%</td>
<td>40.44%</td>
<td></td>
</tr>
<tr>
<td>Percentages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Figures in parenthesis indicate percentages; X 2: 16.38; DF: 2; P: 0.003; Cramer’s V: 0.1908)

**Figure 2: Distribution of Nomenclature across Timeline Decades**

It is noted that the use of terms ‘learning disability’ is steadily gaining momentum in professional research publications compared to the waning importance for terms like ‘academic problem’, ‘developmental disorder of scholastic skills’, and ‘speech disability’ (Table 1). While this is so, early contributions in 1970s addressed ‘scholastic achievements’ (Kakkar, 1970), ‘student performance’ (Bharathraj, 1972), or ‘why students fail’ (Wig & Nagpal, 1972), before moving into usage of terms like ‘pedagophobia’ (Mazumdar, 1975a; 1975b) and later settling to use terms like ‘communication disabilities’ (Mittal et al. 1977), followed by ‘dyslexia’ or, eventually, ‘learning disability’ (Rao, 1981; Shah, Khanna & Pinto, 1981; Khurana, 1980; Pani, 1980).

**(c) Theme:**

Most research concerns during Base Years <=1990 (N: 11; 27.50%) focused on ‘Causes-Correlates’ of specific learning disability, which trend appears to have reduced to less than half (End Year 2011+; N::20; 10.99%). On the other hand, the importance given for themes related to ‘Screening-Assessment-Identification’ and ‘Therapy-Intervention’ appears to have multiplied manifold over the decades (p: 0.004). The focus on studying ‘Epidemiology-Prevalence’ and
‘Nature-Characteristics’ of learning disabilities appears stable across the decades (Table 2).

**Table 3: Distribution of Research Themes across Decades**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemiology-Prevalence</td>
<td>4 (10.00)</td>
<td>6 (10.52)</td>
<td>8 (4.68)</td>
<td>24 (13.19)</td>
<td>42 (9.33)</td>
</tr>
<tr>
<td>Nature-Characteristics</td>
<td>18 (45.00)</td>
<td>25 (43.86)</td>
<td>83 (48.54)</td>
<td>58 (31.87)</td>
<td>184 (40.89)</td>
</tr>
<tr>
<td>Correlates-Causes</td>
<td>11 (27.50)</td>
<td>8 (14.04)</td>
<td>18 (10.53)</td>
<td>20 (10.99)</td>
<td>57 (12.67)</td>
</tr>
<tr>
<td>Screening-Assessment-Identification</td>
<td>1 (2.50)</td>
<td>6 (10.52)</td>
<td>21 (12.28)</td>
<td>24 (13.19)</td>
<td>52 (11.56)</td>
</tr>
<tr>
<td>Therapy-Intervention</td>
<td>6 (15.00)</td>
<td>12 (21.05)</td>
<td>41 (23.98)</td>
<td>56 (30.77)</td>
<td>115 (25.56)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>57</strong></td>
<td><strong>171</strong></td>
<td><strong>182</strong></td>
<td><strong>450</strong></td>
</tr>
</tbody>
</table>

(Figures in parenthesis indicate percentages; X²: 29.1; DF: 12; P: 0.004)

**Figure 3: Distribution of Research Themes across Decades**

(d) **Journal/Books:**

For all the number and variety of 196 journals perused to enlist 450 research articles on specific learning disability, the mean is as low as 2.42 articles per journal. The top ten journals between themselves cover 150 out of the 450 (33.33 %) research titles listed in this bibliography on learning disability (Table 3). This implies that the remaining two-thirds (N: 300; 66.66%) of articles are spread across the
remaining 186 journals resulting in a mean of 1.61 articles per journal. Further, it is seen that the ‘Indian Journal of Clinical Psychology’ has been consistently and regularly publishing research articles on ‘learning disability’ over the decades beginning with the first publication of a case report (Dharitri, 1992). Before this, most of the publications focused only on ‘academic achievement’ (Nagpal & Wig, 1975), ‘scholastic performance’ (Singh, Anand, Dhingra & Gupta, 1977), ‘emotional problems in school children’ (Kapur & Cariappa, 1979), and ‘study habits’ (Moudgil & Handa, 1979). Intermittently, the terms like ‘scholastic skill disorder’ (Bhola, Hirisave, Kapur & Subbukrishna, 2000), and ‘dyslexia’ (Gupta, 2002a; 2002b) have been used. Thus, a consistent use of the term ‘learning disability’ is seen only in publications during or after 2007.

Comparatively, research contributions in ‘The Indian Journal of Pediatrics’ have used the term ‘learning disability’ (Shah, Khanna & Pinto, 1981) and ‘dyslexia’ (Rao, 1981) much earlier, although issues from earlier years carry articles only on ‘speech defects’ (Kalra et al. 1975) and ‘communication disabilities’ (Mittal et al. 1977). The credit for the first ever usage of term ‘learning disability’ in any official research paper publication must go to ‘Indian Journal of Psychiatry’ (Khurana, 1980) as also for use of the phrase ‘reading disabled’ (Pani, 1980). With respect to available ISBN marked books, the first time use of title ‘learning difficulties’ (Nakra, 1996) and ‘learning disabilities’ (Rana & Sinha, 1998) is dated much after the journals. The bibliography comprises of 29 ISBN marked books listing 17 titles (65.38%) as published during the decade 2001-2010, with 5 out of them (17.24 %) as between 1991-2000 respectively (Table 3).

Table 4: Rank Order Distribution of Top Nine Journals for Publishing Research on Learning Disability in India

<table>
<thead>
<tr>
<th>Rank</th>
<th>Journal Title</th>
<th>Abbreviation</th>
<th>N</th>
<th>&lt;=1990</th>
<th>1991-2000</th>
<th>2001-2010</th>
<th>2011-</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Indian Journal of Clinical Psychology</td>
<td>IJCP</td>
<td>32</td>
<td>11</td>
<td>8</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>II</td>
<td>The Indian Journal of Pediatrics</td>
<td>IJPED</td>
<td>25</td>
<td>4</td>
<td>3</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>III</td>
<td>Journal of Indian Education</td>
<td>JIE</td>
<td>19</td>
<td>-</td>
<td>4</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>IV</td>
<td>Journal of All India Institute of Speech and Hearing</td>
<td>JAIISH</td>
<td>18</td>
<td>5</td>
<td>4</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>
(*Remaining 300 articles spread out across 186 journals; Figures in parenthesis indicate percentages; X^2: 8.66; DF: 3; P: 0.034)

**Figure 4: Distribution of Research Articles across Journals**

<table>
<thead>
<tr>
<th>Journal</th>
<th>Number of Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>V Disabilities &amp; Impairments D-I 17 1 5 8 3</td>
<td></td>
</tr>
<tr>
<td>VI The Journal of Indian Academy of Applied</td>
<td></td>
</tr>
<tr>
<td>Psychology JIAAP 12 - 4 5 3</td>
<td></td>
</tr>
<tr>
<td>VII Indian Journal of Psychiatry IJP 11 3 1</td>
<td></td>
</tr>
<tr>
<td>4 3</td>
<td></td>
</tr>
<tr>
<td>VIII International Journal of Scientific</td>
<td></td>
</tr>
<tr>
<td>Research IJSR 8 - - - 8</td>
<td></td>
</tr>
<tr>
<td>IX Disability, CBR and Inclusive Development</td>
<td></td>
</tr>
<tr>
<td>CBR 8 - - - 3 5</td>
<td></td>
</tr>
<tr>
<td>Total of articles in the 9 journals</td>
<td>150 24 29 55 42</td>
</tr>
<tr>
<td>Total of articles in the remaining 186 journals</td>
<td>300 17 33 100 150</td>
</tr>
<tr>
<td>Grand Total of Journal Articles *</td>
<td>450 40 57 171 182</td>
</tr>
<tr>
<td>Books</td>
<td>29 2 5 17 5</td>
</tr>
</tbody>
</table>

(c) Inter-Coder Reliability Estimates

The tripartite inter-reviewer agreement as measured by Fleiss Kappa for multiple coders (contrasting Cohen’s Kappa applicable only for two raters) (Fleiss 1981; Fleiss and Cohen 1973) was 0.91 which is interpreted as ‘almost perfect agreement’ (Landis and Koch 1977). Face validity is found to be high for the classification of the thematic categories covered by the research papers.
DISCUSSION

Evans (1982) is credited with an earliest annotated bibliography on dyslexia. Price and Johnson (1986) compiled reference listing on secondary postsecondary transition process for learning disabled adolescents and adults. Ramaa (2000) described a range of research studies relating to learning disabilities available in India during the preceding two decades. It was commented that most research papers carried some, although varying, inclusion and exclusion criteria to identify or classify children with dyslexia, gave diverse prevalence rates, used different diagnostic tools, and made no clear distinctions between academic difficulties, underachievement, and/or scholastic delays. It is of interest to note that 30 out of the 35 citations listed in that research article were themselves unpublished post graduate, pre-doctoral and doctoral dissertations submitted to various Indian universities. John (2010) could retrieve less than five research articles on learning and developmental disorders from the archives of ‘Indian Journal of Psychiatry’ being published since 1979.

It is surprising that the bulk of the published research articles on learning disabilities and/or its allied nomenclature does not appear in journals of specialized disciplines like ‘Indian Journal of Clinical Psychology’ and ‘The Indian Journal of Pediatrics’. Rather, two thirds of them are published by other journals including the a wide range of fields from nursing, social work, generic behavior, humanities, and social sciences; to management sciences, computer science, information technologies, and artificial intelligence.

Although this study attempted a quantitative profiling on the nature, frequency and extent of research contributions available across Indian journals, probably the time is not yet ripe to undertake a qualitative meta analysis since it appears that there is as yet no agreement on the preferred nomenclature between the several available and often confusing equivalents, such as, ‘dyslexia, academic disorder, reading-writing difficulty, specific developmental disorder of scholastic skills, academic skills disorder, speech disability, central processing disorder or emergent literacy skills’. There appears to be a great deal of wastage of valuable research effort, time and reinventing of the wheel going by the repetitive nature of several research papers on the same topics often without citing a similar work by another set of investigators within the same country. The penchant of Indian researchers for publishing in foreign journals as well as the paucity of published research on learning disabilities in the country has been also decried by several authors to explain the status of learning disability research in the country (Raja
& Kumar, 2011; Singh, 2010; Reddy & Kusuma, 1996; Andrade & Choudhury, 1994).

CONCLUSION

In sum, it is concluded that considerable literature has been accumulated over the past few decades regarding specific learning disability and/or its equivalents in the country going by the contents and trends in the compiled bibliography of contributions through research papers and books of Indian authors. However, much of this information seems to lie unused and widely scattered. While this bibliography may not be all inclusive, when it is proposed to be published as a book in the future, it will likely serve as benchmark or baseline index for the prevailing scenario on learning disability research in the country. The next step must be to have an information gathering mechanism, create a dynamic repository, or archival system with retrieval systems in place for prospective researchers on a subject matter of great importance. This can enhance information recovery, facilitate inventory management, and enable compatibility between research data.

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REFERENCES


