

## **Beyond Phonology - relationship of oral language skills with decoding and reading comprehension: Evidence from Indian alphasyllabaries**

**Lakshmi Venkatesh**

Extensive research in English over the last two decades has documented the critical role played by oral language skills in reading development in both the early and later school years. There is increasing consensus on consideration of the role of linguistic awareness in general and specifically, morphological awareness, orthographic awareness and syntactic awareness in addition to phonological awareness in understanding children's abilities of decoding, spelling and reading comprehension (e.g., Berninger, Abbott, Nagy & Carlisle, 2010; Hulme & Snowling, 2009; Nation & Snowling, 2004).

A large body of evidence indicates that phonological processing skills, drawing on the phonological system of a language including letter-sound knowledge and phoneme awareness, are robust predictors of single word reading abilities (e.g., Muter, Hulme, Snowling, & Stevenson, 2004), and difficulties with phonological skills are a defining characteristic of many poor readers (Hulme & Snowling 2009). In addition to phonological processing skills, several components of oral language skills including vocabulary, semantic knowledge, morphological awareness and syntactic awareness have been hypothesised to relate to word reading or decoding abilities as well as reading comprehension skills. For example, reading of exception words necessitates skills in addition to decoding abilities; there is evidence that recognition of such words in English draws upon semantic and syntactic knowledge as well (Nation & Snowling, 2004). Syntactic awareness aids word recognition skills by enabling a reader to use the syntactic constraints of a sentence to decode unfamiliar words (Nation & Snowling, 1998). In contrast to decoding skills, children's reading comprehension abilities are best predicted by vocabulary and grammar knowledge, which draw on non-phonological aspects of language, such as semantics and grammar (Muter et al., 2004). Syntactic processing or awareness of syntactic information relates to reading comprehension by facilitating sentence- and text-level integration and monitoring skills (Tunmer & Bowey, 1984). Children with specific reading-comprehension difficulties commonly display a range of language impairments, including problems with listening comprehension, vocabulary, oral expression, narrative production, figurative language, and grammar (see Hulme & Snowling, 2009, for a review).

Emerging evidence from several studies in Kannada, a richly inflected Indian language suggests that broader oral language skills interact with skills in other domains including akshara knowledge, phonological processing, naming speed, and visual memory to produce a spectrum of delays and difficulties among poor readers of Kannada (Nag & Snowling, 2011a). Poor reading performance was associated with difficulties in comprehension of spoken statements and questions of increasing syntactic and narrative complexity (Nag, 2007). Oral language skills along with phonological processing and naming speed differentiated good and poor readers of Kannada (Nag & Snowling, 2011a). Measures of vocabulary, syntactic processing, and inflection knowledge were taken to represent broader oral language skills. A multiple case series analysis which permitted closer evaluation of the poor readers' profile revealed that more than half of the poor readers (68.9%) demonstrated impaired performance (below a cut-off of -1 standard deviation relative to a chronological age comparison group of good readers) in one or more aspects of

*Author acknowledges with thanks the support received from the LLCd rapporteur team in the writing of this Thematic summary.*

oral language abilities. Majority of the poor readers had difficulties with inflection knowledge with smaller numbers showing difficulty with syntactic processing or vocabulary (Nag & Snowling 2011a). Most poor-reader profiles spanned across at least two cognitive deficits (usually in the language domain), rather than a cognitive deficit exclusively in a single skill; a finding consistent with those from alphabetic and logographic writing systems (Nag, Caravolas & Snowling, 2011). Yet another study showed that children's decoding skills, phonological skills, and knowledge of vocabulary and inflection, together predicted individual variability in reading comprehension abilities of 8; 11 to 12 year old children studying in classes 4, 5 or 6 (Nag & Snowling, 2011b). Inflection knowledge as assessed through an analysis of children's imitation of sentences emerged an independent predictor explaining the variance in reading comprehension in Kannada reinforcing the notion that knowledge of morphological segments of words may facilitate better extraction of meaning in the text.

### ***Reading in a non-dominant language***

Language proficiency and reading skills develop in tandem in a child learning to read in second language -L2. Extant research on L2 also supports the findings from first language - L1 that skilled reading comprising of reading comprehension and fluency are facilitated by increasing levels of L2 oral language proficiency (see Geva, 2000 for a review). In the Indian context, children attend primary schools with English as the medium of instruction and begin literacy instruction in English, a non-dominant language rather than in the primary language spoken at home. Hence, they are exposed to alphabetic script of English first prior to other alphasyllabaries which are introduced as second (and third) language in schools. In such contexts, assessment of literacy skills of children at risk for literacy or academic difficulties are performed in English and intervention sought in English to enable the child to function successfully in the educational setting. Indeed, Indian English is an integral part of the language ecology of India and is distinct in terms of its phonology and lexicon despite sharing some syntactic properties with other varieties of English across the world (Agnihotri, 2010). This calls for context sensitive material for assessment and management of language and literacy difficulties in Indian English. There is also an urgent need in 'English as Second Language' (ESL) contexts to determine whether a child's errors in spoken and written forms of language are due to incomplete acquisition of English or due to impaired language learning. Preliminary attempts at understanding language impairment in the multilingual Indian context incorporated language assessment in both English and the home language, which in this instance was Malayalam (Raman, 2011). Although, as a group, performance was lower in English in comparison to Malayalam, inflectional morphology served as a reliable marker of language impairment and dyslexia in an ESL context such that some children assessed by a series of oral production and judgement tasks, demonstrated poor performance on production and comprehension of inflections in both Malayalam (home language) and English (school language).

### ***Intervention***

Research on intervention of reading difficulties has further strengthened the theoretical arguments for a relationship between oral language skills and reading performance. Phonological intervention led to improvement among children who were struggling in the early stages of reading development in a non dominant language, English (Nag-

Arulmani, Reddy & Buckley, 2003). Intervention aimed at strengthening phonological representations through phonological skills training led to increased gains in reading and spelling measures in English in comparison to an intervention focussing on vocabulary building and oral proficiency among children with reading difficulties in English (Nag-Arulmani, Reddy & Buckley, 2003). Children with the lowest single-word reading scores showed greatest benefit from the phonological intervention. Lall, Sutar & Nag (2011) reported improvement in narrative writing skills in Kannada taken to represent expressive writing, spelling and use of grammatically more complex language, following a supplementary Kannada language programme among 7- to 9- year olds' studying in grade 4. Further, preliminary analysis of children who showed the most change and the least change post intervention using Response-to-Intervention (RTI) indices revealed discrepancies in relation to the initial grouping of children into groups with lowest, middle and highest attainments in basic reading, spelling and reading comprehension based on a screening tool. Cross sectional assessment may indeed be misleading with reference to low attainments in the context of a history of poor literacy environment (e.g. print starved environments or absence of bridge programmes between home and school language etc) (Lall, Sutar, & Nag, 2011).

Considerable evidence has demonstrated that phonologically based interventions are effective in ameliorating children's word level decoding difficulties (see Snowling & Hulme, 2011 for a review). There is an emerging evidence base suggesting that interventions targeting non-phonological oral language skills such as vocabulary and broader oral language skills help in ameliorating reading and oral language comprehension difficulties (Snowling & Hulme, 2011). Among native speakers of English, intensive vocabulary instruction, in combination with reading and phonological training was found to be effective for children with decoding difficulties who showed poor response to reading and phonological intervention (Duff et al., 2008). There is an urgent need to evaluate various intervention approaches to remediating reading difficulties in the context of learning the Indian alphasyllabaries as well as in a non-dominant language such as English. Intervention research such as those described above provides useful information for understanding individual differences and relationship between language and literacy.

To conclude, similar to findings from alphabetic writing systems, children with poor phonological skills, vocabulary knowledge or awareness of syntactic and morphological information are hampered in their reading development in Indian alphasyllabaries as well. It is clear that each of these components of oral language shows a slightly different impact on reading comprehension in different phases of development (Nag & Snowling, 2011a). There is an urgent need for longitudinal studies that address the issues surrounding the interactions between the child's emergent knowledge of language and literacy in the process of becoming a proficient reader. Intervention programmes to improve children's reading comprehension must also actively promote the domain of oral language skills in addition to decoding skills. Evaluation of such intervention programs would promote evidence based practice and also inform theories on relationship between language and literacy in Indian alphasyllabaries.

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