

Developmental Pattern of Phonological Awareness Skill in Indian Alphasyllabic Languages and English: Educational Implications

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Abstract

The trajectory of the development of phonological awareness (PA) skill varies between English and Indian Languages. The orthographic granularity of language is an important factor in the development of reading skill. In both kindergarten and formal schools, development of PA skills has been identified as an important component of literacy skill development. Most children learn both, the regional language and English at school and structured facilitation of PA skills in these languages is crucial. The differences between the acquisition of subskills under PA skills at various linguistic categories across languages needs to be clearly understood by the curriculum developers and school-based professionals for effective and seamless transition of PA skills across grades. The systematic and comprehensive review of studies with Indian population in various alphasyllabaries specifically outlines the developmental pattern of PA skills in English and alphasyllabic languages. This conceptual knowledge among educators, special educators and school-based speech language pathologists will help in designing of curriculum, language based standardized assessment tool for early identification and individualized education plans for children with deficient literacy related skills.

Key words- Phonological awareness , alphasyllabaries, reading, development , literacy.

1. Introduction

Phonological awareness is knowledge of how sounds are structured in spoken words (Gillon, 2007). It is defined by Yeong and Liow (2012), as an ability to identify and manipulate sound units in a language. According to Catts et al., (1999), the operations involved in phonological processing help develop the skill of manipulating linguistic units. Once this skill is acquired, a child can learn that a word can be broken down into syllables and further into sounds. Reading skill acquisition and development depends on phonological awareness. Phonological Awareness is a prerequisite to reading as highlighted in various studies on alphabetic writing systems (Ehri et al., 2001; Troia, 2004). These studies have also proved the bidirectional relationship between the two skills (Caravolas et al., 2013; Hulme et al.,2012).

Phonemic awareness is a component of PA awareness . The development of the PA skill is a continuous process. Various subskills under PA skill such as blending, deletion, segmentation, etc. develop concurrently at various linguistic levels such as word, syllable, onset-rime, and phoneme (Anthony et al., 2003). Phonological processing, as a function of reading acquisition, develops from holistic to more analytical processing. It means that this processing progresses from coarse-grained to fine-grained level (Anthony & Lonigan,2004 ; Scmitterer and Sascha, 2019). This awareness of the smallest unit of language, emerges at different ages in various languages. One set of researchers proposed that the development of both, phonemic awareness and letter knowledge is needed to understand and utilize the principles of the alphabetic system (Byrne ,1998). On the other hand, the other view is that phonemic awareness is not a precursor

to reading but a consequence of reading development (Castles and Colheart,2004). Goswami(2010) enlists factors that affect the development of PA before reading. Three factors namely, how the syllables are made in different languages, the vocabularies comprising different languages, and individual factors such as perception, affect the development of phonological awareness. Comparing the development of phoneme awareness skills in transparent and opaque orthographic languages, studies have shown that phoneme-based reading strategy is adopted earlier by children in transparent orthography, than by those exposed to opaque language.

A. PA Skill and Reading Acquisition in English

Share (2008) mentioned that the distinction between universal and language-specific aspects of reading development is very important. The categories of the writing systems include the alphabet as in English, the syllabary as Japanese kana, logo syllabary as the Chinese, and alphasyllabary which shows features of both syllabary and alphabetic. According to Goswami(2010),it is clear that although reading is taught, it needs prerequisite cognitive skills that are somewhat similar across languages and phonological activation is that skill.

According to the grain size theory by Ziegler and Goswami(2005), availability is one of the aspects which determines the development of skills at various levels. The internal representation differs based on the language children are exposed to, which means that children exposed to transparent orthography have different phonological representation than those exposed to opaque orthography. It has also been established that even among alphabetic languages, there is a difference in transparency. The cross-language differences in reading acquisition by children of various alphabetic languages can be explained by different lexical, phonological, and structural factors(Ziegler & Goswami, 2005). This difference could be explained based on the difference in syllable structure, and the transparency of the language which is described as consistent phoneme-grapheme mapping. The progression of phonological abilities and their relationship to reading can differ between languages. Studies conducted in alphabetic language unanimously conclude that phonological awareness proceeds from large units to smaller units (Carroll et al., 2003).Based on the findings of various studies (Adams et al., 1998; Gillon, 2007; Goswami, 2000) the age specific development of PA skills have been provided by Moats and Tolman (2009). By the age of 5 years, 80-90% of children are able to count syllables, recognise rhymes and identify odd word in the set of three words (rhyme oddity task).By the age of five and a half years , most of the children have been documented to be able to separate initial phoneme, produce rhymes, match and isolate initial sounds. The deletion tasks like compound words deletion, phoneme deletion are found to be successfully completed by most of the 6 years old children . Segmentation skill at phoneme level for words with more than four phonemes gets acquired only later. The Phonological awareness programs implemented at kindergarten and early primary grades are based on the developmental pattern.

Researchers believed that phonological awareness is a precursor of early reading. But it has been found by Byrne(1998) that, to develop robust phonological skills, early readers of alphabetic languages need to acquire letter knowledge through phonics and phoneme awareness. Since classroom teaching generally does not focus on facilitating the learning of phonemic information, some researchers believe that phoneme awareness is a consequence of than a precursor to reading (Castles & Coltheart, 2004). Based on the meta-analytical review, Odo (2021) suggested,

that educators should provide children learning to read English as a second language, with phonological awareness and phonics instruction for better reading abilities among these children.

From the perspective of orthographic transparency, English can be considered a complex language (Borleffs et al., 2017). Difficulty in reading English is because of the phonological intricacy of syllables and inconsistency in the spelling patterns. Reading acquisition occurs at a comparatively slower rate for readers in deep orthographies that have an inconsistent sound-symbol association compared to shallow orthographies that have regular phoneme-grapheme correspondence (Aro & Wimmer, 2003). Problems with phonological awareness have been identified as a major cause of reading difficulties (Share, 2011). As highlighted by Kilpatrick (2016), students with good phonological awareness develop good reading skill while students with poor phonological awareness almost always struggle in reading".

B. PA Skill and Reading Acquisition in Alphasyllabaries

Alphasyllabaries are as a group of orthographies in which sounds have distinctive features that indicate sub syllabic/alphabetic information and are represented at the syllabic level (Bright, 1996).

In alphasyllabaries, Akshara knowledge is the strongest predictor of reading accuracy. Consistently, syllable awareness has been associated with Akshara knowledge and with reading performance across the primary school years ((Nag, 2007; Nag & Snowling, 2011). However, phoneme awareness is slow to emerge as mentioned by Nag (2007).

It has been put forth that phonemic awareness plays a time-limited role as a predictor of individual differences in consistent orthographies (de Jong & van der Leij, 2003). However, in orthographies like in the English language, phoneme awareness continues to predict reading skills throughout development (Muter et al., 2004). In India, studies have acknowledged the role of phonological awareness in learning to read the alpha syllabic scripts (Iyyer, 2000; Kumar et al., 2009; Nag, 2007; Nag et al., 2010; Shanbal and Prema 2007; Somashekhar et al., 2014) and role of orthography-specific investigations has been highlighted in the Indic alphasyllabaries (Nag, 2007, 2014).

Research findings by Nag and Snowling (2012) suggested that increasing literacy in alphasyllabic languages promote representation at both syllable and phoneme level. In alphasyllabaries, the languages with mixed granularity, syllables are available to children more than phonemes. Hence, syllabic awareness develops first. The initial studies were conducted in Kannada. Prakash et al. (1993) found that all children in Grade 1-III performed very well on rhyme recognition and syllable deletion tasks. On phoneme oddity and phoneme deletion tasks, the students' performance was found to be below par but a slight improvement was noticed across grades. Similarly, Prema (1997) reported that rhyme and syllable level tasks were found to be easier than phoneme level tasks and the performance on PA tasks plateaued after grade 5. These findings are consistent with other studies (Nagaraja & Sampatkumar, 2016; Padakannaya, 2000). A subsequent study by Prema (1998) highlighted that rhyming skills parallel skills to perform syllable deletion in Kannada Speaking children.

For various phonemic levels and syllable levels manipulation subtasks such as deletion and reversal, the performance of subjects has been found to be varying in Kannada by Padakannaya (2000). It was also seen that exposure to literacy was related to the ability to perform phoneme awareness tasks. Nag (2007) conducted a study on children studying in primary school and suggested that though the development of PA is late, it significantly contributes to the reading accuracy of the children. Additionally, the researcher claimed that the influence of orthography leads to the later development of phonemic skills in Kannada. Nag and Snowling (2011) found that phonemic manipulation was the only variable that could significantly differentiate between poor and normal Kannada readers when assessed on different phonological processing skills. This observation supports the findings of Nag (2007). However, Syllabic awareness has been pointed out as an important skill contributing to the development of reading (Nag et al., 2011; Nag & Snowling, 2012) Hence development of this skill is crucial. Nakamura et al. (2018) found that syllable awareness increasingly and independently contributes to Kannada and Telugu decoding through the first five grades.

In the studies in Oriya language, it has been found that phonemic awareness does not play a crucial role in learning to read Oriya and syllable level awareness is more important than phonemic awareness for word reading (Mishra & Stainthorp, 2007; Padakannaya and Mohanty, 1995). The gradual development of PA skills across grades has been found in studies done in alphasyllabaries (Prakesh et al., 1993; Prema, 1997; Shilpashree, 2004). For Hindi speaking children it has been found that for activities like rhyme identification even children of 5-6 years of age did not achieve the maximum score. It is an indication that PA skill development is still happening in the Hindi-speaking children of this age group. Comparing the results of studies on alphasyllabaries in terms of rhyme identification tasks with the studies on English-speaking children, Adams et al. (1998) indicated that in alphasyllabaries, children acquire rhyme level skills later than in English.

In Malayalam, speaking children, Somashekara et al (2014) found that PA skills are crucial at a younger age but the relationship between the reading and PA is true only for the early grade (Grade I) and not later (Grade II & III). A study by Tiwari et al. (2011) supported the findings of research in Kannada Language that in young children syllable awareness skills are easier and these skills are acquired earlier than phonemic awareness skills. Moreover, phonological knowledge was reported to emerge more gradually in Malayalam when compared to English. These findings support the finding in other alphasyllabaries.

In Marathi language, the relation between PA and reading was explored by Aarti and Vanaja (2017). They concluded that there is a relationship between PA and reading in Marathi for children from Senior kindergarten to Grade II. These findings were contrary to the findings of Somashekhar et al. (2014) who studied PA and reading development in young children and found that the relationship between reading and PA is true only till grade I. Again, the difference in the findings could be due to orthographic differences between Malayalam and Marathi.

Share (2008) opined that decoding of orthography like in the language English; oral vocabulary is a very important factor. In Tamil, which is not a very transparent language, unlike other Brahmi-derived scripts, this holds true. A study conducted by Akhila & Kala (2016) indicated that in the order of acquisition, rhyming was the earliest followed by syllable deletion, syllable oddity,

syllable reversal, phoneme oddity, and phoneme deletion. The study also recommended the use of syllabic skills than phoneme skills while teaching children to read Tamil. Varshini et al (2020) evidenced that phonemic awareness skills were mastered in the continuum by typically developing Tamil speaking children. They mentioned that in English, children master phonemic awareness at around 4-5 years but typically developing Tamil speaking children start to master the phoneme skills at the age of 6-7.11 years and these skills are mastered at around 10-11.11 years only. This finding supported the finding of Akhila and Prema (2000). Similarly, in Telugu speaking children, a gradual improvement in PA skills like rhyme judgement and rhyme production has been documented by Vasantha (2004).

C. Educational Implications

Universal and language-specific aspects of PA and reading development are important. In the alphasyllabic languages, syllabic awareness is found to be more important for reading alphasyllabaries than alphabetic languages like English. Based on the research done in English and many alphasyllabaries, the development pattern of the PA and reading skill could be by and large predicted. Collectively, one important finding of studies in alphasyllabaries is that for predicting the word decoding skill both syllable and phoneme awareness are important. This has been shown in various studies (Joshi, 2014; Nag, 2007; Reddy & Koda, 2013). Secondly, syllabic awareness is acquired more rapidly as compared to sub syllabic information (Nag, 2007; Vasanta, 2004, Reddy and Koda, 2013). But, among alphasyllabaries there are differences in the findings of the age specific development of various subskills of PA. The language specific development continuum of PA requires to be understood for the seamless facilitation of the development of these skills. Keeping in view the research done in various alphasyllabaries, designing a common framework for all languages could be ineffective. Especially at the kindergarten level where children are exposed to the mother tongue and also to English, designing the pedagogical processes-based curriculum to facilitate the development of PA skills would result in effective learning. Rhyming is consciously worked upon at upper kindergarten with formal introduction to CVC words. Children need to be exposed to many opportunities to facilitate development of subskills like rhyme generation in poems, rhyme oddity, rhyme discrimination.

Training in mother tongue has been identified as the most effective way to facilitate language in kindergarten children by National Early Childhood Care and Education Curriculum Framework (NECCECF, 2013). All these skills should be primarily done in mother tongue. The dependence on the programs developed in the English language which is an alphabetic language needs to be minimised. For alphasyllabary speaking children, more structured, age specific and also, language specific comprehensive programs for the development of PA skills need to be planned and executed. Early Literacy Project India provides early literacy training program and recommends worksheets for sound recognition. It is noteworthy that PA skills are primarily auditory based skills. Working upon worksheets for the development of PA skills without conducting auditory level activities with children will be futile. Hence clear instructions regarding the conduct of the activities for the development of PA skills for the school-based professionals are very important. Teachers, parents need to be oriented about the various components of these programs for its implementation.

For 2030 Agenda of sustainable development, the Preschool Curriculum by National Council of Educational Research and Training (NCERT), enlists the provision of quality preschool education as one of the goals. The document appreciates pedagogical processes and outlines various skills to be developed in preschool going Indian children. For the realisation of the vision, the in-service explicit intensive training in PA skill development for teachers, special educators and speech language pathologists need to be conducted.

Various factors need to be studied to explain the development of phonological awareness. For a systematic study of the effects of different factors in the development of PA and reading across languages, it is necessary to keep variables in control and study only one variable. As languages are complex in nature and vary in multiple dimensions, the task becomes difficult. It is strongly pointed out that norms established in western countries on English speaking children cannot be adopted for children speaking alphasyllabaries as the PA developmental and the subskills under it, which affect reading acquisition vary. A focussed understanding of the research work done in various alphasyllabic languages will augment the establishment of norms for PA skill development, the development of language-specific test tools, and planning therapeutic intervention for children with phonological disorders and/ or reading difficulties.

2. Conclusion

It has been highlighted that the findings from studies conducted in a single writing system should not be unthinkingly generalised to other writing systems. The differences between the acquisition of subskills under PA skills at various linguistic categories across languages needs to be clearly understood by the curriculum developers and school-based professionals for effective and seamless transition of PA skills across grades. Existing studies on alphasyllabaries suggest that syllabic awareness is more important and relevant than phonemic awareness in reading. The influence of syllable awareness on word decoding is very important, especially during early reading acquisition in many studies. One interesting finding is that phoneme awareness was slow to emerge in readers of alphasyllabaries who had not been exposed to English which supports the idea that exposure to alphabetic language facilitates phoneme level awareness. Moreover, syllable awareness was found to be strongly associated with reading scores throughout primary school. A focussed understanding of the research work done in various alphasyllabic languages will help in the establishment of norms for PA skill development, the development of language-specific test tools, and planning therapeutic intervention for children with phonological disorders and reading difficulties.

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