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Phonological Awareness and Phonics Instruction: Inclusive practice that benefits all kinds of learners.

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Abstract

In this article, the importance of knowledge of Phonological Awareness for teaching children in India is highlighted. There is an impressive array of studies showing that a measure of Phonological Awareness in preschool children is a good predictor of their reading achievement in the early elementary grades. Phonological Awareness provides children with skills to become independent readers as well as good spellers. Phonemic Awareness (PA) is the ability to focus on and manipulate phonemes in spoken words. Phonics instruction is systematic when all of the major letter-sound correspondences are taught and are covered in a clearly defined sequence. Poor Phonological Awareness leads to difficulties with decoding, which is seen as a critical factor in successful literacy development. Structured Literacy, which prepares students to decode words in an explicit and systematic manner, not only helps students with dyslexia, but there is substantial evidence that it is more effective for all readers. As phonological processing deficits are a hallmark of dyslexia, children with dyslexia require direct Phonological Awareness and explicit and systematic phonics instruction to learn to read and spell efficiently. Research shows English as Second Language learners benefit from direct instruction in Phonological Awareness and systematic phonics instruction along with alphabetic knowledge. Studies have also stressed the beneficial role of phonological training on the reading abilities of children who come from low-income families.

Keywords: Phonological Awareness, Phonemic Awareness, Phonics, Inclusive practice

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INTRODUCTION

The ability to read is crucial for children's academic success. The importance of success in reading for lifelong achievement must not be underestimated; how well a child learns to read may determine future opportunities, including not only career possibilities, but also his or her ability to accomplish the basic activities of daily life such as reading a newspaper, obtaining a driver's license or identification card, and paying bills.

Every alphabetic language comprises of symbols that represent the sounds of the language. For students who are learning a second language, this principle must be taught directly. Since there is rarely a direct one-to-one correspondence between letters and sounds, students must be taught these sound-symbol associations explicitly. Phonology, the study of the sound structure of spoken words, is the essential foundation upon which language is built, and is a critical element of Structured Language instruction. (dyslexiaida.org/effective-reading-instruction)

Research evidence has suggested that the main reason for the reading difficulties experienced by many children is a problem with phonological processing. Phonological processing is the use of the sounds of one's language (i.e., phonemes) to process spoken and written language (Wagner and Torgesen, 1987). The broad category of phonological processing includes phonological awareness, phonological working memory, and phonological retrieval. Consequently, the learning of phoneme-grapheme correspondences becomes very difficult. According to the phonological representations hypothesis of dyslexia, (Hatcher and Snowling, 2004), these children have incomplete or inaccurate phonological representations of words in their mental lexicon.

As phonological processing deficits are a hallmark of dyslexia, children with dyslexia need to be taught phonological awareness skills directly in addition to explicit and systematic phonics instruction, to learn to read and spell efficiently. Dyslexia affects 1 in 10 individuals, many of whom remain undiagnosed and receive little or no intervention services. (dyslexiaida.org/dyslexia-test). Structured Literacy (dyslexiaida.org/effective-reading-instruction), which prepares students to decode words in an explicit and systematic manner, not only helps students with dyslexia, but there is substantial evidence that it is also more effective for all readers (dyslexiaida.org/effective-reading-instruction).

Being sensitive to the phonological aspects of spoken language, particularly the internal phonological structure of words (e.g., syllables, onsets and rimes), is referred to as phonological awareness (Scarborough and Brady, 2002). Phonological Awareness includes the ability to segment words into syllables, the ability to produce rhyming words, and phonemic awareness. Phonemic Awareness (PA) is the ability to segment words into their component sounds, which are called phonemes (Liberman, Shankweiler, Fischer, and Carter, 1974). A phoneme is the smallest unit of sound in a given language that can

be recognized as being distinct from other sounds in the language. For example, the word *cap* has three phonemes (/k/, /ă/, /p/), and the word *clasp* has five phonemes (/k/, /l/, /ă/, /s/, /p/). Thus, Phonological Awareness is a comprehensive term that includes PA.

Poor Phonological Awareness leads to difficulties with decoding (the translation of print to sound), which is seen as a critical factor in successful literacy development. According to Cline and Reason (1993), children who experience language difficulties may place greater reliance on decoding skills. The implication is that English as a Second Language (ESL) children who experience language-related difficulties and have difficulties with decoding will suffer considerable disadvantage when learning to read, because they will have limited compensatory strategies to facilitate the word recognition process.

In India, by and large, children attending schools imparting education in English are ESL learners. The language spoken at the playgrounds is the local language. Students attending elite schools also struggle with reading in grade 4 as most of them come from homes where the main spoken language is not English. India is a multilingual country and according to the 2011 Census, English is the first language of only 0.02 percent of the Indian population. Students from low-income families and deprived backgrounds are at a double disadvantage.

In some children, a delay in the acquisition of phonemes might be due to maturational factors; in others, it might be due to hearing difficulties. Impairment in phonology is said to be the main reason a majority of individuals who are hearing-impaired remain poor readers. In addition, a number of studies have shown that even some children with average hearing have difficulty in recognizing discrete sounds in the spoken language and that these children experience difficulties in learning to read (Aaron, Joshi, and Quatroche, 2012).

The few schools in India that impart phonics instruction do so without Phonological Awareness instruction. Moreover, phonics is restricted to the sounds of the letters. No reading methodology is taught, and the commonly followed reading approach is whole word. Even in elite schools, teachers are not trained in direct instruction in teaching reading. Thus, a significant number of students in grade 4 struggle to read.

Teaching, particularly of literacy skills to children, requires a high level of expertise that comes from professional training. Becoming a professional teacher requires that three conditions are met. The professional reading teacher should possess a thorough knowledge of the foundations of literacy acquisition, have mastery over the application of this knowledge in instruction, and be competent in assessing and evaluating children's progress in literacy acquisition. (Aaron, Joshi, and Quatroche, 2012).

One of the most critical components of implementing effective reading instruction is using an approach that is based on scientific evidence, that is, using programmes and approaches that are proven to be successful. Using scientific research to guide educators to teach children to read and write is essential for ensuring the best academic and life opportunities for our children.

Some students have to unlearn mistakes that have been ingrained by incorrect teaching of, for example, vowel correspondences using cognates which are not accurately matched to the English sounds. Thus, it becomes important for all English teachers to receive training in explicit, structured teaching of phonological awareness, particularly the troublesome vowel sounds.

The importance of professional development to enhance teachers' effectiveness in teaching reading was underscored by the chair of the National Reading Panel (NRP), Dr Donald Langenberg, who is a physicist and was chancellor of the University of Maryland when the NRP was preparing its report. During the panel's first meeting, Dr Langenberg was given a publication by the American Federation of Teachers (1999) titled *Teaching Reading Is Rocket Science: What Expert Teachers of Reading Should Know and Be Able to Do*. He was especially interested in the booklet because his business is rocket science. Two years later when he presented the NRP report (NICHD, 2000) to the U.S. Congress, he mentioned this book in his speech complaining that the title was misleading. As a physicist chairing this panel for 2 years, he had come to realise that teaching reading is really much harder than rocket science (Hearing on the Importance of Literacy, 2000).

Adams, Foorman, Lundberg, and Beeler (1998), provide step-by-step instructions for developing children's phonological awareness, beginning with listening games and culminating in word identification. Several studies indicate that sensitivity to onsets and rimes is present in preschool children and develops before awareness for phonemes. Onset refers to the initial consonant(s) in a monosyllabic word, and rime refers to the vowel and the consonants following it. For instance, in the words *strong*, *stripe*, and *straw*, /str/ is the onset and /ong/, /ipe/, and /aw/ are the rimes, respectively. In the words *would*, *could* and *should*, /w/, /c/ and /sh/ are the respective onsets and /ould/ is the rime.

On the basis of Wylie and Durrell's (1970) analysis of books used in primary grades, they reported that nearly 500 primary grade words were derived from a set of only 32 rimes. It follows that rhymes can be used to draw children's attention first to the nature of the sounds of words and later to how they can use rhyming features to help them read and spell these words.

Arranged from simple to complex, the components of phonological awareness would be in the following order: identifying and producing rhyming words, identifying words in sentences, segmenting syllables, segmenting onsets and rimes, manipulating phonemes,

and blending phonemes. These components are most effectively taught in a similar order.

Phonemic Awareness is the ability to focus on and manipulate phonemes in spoken words. Thus, Phonemic Awareness instruction entails teaching beginners to perform one or several of these tasks.

1. Phoneme isolation - recognizing individual sounds in words, for example, the first sound in *paste* (/p/)
2. Phoneme identity - recognizing the common sound in different words, for example, the sound that is the same in *bike*, *boy* and *bell* (/b/)
3. Phoneme categorization - recognizing the word with the odd sound in a sequence of three or four words, for example, the word that does not belong; *bus*, *bun*, *rug* (*rug*)
4. Phoneme blending - listening to a sequence of separately spoken sounds and combining them to form a recognizable word, for example, /s/ /k/ /ŭ/ /l/ (*skull*)
5. Phoneme segmentation - breaking a word into its sounds by tapping...or counting the sounds or by pronouncing and positioning a marker for each sound, for example, the number of phonemes in *ship* (3 phonemes: /sh/ /ī/ /p/)
6. Phoneme deletion - recognizing what word remains when a specified phoneme is removed, for example, *smile* without the /s/ (*mile*)
7. Onset-rime manipulation - isolation, identification, segmentation, blending or deletion of onsets or rimes, for example, *j-ump*, *st-op*, *str-ong*

There is an impressive array of studies showing that a measure of phonological awareness in preschool children is a good predictor of their reading achievement in the early elementary grades. For instance, a study by Scarborough (1998) obtained a correlation of .46 between a phonological awareness measure at kindergarten and later reading performance. (Aaron, Joshi, and Quatroche, 2012). These studies include instruction conducted in English (e.g., Ball and Blachman, 1991; Bradley and Bryant, 1985) as well as in European languages (e.g., Lie, 1991; Lundberg et al., 1998) A review of 24 studies by Snow et al. (1998) showed that phonemic awareness and phonological awareness scores obtained in kindergarten and reading scores obtained in first grade have a correlation of 0.42, making these awareness tasks moderate predictors of later reading skill.

Furthermore, research studies have shown that when children's sensitivity to phonemes is increased by training in phonemic awareness, their reading skill also improves (Ball and Balchman, 1991; Bradley and Bryant, 1985; Foorman, Francis, Fletcher, Schatschneider, and Mehta, 1998; Torgesen, Wagner, and Rashotte, 1997). These results are generally understood to imply a cause-and-effect relationship between phonemic awareness and reading; that is, an awareness of phonemes has a positive effect on reading skill.

Phonics instruction helps ESL kindergartners learn to read more effectively than a whole language approach (Stuart, 1999). Phonics is a method of instruction that teaches students correspondences between letters in written language and phonemes in spoken language as well as how to use these letter-sound correspondences to read and spell words. Phonics instruction is systematic when all of the major letter-sound correspondences are taught and are covered in a clearly defined sequence. This includes short and long vowels as well as vowel consonant digraphs consisting of two letters representing one phoneme, such as oi, ea, sh and th. In addition, phonics instruction may include blends of letter sounds that represent larger subunits in words such as consonant pairs (e.g., st, bl), onsets and rimes.

Several different approaches have been used to teach phonics systematically (Aukerman, 1971, 1984; Harris and Hodges, 1995). These include synthetic phonics, analytic phonics, phonics through spelling, embedded phonics and analogy phonics. Synthetic phonics programmes use a part-to-whole approach that teaches children to convert graphemes into phonemes (e.g., to pronounce each letter in stop, /s/ /t/ /õ/ /p/, and then to blend the phonemes into a recognizable word). Analytic phonics uses a whole-to-part approach where children are taught to analyse letter-sound relations once the word is identified. For example, the teacher might write the letter p followed by several words: put, pig, play and pet. S/he would help students to read the words and to recognize that they all begin with the same sound that is associated with p. Phonics-through-spelling programmes teach children to segment and write the phonemes in words. Embedded phonics teaches children to use letter-sound correspondences along with context cues to identify unfamiliar words they encounter in text. Analogy phonics teaches children to use parts of written words they already know to identify new words. For example, children are taught a set of key words that are posted on the wall (e.g., tent, make, pig) and then are taught to use these words to decode unfamiliar words by pronouncing the shared rime and blending it with new onset (e.g., rent, bake, jig). Some systematic phonics programmes are hybrids that include components of two or more of these approaches.

Instruction in Phonemic Awareness and systematic phonics is thought to be essential for learning to read in English and many other alphabetic languages. Letters and combinations of letters (graphemes) in the spellings of words represent the smallest units of sound (phonemes) in the pronunciation of words. Phonemic Awareness instruction teaches beginners to analyse and manipulate phonemes in speech, for example, how to

break the spoken word 'teach' into three phonemes /t/ /ee/ /ch/, or how to blend these phonemes to say the whole word.

Systematic phonics instruction teaches beginners letter-sound (grapheme-phoneme) correspondences and how to use these to decode and spell words. Because the writing system in English is more complex and variable than the writing systems in some other languages, it is harder to learn. This makes alphabetic instruction even more important to teach because children may have difficulty figuring out the system on their own.

Researchers have found that phonemic awareness and letter knowledge are the two best school-entry predictors of how well children will learn to read during the first 2 years of instruction (Share, Jorm, Maclean, and Matthews, 1984).

People used to think that readers learned to read sight words by memorizing their visual shapes. However, research has led to a rejection of this idea. Now researchers know that sight word learning depends upon the application of letter-sound correspondences. These provide the glue that holds the words in memory for quick reading (Ehri, 1992). Becoming a skilled reader of sight words requires knowledge of phonemic segmentation, letter-sound correspondences, and spelling patterns to bond the complete spellings by specific words to their pronunciations and meanings in memory (Ehri, 1980, 1992, 1998; Perfetti, 1992; Rack, Hulme, Snowling, and Wightman, 1994; Reitsma, 1983; Share, 1999). For example, readers learn 'brush' by forming connections between the graphemes b-r-u-sh and corresponding phonemes in the word's pronunciation, along with the word's meaning. A skilled reader is able to read familiar words accurately and quickly because all of the letters have been secured in memory. In contrast, a weak reader reads words less accurately and more slowly, and may even misread similarly spelled words such as short, shirt and sheet because only some of the letters are connected to phonemes in memory. Words remain poorly connected when readers habitually guess words from partial letters and contextual cues without analyzing how all of the letters in spellings match up to phonemes in pronunciations (Ehri and Saltmarsh, 1995; Stanovich, 1980).

In Jeanne Chall's (1967) comprehensive review of beginning reading instruction, which covers studies up to the mid-1960s, the basic finding was that early and systematic instruction in phonics led to better achievement in reading than later and less systematic phonics instruction. This conclusion has been reaffirmed in many research reviews conducted since then (e.g., Adams, 1990; Anderson, Hiebert, Wilkinson, and Scott, 1985).

Findings of the National Reading Panel meta-analysis of 38 studies by Ehri and colleagues, (2001), support the conclusion that systematic phonics instruction helps children to read more effectively than non-systematic phonics or no phonics instruction. The impact of phonics instruction on reading was significantly greater in the early grades (kindergarten and first grades) than in the later grades (second through sixth grades).

More direct evidence of the benefits of phonological awareness instruction comes from experimental studies that assessed the impact of such training on word reading. Some of the earliest studies come from Europe. Three research reports (Bradley and Bryant, 1985; Lundberg et al. 1988) indicated that developing children's phonological awareness by using different techniques has a positive impact on word recognition skills. Bradley and Bryant, 1985, provided phonological awareness instruction to British 4- and 5- year-olds through word sorting, rhyming and alliteration activities. Children with the greatest gains in word recognition had been given opportunities to manipulate plastic letters of the alphabet along with the phonemic awareness instruction. The gains in reading-related skills lasted long after the training was over. Lundberg and his associates, (1988), provided phonological awareness instruction to 235 Danish preschoolers through the use of games and songs. They found that the training had a positive impact on children's word recognition skills. Ball and Blachman (1991) and Blachman et al. (2000) also reported that phonemic awareness instruction for kindergarten children from low-income families increased their letter-sound knowledge, their ability to read simple words, and their production of invented spelling.

The beneficial role of phonological training on the reading abilities of children who come from low-income families has been stressed previously (Morais et al., 1998; Morais, 1991). Such pupils are at risk of reading failure especially if they are taught with a whole-language approach (Nicholson 1997). It could be argued, according to Eleni Morfidi and Rea Reason, that children who come from a minority group and speak a different language at home may not have experienced linguistic games prior to school. They may come to school with different affective and cognitive characteristics. ESL children with different linguistic backgrounds receive the same classroom instruction as children who come from English-speaking families. Adult-child interaction in school and educational treatment factors may provide some help, but it may not be sufficient to bring these ESL children to the same level of competence as native English speakers in their early school years. They may be able to catch up later or may still lag behind their peers at later grades.

Hammill's review of studies (2004) reached the conclusion that the greatest impact on children's reading achievement is seen when phonemic awareness training is combined with letter-sound knowledge. Other researchers have also noted that children develop an awareness of phonemes only when they have knowledge of letter identity. In a recent study, Foorman and her associates (2003) conducted a study of more than 4000 kindergarten children and concluded that children who receive instruction in blending and segmenting phonemes, and then explicit instruction in systematically connecting phonemes to graphemes through phonics instruction show the best reading and spelling outcomes in first grade. This is not an unreasonable conclusion, because adding written letters to phonological awareness instruction makes the instruction multisensory in nature and the task more concrete than limiting such training to learning speech sounds. Furthermore, many children enter kindergarten with some knowledge of the alphabet,

and such background knowledge can be profitably utilized in phonological awareness instruction.

According to Adams (1990), the key to phonemic awareness seems to lie more in training than in age or maturation, and the activities that seem to lead most strongly to the development of phonemic awareness are those involved in learning how to read and spell. Alphabetic instruction enables students to write words. As students acquire phonemic segmentation skill, knowledge of grapheme-phoneme correspondences, and familiarity with common spelling patterns, and as they practice reading and writing words, they become better able to remember correct spellings (Griffith, 1991).

Letter-sound instruction also improves spelling performance (Arra and Aaron, 2001; Foorman, Francis, Novy, and Liberman, 1991). In the Arra and Aaron study, 46 children from grade 2 were instructed in spelling by drawing their attention to the phonological basis of their spelling errors (psycholinguistic group). A comparison group of 47 children were shown the correct spelling of their misspelled words without any accompanying instruction (visual group). Posttests showed that children taught through a psycholinguistic and phonemic awareness approach outperformed the visual feedback group in spelling.

The benefits of phonological awareness instruction were replicated multiple times across experiments and thus, provide solid support for the claim that phonological awareness instruction is more effective than alternative forms of instruction or no instruction in teaching phonological awareness, and in helping students learn to read and spell. Effects of phonological awareness instruction were greater under some circumstances than under others. These findings, the meta-analysis of 52 studies by the National Reading Panel (Ehri et al. 2001), support the value of teaching phonological awareness to students. Overall, the findings showed that teaching children to manipulate phonemes in words was highly effective under a variety of teaching conditions with a variety of learners across a range of grade and age levels and that teaching phonemic awareness to children significantly improves their reading more than instruction that lacks any attention to Phonemic Awareness. Specifically, the results of the experimental studies led the Panel to conclude that Phonemic Awareness training was the cause of improvement in students' phonemic awareness, reading and spelling following training. The findings were replicated repeatedly across multiple experiments and thus, provide converging evidence for causal claims. Importantly, the effects of Phonemic Awareness instruction on reading lasted well beyond the end of training. Children of varying abilities improved their Phonemic Awareness and their reading skills as a function of Phonemic Awareness training.

It is essential for students to be able to apply their alphabetic and word reading skills to the reading of stories. Systematic phonics programmes typically provide special texts for this purpose. The texts are written so that most words contain the letter-sound correspondences that children have been taught up to that point. For example, in a text

at the easiest level, a large number of words might contain the short /ă/ vowel. At a higher level, all of the short vowels might appear in different words. At an even higher level, several long and short vowels would be present. Additionally, the easiest texts have very limited language and ideas to comprehend, for example, "The cat sat on the mat." As children's word reading skills grow, however, the texts become richer conceptually and more interesting. These are some ingredients of good phonics instruction. There are also practices that are thought to be less effective. One is the extensive reliance on worksheets to teach phonics. This should not be the primary way that phonics is taught. Teachers need to actively teach students, to explain and model the use of alphabetic principles, and to provide practice with feedback.

Another approach that is less effective is to teach phonics as a separate subject unrelated to anything else students are taught during the day. For example, children might study letter-sound correspondences for 20 minutes every morning, and then move to reading and writing instruction that bears no connection to the phonics lessons. Research shows that students will not apply their alphabetic knowledge if they do not use it to read and write (Juel and Roper/Schneider, 1985). The best phonics programme is one that is deliberately integrated with reading and writing instruction.

Systematic phonics programmes might exhibit the very best instructional features. However, if they are not carried out by a knowledgeable teacher, their likelihood of success is diminished. Teachers must understand how to implement a phonics programme effectively and how to plan lessons, and must make sure they are carried out. Teachers must hold expectations about the effects of their instruction on students. They must understand what students should know and be able to do better as a result of their teaching. To verify that their instruction is working, teachers need to use informal testing to monitor students' progress toward the expected accomplishments. Teachers need to understand how to enrich instruction for students who have difficulties comprehending their teachings, and how to scaffold lessons to eliminate their problems. The job of teaching reading effectively to classrooms of students requires a high degree of professional competence indeed.

In this review we have covered the literature on phonology from the early days of Ehri, through to more recent instantiations. So, the question remains, what is the current status of phonology in 2021? Recent research from Snowling and colleagues (Snowling et al, 2019) has confirmed that phonology remains a key underlying problem for children at risk for dyslexia, and therefore one that we continue to emphasise.

To conclude, the goal of making every child a reader is not easy. Educators and policy makers must recognize the place of phonological awareness and phonics instruction along with alphabetic knowledge in a beginning reading programme.

SUMMARY

There is an impressive array of studies showing that a measure of phonological awareness in preschool children is a good predictor of their reading achievement in the early elementary grades. Studies also indicate that systematic phonics instruction helps children to read more effectively than non-systematic phonics or no phonics instruction. Phonological Awareness, beginning with rhyming activities and culminating in word identification, provides children with skills to not only become independent readers, but also good spellers. In India, by and large, students attending schools imparting education in English are ESL learners. Research shows ESL learners benefit from direct instruction in phonological awareness and systematic phonics instruction along with instruction in alphabetic knowledge. Studies have also stressed the beneficial role of phonological training on the reading abilities of children who come from low-income families. As phonological processing deficits are a hallmark of dyslexia, children with dyslexia need to be taught phonological awareness skills directly in addition to explicit and systematic phonics instruction, to learn to read and spell efficiently. Thus, all kinds of learners benefit from direct instruction in phonological awareness and systematic phonics instruction along with alphabetic knowledge taught in a multisensory way.

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