Learning to Read in Multilingual Malaysia: A Focus on Bahasa Melayu, Tamil and Chinese

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ABSTRACT

Learning to read fluently is an extremely important skill for all children to acquire. The current article focuses on learning to read in the most widely spoken languages of Malaysia, namely, the national language Bahasa Melayu, Tamil and Chinese. These three unrelated languages have quite distinct writing systems. Bahasa Melayu uses alphabetic Rumi or Roman script, Tamil has an alphasyllabary, and Chinese has a logographic or morphosyllabic writing system. Moreover, many of these children are learning to speak and read in more than one language. When we consider the task of these biscriptal learners, a complex picture emerges, as they may have to learn to map different phonological and orthographic systems. Furthermore, many children in Malaysia have the additional challenge of learning English as a second language. First, a brief review of the characteristics of the three main languages and their orthographies is given. Subsequently, research on phonological awareness, an important skill associated with success in reading, is reviewed. Initially, phonological awareness and reading in single language studies is examined prior to reviewing some research on bilingual learners. As these three languages have rich morphological systems, we will also briefly examine some research on morphological awareness and reading. A review of the literature reveals that children who speak a language with a similar orthography to a second language may have some advantage when learning to read that second language in comparison to children whose first and second languages and orthographies are unrelated.

Keywords: Bahasa Melayu; Chinese; Learning to read; Malaysia; Tamil

INTRODUCTION

Learning to read fluently is an essential skill for all children to acquire, and children who fail to learn this skill suffer the long-term consequences and disadvantage of this impairment. An important consideration is that many children are growing up in diverse bilingual or multilingual contexts such as Malaysia, and learning to speak and read in more than one language. This creates particular challenges for children growing up in such multilingual contexts where they are learning languages and scripts that can be quite unrelated and distinctive in their characteristics. This article will first examine what the ultimate goal of reading is and how it is achieved across different orthographies. We will then focus on the characteristics of the three main languages of Malaysia, namely Bahasa Melayu, Tamil and Chinese, prior to examining research on phonological awareness and reading in unilingual and bilingual or multilingual contexts. As these languages have rich morphological systems, we will also briefly examine some research on morphological awareness and reading. Finally, we will look at the implications of this research in relation to the multilingual Malaysian context.

The ultimate purpose of reading is constructing meaning from written texts based on visually encoded information (Perfetti & Dunlap, 2008). It is more than a simple matter of decoding and recognizing or understanding individual words. Initially, the child has to "crack the code" of how their particular language maps onto its orthography but then go beyond that initial stage and process other linguistic elements such as words, morphemes and sentence

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structures in conjunction with their world knowledge to construct a coherent representation of the text (Snowling & Hulme, 2011). It is a highly complex process, and thus, takes time to develop these high-level skills.

The initial fundamental process in learning to read in any language involves a process of matching the visual symbols or graphemes on the page to the sound system or phonology of the spoken language. Typically, the phonology of a language and the orthography that the language maps onto favour different sized segmentation units or grain sizes (Ziegler & Goswami, 2005). Grain size refers to the lexical units that are converted into phonological structures when reading different orthographies; hence, the size of the mapping unit can be for instance the phoneme, syllable or whole word (Frost, 2006). When learning to read, the child's task is to find shared or common segmentation or grain size units that allow a consistent or reliable mapping between the orthography and phonology of the language (Ziegler & Goswami, 2005). In a relatively transparent alphabetic orthography such as German, children are able to access and map the smallest grain size of graphemes onto phonemes within their first year of learning to read. In contrast, in English, a relatively irregular or non-transparent orthography, children can take several years to gain a similar level of competence (Goswami, 2000, 2003).

Different writing systems pose distinct challenges to the young reader. Daniels and Share (2018) describe a new multiple dimensions of complexity framework that accounts for other writing systems besides the more traditionally studied European orthographies. This framework includes characteristics such as spatial arrangement and nonlinearity, historical change, spelling constancy, omission of phonological elements, allography, dual purpose letters, ligaturing, visual complexity and inventory size. Visual complexity of the particular script contributes to the difficulty in learning to read (Chang, Plaut & Perfetti, 2016). This includes the size of the grapheme inventory and the relative complexity and similarity of the graphemes in the script.

Learning to read in the most widely spoken languages of Malaysia, the national language Bahasa Melayu, Tamil and Chinese, offer quite distinctive challenges to the young learner. These three orthographies utilise different grain or segment sizes of graphemes to sound units. Bahasa Melayu uses alphabetic Rumi or Roman script, Tamil has an alphasyllabary, and Chinese has a logographic or morphosyllabic writing system. In addition, many children in Malaysia have the additional challenge of learning English with its notoriously irregular grapheme-phoneme correspondences. First, a brief review of the characteristics of these three different languages and their orthographies is given.

BAHASA MELAYU

Bahasa Melayu is a multi-syllabic language, and the syllable is a highly salient unit in the spoken language, which has clear syllable boundaries. Subject-verb-object (SVO) is the prominent word order similar in this respect to English. In contrast to English, in place of inflectional morphology, Malaysian similar to other Southeast Asian languages, typically utilises separate words or lexemes.

Bahasa Melayu uses the same Latin-based alphabetic script as English, but in contrast has a high degree of orthographic transparency. It has a highly transparent writing system with almost one-to-one correspondence between phonemes and graphemes. The exception is the letter 'e', which has two phonemic forms /ə/ as in 'emak' (mother) and /e/ as in 'ekor' (tail). (For a more detailed review refer to Rickard Liow, 2014 and Winskel & Lee, 2014). One particular feature of written Bahasa Melayu is that it has a rich transparent system of morphemes or affixations (Nik Safiah, Farid, Hashim, & Abdul Hamid, 2004). There are irregularities, however, in how some affixes are spelt as they change depending on the context. An additional consideration is that every day colloquial language uses fairly simple

morphemes, but in an educational context, children have to learn to read and write rather long multisyllabic words.

TAMIL

Tamil is a South Dravidian language with an ancient literary tradition (Sarma, 2014). It is a morphologically rich language and employs agglutinative grammar, where suffixes are used to mark noun class, number, and case, verb tense and other grammatical categories. Word order in Tamil is also flexible although it favours subject–object–verb (SOV) order.

Tamil orthography has been classified as an alphasyllabary (Nag & Narayanan, 2019). It is considered to be neither alphabetic nor syllabic (Share & Daniels, 2016). Furthermore, it has been described as "a syllable writing system with identifiable phonetic elements" (Joshi & McBride-Chang, 2019 p.4). Tamil is considered to be a fairly transparent orthography. Similar to other Indic Brahmi-derived scripts, it has akshara (Bright, 2000). Akshara are units of speech and in writing consist of a vowel or consonant, or a consonant-vowel combination (See Nag & Narayanan, 2019 for a detailed description). It is considered to be relatively transparent although it does have irregularities. It has a relatively modest symbol set of 400 to 700 in comparison to other Indic alphasyllabaries, which is larger than alphabetic Bahasa Melayu but much less than Chinese. It also has a fairly linear or sequential arrangement of graphemes in comparison to other Indic scripts.

CHINESE

Grammatically, Chinese shares some similarities with Malaysian in that they are both analytic or isolating languages, and thus, lack inflectional morphology (i.e., do not have agreement, case, gender/number/definiteness on noun phrases, tense-marking on verbs). Similar to Bahasa Melayu, in place of inflectional morphology, Chinese typically utilises separate words or lexemes. Moreover, Chinese has numeral classifiers similar in this respect to Bahasa Melayu (Salehuddin, 2014; Salehhuddin & Winskel, 2009). Chinese is also a tonal language. Chinese has been traditionally considered to be monosyllabic but most modern words are disyllabic.

In contrast to Bahasa Melayu or English, Chinese maps characters to language at the morpheme and syllable level, rather than the phoneme level. Each Chinese character represents a morpheme as well as a syllable (Ho & Bryant, 1997; Wang, Perfetti, & Liu, 2003). There are a large number of visually distinct and complicated Chinese characters to learn. This is highlighted by noting that each character can consist of one to 36 overlapping 'strokes'. There are about 3,000 and 4,600 frequently used Chinese characters that need to be learned by skilled readers (Yu & Reichle, 2017). Another notable feature of Chinese is that words are not demarcated by clear word boundaries.

THE IMPORTANCE OF PHONOLOGICAL AWARENESS SKILLS AND READING

Phonological awareness is one of the critical skills in the acquisition of reading in alphabetic orthographies (Adams, 1990; Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1993; Stanovich, Cunningham, & Cramer, 1984; Tunmer & Nesdale, 1985; Wagner, Torgesen, & Rashotte 1994). It can be defined as awareness that spoken words can be broken down or manipulated into smaller units of sound. It has also been found that children who are having difficulties in learning to read and write often have difficulties in phonological awareness tasks (Hansen & Bowey, 1994; Snowling, Goulandris, Bowlby, & Howell, 1986). Importantly, training children with phonological awareness skills has been found to facilitate reading acquisition (Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1995; Byrne, Fielding-Barnsley, & Ashley, 2000; Hatcher, Hulme, & Snowling 2004; Hindson et al., 2005).

Phonological awareness skills are generally trained and assessed through children performing mental manipulations on speech, for example by clapping out the number of syllables in a word, deleting the initial sound of a word or detecting similarities between words etc. (McBride-Chang, 1995).

Previous research has predominantly focused on phonological awareness in children learning to read a single language, despite the fact that many children these days are growing up in bilingual or multilingual environments. Cross-linguistic research indicates that the level of phonological awareness initially used in reading and spelling is shaped by the orthography to be learned and the phonology of the spoken language corresponding to that orthography (Goswami, 1999). When we consider the task of the bilingual or multilingual child learning to speak and read in more than one language, a complex picture emerges, as they may have to learn to map different phonological and orthographic systems, often concurrently. A considerable amount of research has been conducted on literacy development in European languages, but much less research has been conducted on Asian languages.

SOME RESEARCH ON ASIAN LANGUAGES AND PHONOLOGICAL AWARENESS AND READING

The oral characteristics of the child's language affects early phonological awareness development (Gottardo, Pasquarella, Chen, & Ramirez, 2015). A strong association between phoneme awareness and reading and spelling ability has been found in speakers of European alphabetic orthographies (Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1993; Goswami & Bryant, 1990; Hulme et al., 2002; MacLean, Bryant, & Bradley, 1987; Wimmer & Goswami, 1994). In contrast, research on Asian languages has highlighted the syllable as an additional important processing unit when reading alphasyllabaries, which have properties of both alphabetic and syllabic scripts. For example, research investigating children acquiring Kannada, a semi-syllabic Indo-Dravidian script, indicates that the optimal unit for beginners is the syllable, although more proficient readers and spellers can also manipulate phonemes (Padakannaya, Rekka, Vaid, & Joshi, 2002). Vaid and Gupta (2002) also interpreted their results on Devanagari, an alphasyllabic orthography, widely used to represent Indian languages, as supporting a partly syllabic and partly phonemic level of segmentation. (Also see a more recent study conducted by Rao, Vaid & Chen, 2017 that compared Hindi and Kannada-Hindi bilinguals). Tamil has also been shown to represent information at both the phoneme and syllable levels (Bhuvaneshwari & Padakannaya, 2014).

A study on spelling development in Malaysian children investigated whether there was evidence of phoneme–grapheme encoding and/or whether they relied on the more salient speech units, that is, syllables and morphemes (Rickard Liow & Lee, 2004). Rickard Liow and Lee (2004) examined the errors made by 97 children, aged six- to eight-years old, spelling stem and multisyllabic affixed words. Errors were analysed in terms of whether they preserved the syllable or not. They concluded that even though the language is very predictable at the phoneme–grapheme level, early spelling tends to be based on encoding at the syllable and morpheme levels rather than the phoneme level. They suggested that as syllables are such salient units and receive equal stress, children can pick up sizable reading–spelling units without accessing phoneme-grapheme correspondences.

In a study on Bahasa Indonesia, a language closely related to Bahasa Melayu, Winskel and Widjaja (2007) also focused on the grain size predominantly used by children when learning to read and spell. A range of tasks assessing different levels of phonological awareness as well as letter knowledge, reading familiar words and nonwords, and spelling stem and affixed words, were administered to 73 children in Grade 1 and subsequently one year later in Grade 2. The results, in general, indicated that the phoneme was the prominent unit in the early acquisition of reading and spelling in Indonesian, as it was found to be a concurrent predictor

of reading for both word and nonword reading for Grade 1 and Grade 2 children. Furthermore, an analysis of word and nonword reading errors revealed that errors were predominantly nonword or phonological errors, which supports this level of processing. However, when the task was to spell multisyllabic affixed words, an awareness of both phonemes and syllables appeared to be advantageous and facilitated this process. In sum, these results indicated that the phoneme was the prominent phonological unit in the early acquisition of reading and spelling in Indonesian, but the syllable also played a significant role, particularly when reading long multisyllabic affixed words. In contrast to the Malaysian study (Rickard Liow & Lee, 2004), the phoneme was highlighted as the more prominent unit than the syllable in the Indonesian study. One feasible explanation for this difference is that in Bahasa Indonesia, there is a direct correspondence between the names of letters and the sounds they make, whereas in Bahasa Melayu the names of the letters are similar to those of the English alphabet, and hence, do not directly correspond.

Lee and Wheldall (2011) further investigated word reading, letter knowledge and phonological awareness in 46 Grade 1 Malaysian children. Eleven of these children were identified as low-progress readers. Results revealed that the syllable was the most influential predictor but the phoneme also played a significant role in word reading. Children's reading performance on words with different syllable structures was also examined. Words with a simple open CV syllable structure were found to be easier to decode than words with digraphs, diphthongs, or the vowel *e*. As the complexity of syllabic structure increased, there was a corresponding decline in performance. The position of phonemes in a word was also found to affect word recognition performance. Words with a digraph at the end (e.g., bata**ng**) were easier to decode than words with a digraph at the beginning (e.g., **sy**arikat). Moreover, words with two vowel graphemes belonging to different syllables appearing together in the middle of a word (e.g., soal) or at the end of a word (e.g., tua) proved problematic to beginner readers, due to confusion over the location of the syllable boundary. In addition, it was found that shorter stem words were easier to read than longer multisyllabic words with derivational affixes.

There is a growing wealth of research being currently conducted on the main languages and writing systems of Malaysia. Extensive research has been conducted on Chinese but also research on learning to read the Malay language and Tamil is rapidly growing and contributing to our understanding of learning to read in these languages. For example, Lee and Al Otaiba (2017) have examined spelling development in kindergarten children and Lee, Low and Lee (2019) have investigated phoneme-grapheme connections in Malay word building. In addition, some very interesting and relevant research on Indian writing systems is included in the recent publication by Joshi and McBride-Chang (2019).

In sum, the characteristics of the child's spoken language affects early phonological awareness development (Gottardo et al., 2015). In Chinese, it appears to be the syllable that is the salient unit whereas in Malay and Tamil scripts, both the phoneme and syllable feature.

PHONOLOGICAL AWARENESS AND READING IN BILINGUALS AND MULTILINGUALS

Research on reading acquisition across diverse languages indicates that the different grain sizes favoured by different orthographies are shaped by both the phonological characteristics of the spoken language and the particular orthography it maps onto (e.g., Borzone de Manrique & Signorini, 1994; Caravolas & Bruck, 1993; Cheung et al., 2001; Cossu et al., 1988; Harris & Hatano, 1999; Wimmer & Goswami, 1990). This means that children learning to read two or more languages, may have to switch mapping strategy dependent on the particular language and orthography they are learning to read. Moreover, reading strategies and behaviours from the first language may transfer to the second language and so facilitate reading.

Before we look at the research on reading acquisition in bilinguals, it is important to distinguish between sequential and simultaneous bilingualism. Simultaneous childhood bilingualism refers to a child acquiring two languages at the same time from birth, for example when the parents speak two different languages (Baker, 2006). In contrast, sequential bilingualism occurs when for example a child learns one language at home then goes to school where a different language is learnt. For example, their home language could be Tamil or Chinese but when they go to school, they learn Bahasa Melayu and/or English. Children often have the additional challenge of learning to read a language they are not very familiar with or fluent in, which creates additional challenges for the learner.

The research on reading in bilinguals has predominantly focused on sequential rather than simultaneous bilinguals. In addition, a prominent focus of this research has been on learning English as a second language. One of the first studies to investigate reading in bilingual children was conducted on Spanish-speaking children learning English as a second language in the USA (Durgunoğlu, Nagy, & Hancin-Bhatt, 1993). They found that phonological awareness and reading ability in Spanish, the first language (L1), predicted reading performance in English, the second language (L2).

The relative transparency or regularity of the languages being learned appears to have an effect on processing and phonological skills in bilingual children. A study comparing Spanish-English bilinguals with Cantonese-English bilinguals found that the Spanish-English bilinguals outperformed both Cantonese-English bilinguals and English monolinguals on a phoneme segmentation counting task (Bialystok, Majumder, & Martin, 2003). The Chinese–English bilinguals had the most difficulty with this task. This was attributed to either the greater relative transparency or regularity of Spanish orthography and/or that the Spanish-English bilinguals were learning two languages that had similar phonological structure and alphabetic orthographic system whereas the Chinese-English bilinguals were learning two languages that were phonologically and orthographically distinct.

The influence of the characteristics of the first language on processing strategies used when reading a second language, English, has also been investigated in children in Singapore with either Mandarin Chinese or Bahasa Indonesia (closely related to Bahasa Melayu) as their first language (Rickard Liow & Poon, 1998). In the children with Mandarin Chinese as their first language. Rickard Liow and Poon (1998) found that they showed greater reliance on visual orthographic processes than children with Bahasa Indonesia as their first language. In contrast, the children with Bahasa Indonesia as their first language displayed well developed alphabetic phonological awareness skills when reading English as their second language.

Differences in phonological awareness skills were also found in the languages spoken by Punjabi-English bilingual speaking children living in the U.K. Stuart-Smith and Martin (1999) assessed a range of phonological awareness and reading skills in both languages spoken by Punjabi-English children. Punjabi is written using Gurmukhi orthography, which is an alphasyllabary and has inherent vowels for all consonants. They found different phonological awareness skills were emphasized in the two different languages. In English, there was an advantage of alliteration, rhyme judgment and phoneme segmentation; whereas in Punjabi there was an advantage for onset and coda isolation and phoneme blending (the child was required to identify a word when it is pronounced with each sound segment, e.g. r-a-t makes the word ‘rat’).

In another study, phonological awareness skills were assessed in both languages spoken by Greek-English and English-Greek bilinguals (Loizou & Stuart, 2003). Both English and Greek have alphabetic orthographies. The bilinguals were compared to both monolingual Greek and monolingual English children. The bilingual English-Greek children were born in England with Greek parents and the dominant language was English, whereas the Greek-English bilinguals were born in Greece and attended a pre-school where they were exposed to

both Greek and English, but the dominant language was Greek. They found that English-Greek bilingual children outperformed monolingual English children but this was not replicated in the Greek-English bilingual children. They explained this "selective bilingual enhancement effect" in terms of children learning a second language, Greek, that is phonologically simpler than the first language, English. In addition, they found that English-Greek bilingual children performed significantly better than Greek-English bilinguals, in particular on phoneme awareness tasks, which suggests that phonological complexity of the bilingual child's languages impacts on cross-language transfer. This may have direct applications to children who learn to read transparent or regular Bahasa Melayu as their first language and then learn to read irregular English as the second orthography. Another consideration is that as phonological awareness is a precursor to reading, children who learn to read in a second language that has a similar phonological structure and orthographic system to their first language may have some advantage in comparison to children who are learning to read in languages that are phonologically and orthographically different.

Additional studies have examined cross-language transfer when the scripts being learnt are quite different or unrelated and favour different grain sizes, for example the first language is either logographic or alphasyllabic and the second language is alphabetic (e.g. Chiappe & Siegel, 1999; Gottardo et al., 2001; Nag, 2007; Stuart-Smith & Martin, 1997; Wang & Geva, 2003). Gottardo et al. (2001) found that in a logographic orthography, Cantonese (L1), rhyme detection made a unique contribution to reading in the alphabetic second orthography, English.

In a more recent study, Pasquarella, Chen, Gottardo and Geva (2014) examined cross-language transfer of word reading accuracy and word reading fluency in 51 Spanish–English and 64 Chinese–English bilinguals. Both groups of children completed parallel measures of phonological awareness, rapid automatized naming, word reading accuracy, and word reading fluency in their first language (L1) and in English, their second language (L2), in Grade 1 and then subsequently in Grade 2. Cross-language transfer of word reading accuracy was found only in the Spanish–English bilinguals. In contrast, cross-language transfer of word reading fluency was found in both the Spanish–English bilinguals and the Chinese–English bilinguals. These results suggest that transfer of word reading accuracy, in particular, is dependent on the structural similarities between the L1 and L2 scripts.

Another study with an interesting design investigated transference between Oriya, a language spoken in India that has an alphasyllabic script, and English with its alphabetic script (Mishra & Stainthorp, 2007). Mishra and Stainthorp (2007) assessed various levels of phonological awareness, word and pseudoword reading in both languages of 99 Grade 5 children. Approximately half of the children attended schools where they were first taught to read in Oriya in Grade 1 and then English in Grade 2. The other half of the children attended schools where they were taught first to read English in Grade 1 and then Oriya in Grade 2. They found a complex non-symmetrical cross-language facilitation effect between phonological awareness measures and reading dependent on the characteristics of the different orthographies of the languages being learned, and whether the first language was also the first literacy language. They found that in the children with Oriya as the first literacy language learnt, the syllable was a predictor of reading and pseudoword reading in Oriya, and the phoneme was not a significant predictor, even though the script represents language at both phoneme and syllable levels. However, when English was the first literacy language, awareness of phonemes contributed significantly to word and pseudoword reading in Oriya whereas the syllable did not. Furthermore, awareness of phonemes in English contributed to English word reading regardless of whether it was the first or second literacy language. In sum, this research shows that transference of phonological awareness skills across languages is affected both by the grain size used when reading the different orthographies and which orthography is learnt first.

In a recent, large Singaporean study, O'Brien, Mohamed, Yussof and Ng (2019) examined syllable, rime, phoneme level awareness and early reading skills in 612 simultaneous bilingual children consisting of 311 Mandarin–English bilinguals, 147 Malaysian–English bilinguals and 163 Tamil–English bilinguals. All children were enrolled in kindergartens where English was the medium of instruction. The various phonological awareness assessments were administered in English only. Over a 2-year period, they found different phonological awareness patterns emerged in the different language groups. Interestingly, they found that the Tamil-English children showed higher performance at the phoneme level at the earliest time point in comparison to the Malaysian-English and Chinese-English children. In the children with Chinese and Malaysian as their first language, they found that the syllable was a relatively more accessible phonological unit. Thus, they found an influence from the ethnic languages of the children on their phonological development in English.

The studies that have so far been reviewed indicate that it is important to consider the characteristics of the orthographies the bilingual children are learning and the degree of relatedness of the languages and orthographies (Bialystok, McBride-Chang, & Luk, 2005). Languages that have similar writing systems share common characteristics and are likely to operate at similar grain sizes, and consequently be more amenable to language transfer. Based on this perspective, two languages that share alphabetic orthographies such as Bahasa Melayu and English are more likely to exhibit cross-language transfer than if one of the languages is written using an alphabetic orthography and the other with a logographic script such as Chinese or an alphasyllabic script such as Tamil.

Proficiency in the languages of bilinguals also plays an important role in transference of skills when learning to read different orthographies. Bialystok et al. (2005) assessed phonological awareness and word decoding skills in both English and Chinese in English-Chinese bilinguals, English monolinguals and Chinese children beginning to learn English. They found that the degree of transfer of these skills between languages was influenced by the children's relative level of bilingualism or proficiency in both languages as well as the type of reading instruction received by the children.

In sum, languages with different writing systems may activate different underlying processes used to read, which restricts the transferability of reading-related skills. However, when the L1 and L2 are closely related, shared features pose similar processing demands and allow L1 competencies to also operate in the L2 context. By contrast, when the two languages and scripts are not related, the L1 skills do not facilitate L2 reading to the same extent. In relation to the three main languages and orthographies in Malaysia, beneficial transference of skills is more likely to occur in children whose native language is Bahasa Melayu and who subsequently learn English as their second language in comparison to children with Tamil or Chinese as their first language. Bahasa Melayu and English share the same alphabetic script whereas the other scripts are unrelated. The research also highlights the importance of children being proficient in both their native and subsequently learnt languages when learning to read. This is particularly pertinent when learning to read a second language.

MORPHOLOGICAL AWARENESS AND READING

Morphological awareness has also been shown to be important in relation to learning to read in many different languages and their orthographies. Morphological awareness is a higher order cognitive ability that involves being able to manipulate morphological units in the child's particular language(s) (Carlisle, 1995). Importantly, morphological awareness has been found to be related to children's vocabulary knowledge and reading comprehension (Carlisle, 1995, 2000; Kuo & Anderson, 2006; Nagy, Abbott, Vaughan, & Vermeulen, 2003; Singson, Mahony, & Mann, 2000). Due to the prominent morphological characteristics of Bahasa Melayu, Tamil

and Chinese, morphological awareness is likely to play an important role in developing readers in both uniscriptal and biscriptal readers. Quite an extensive number of studies have examined the relationship between morphological awareness and reading comprehension in Chinese (e.g., Ku & Anderson, 2003; McBride-Chang, Shu, Zhou, Wat, & Wagner, 2003; Wang, Cheng, & Chen, 2006). In addition, it has also been shown to be important when learning to read Bahasa Melayu (Rickard Liow & Lee, 2004; Winskel & Widjaja, 2007). In a more recent study, Zhang, Chin and Li (2017) examined the contribution of phonological and morphological awareness to bilingual word reading in 131 Malaysian-English bilingual children living in Singapore. They found a selective facilitatory transference effect from Malaysian phonological awareness to English phonological awareness development, and also from English morphological awareness to Malaysian morphological awareness development.

Relatively few studies have been conducted on morphological awareness and reading in Indic scripts. A study conducted by Gafoor and Remia (2013) investigated the relationship between morphological awareness and reading comprehension in children from grade 2 to 4 learning to read Malayalam. Malayalam, is a morphologically rich Dravidian language with an alphasyllabary similar in this respect to Tamil. They found that morphological awareness was directly related to phonological awareness and reading comprehension.

IMPLICATIONS AND CONCLUSIONS

The current article has focused on learning to read in the most widely spoken languages of Malaysia, namely, the national language Bahasa Melayu, Tamil and Chinese. These languages are not related and are quite different in the challenges they pose to young learners. Moreover, the orthographies utilise different grain sizes of graphemes to sound units. Bahasa Melayu uses alphabetic Rumi or Roman script, Tamil has an alphasyllabary and Chinese has a logographic or morphosyllabic writing system. Many of these children have the challenge of learning to speak and read in more than one language. When we consider the task of the child learning to speak and read in more than one language, a complex picture emerges, as they may have to learn to read in two different orthographic systems. Furthermore, many children in Malaysia have the additional challenge of learning to read alphabetic English with its notoriously irregular orthography.

Phonological awareness is a precursor to reading, and consequently, has been studied extensively, particularly in European languages. Much less research has so far focused on reading and phonological awareness skills in Asian languages and their orthographies. Research on Asian languages has shown that the syllable is an important phonological unit as well as the phoneme in some orthographies.

The reviewed research has found that positive transference of reading-related skills is more likely to occur if the orthographies are related and share common grain sizes (Bialystok et al. 2005). In relation to the Malaysian context, Bahasa Melayu and English basically share the same alphabetic script whereas alphasyllabic Tamil and logographic Chinese have scripts that are unrelated to each other and distinct from alphabetic orthographies. It appears from this research that children who learn to read two languages with similar linguistic and orthographic systems may have some advantage when learning to read the second language, whereas those children who are learning languages that are phonologically and orthographically different may find it more of a challenge. Thus on this basis, in the Malaysian context, transference of reading-related skills are more likely to occur in the Bahasa Melayu-English learners than for example when the first language is Tamil or Chinese. When children with Tamil or Chinese as their first language enter school in Malaysia, they may experience additional challenges learning to read in Bahasa Melayu, their second language, and consequently may need extra support.

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Children may have the additional challenge of learning to read a language that they are not familiar with or fluent in, for example in the Malaysian context, this could be Bahasa Melayu or English. It is desirable that children are already familiar and fairly proficient in the languages that they are learning to read. If children do not have this prerequisite language knowledge, then learning to read in that language is likely to be hindered or delayed. If children do not have this requisite linguistic knowledge and their first language uses the same script as their second language, they may be able to decode or read the words on the page but still not be able to understand what they read.

As well as phonological awareness, morphological awareness skills are considered to be important as they may facilitate vocabulary knowledge and comprehension when learning to read. Due to the prominent morphological characteristics of Bahasa Melayu, Tamil and Chinese, morphological awareness is likely to play an important role in developing readers in both uniscriptal and biscriptal readers. Thus, it is important to teach both phonological and morphological awareness knowledge and skills in the classroom to facilitate the reading process.

Another consideration is that it is important that children who are having problems in learning to read are detected early, so that it can be remedied in a timely manner during the child's early development. Moreover, it is important to detect problems when learning to read using appropriately designed assessment instruments that are applicable to the particular language and orthography of the child. As bilingual children can have different phonological awareness profiles in their two languages, assessing phonological and reading skills becomes an even more complex task.

Finally, advancements in technology are having an enormous impact on children's development in many aspects of their lives. This includes learning to read and write through digital texts such as via phones, tablets and computers (Barzillai & Thomson, 2018). This creates additional challenges for both learners and educationalists. Moreover, children are also using various digital writing devices in place of the more traditional handwriting with pencil and paper. Recent research has found that handwriting with pencil fosters acquisition of letter knowledge and improves visuo-spatial skills compared with keyboarding and in particular writing with a stylus on a touchscreen (Mayer et al., 2020). Of course this may change as technology evolves and learners adapt to the new technologies. Importantly, technology can be used as a beneficial tool in scaffolding the learning of struggling readers (de Souza et al., 2018; Lee, 2016, 2019; O'Brien, Habib & Onnis, 2019).

REFERENCES

Adams, M. J. (1990). *Beginning to Read*. Cambridge, Massachusetts: MIT.

Baker, C. (2006). *Foundations of Bilingual Education and Bilingualism.* Clevedon: Multilingual Matters.

Barzillai, M. & Thomson, J. M. (2018). Children learning to read in a digital world. *First Monday. 23*(10). https://doi.org/10.5210/fm.v23i10.9437

Bialystok, E., Majumder, S. & Martin, M. M. (2003). Developing phonological awareness: Is there a bilingual advantage? *Applied Psycholinguistic. 24*, 27-44.

Bialystok, E., McBride-Chang, C. & Luk, G. (2005). Bilingualism, language, proficiency, and learning to read in two writing systems. *Journal of Educational Psychology. 97*(4), 580-590.

Bhuvaneshwari, B. & Padakannaya, P. (2014). Reading in Tamil: A more alphabetic and less syllabic akshara-based orthography. In H. Winksel & P. Padakannaya (Eds.), *South and Southeast Asian Psycholinguisitics* (pp. 192–211). Cambridge: Cambridge University Press.

Borzone de Manrique, A. M. & Signorini, A. (1994). Phonological awareness, spelling and reading abilities in Spanish-speaking children. *British Journal of Educational Psychology. 64*, 429-439.

Bradley, L. & Bryant, P.E. (1983). Categorising sounds and learning to read: A causal connection. *Nature. 310*, 419-421.

Bright, W. (2000). *A matter of typology. Alphasyllabaries and abugidas. Studies in the Linguistic Science* (Urbana). *30*, 63-71.

Bruck, M. & Genesee, F. (1995).Phonological awareness in young second language learners. *Journal of Child Language. 22*(2), 307-324.

Byrne, B. & Fielding-Barnsley, R. (1993). Evaluation of a program to teach phonemic awareness to young children: A 1-year follow-up. *Journal of Educational Psychology. 85*(1), 104-111.

Byrne, B. & Ruth Fielding-Barnsley, R. (1995). Evaluation of a program to teach phonemic awareness to young children: A 2- and 3- year follow-up and a new preschool trial. *Journal of Educational Psychology*. *87*, 499-503.

Byrne, B., Fielding-Barnsley, R. & Ashley, L. (2000). Effects of preschool phoneme identity training after six years: Outcome level of distinguished from rate of response. *Journal of Educational Psychology*. *92*(4), 659-667.

Chang, L.-Y., Plaut, D. C. & Perfetti, C. A. (2016). Visual complexity in orthographic learning: Modeling learning across writing system variations. *Scientific Studies of Reading. 20*(1), 64–85. https://doi.org/10.1080/10888438.2015.1104688

Caravolas, M. & Bruck, M. (1993). The effect of oral and written language input on children's phonological awareness: A cross-linguistic study. *Journal of Experimental Child Psychology*. 55(1), 1-30.

Carlisle, J. F. (1995). Morphological Awareness and Early Reading Achievement. In L. B. Feldman (Ed.), *Morphological Aspects of Language Processing* (pp. 189-209). Hillsdale, NJ: Erlbaum.

Carlisle, J. F. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and Writing. 12*(3), 169-190.

Cheung, H., Chen, H.-C., Lai, C.Y., Wong, O.C. & Hills, M. (2001). The development of phonological awareness: Effects of spoken language experience and orthography. *Cognition. 81*(3), 227-241.

Chiappe, P. & Siegel, L.S. (1999). Phonological awareness and reading acquisition in English- and Punjabi-speaking Canadian children. *Journal of Educational Psychology*. *91*(1), 20-28.

Cossu, G., Shankweiler, D., Liberman, I.Y., Katz, L. & Tola, G. (1988). Awareness of honological segments and reading ability in Italian children. *Applied Psycholinguistics. 9*, 1-16.

Daniels, P. T. & Share, D. L. (2018). Writing system variation and its consequences for reading and dyslexia. *Scientific Studies of Reading. 22*(1), 101-116.

de Souza, G. N., Brito, Y. P. S., Tsutsumi, M. M. A.,Marques, L. B., Goulart, P. R. K., Monteiro, D. C. et al. (2018). The adventures of Amaru: Integrating learning tasks into a digital game for teaching children in early phases of literacy. *Frontiers in Psychology. 9*, 2531. doi: 10.3389/fpsyg.2018.02531

Durgunoğlu, A. Y., Nagy, W.E. & Hancin-Bhatt, B.J. (1993). Cross-language transfer of phonological awareness. *Journal of Educational Psychology. 85(*3), 453-465.

Frost, R. (2006). Becoming literate in Hebrew: the grain size hypothesis and Semitic orthographic systems. *Developmental Science. 9*(5), 439-440.

Gafoor, A. & Remia, K. R. (2013). Influence of Phonological Awareness, Morphological Awareness and Non-Verbal Ability on Reading Comprehension in Malayalam. *Guru Journal of Behavioral and Social Sciences. 1*(3), 128-138.

Goswami, U. (1999). The relationship between phonological awareness and orthographic representation in different orthographies. In M. Harris & G. Hatano (Eds.), *Learning to Read and Write: A Cross-Linguistic Perspective* (pp. 51-70). Cambridge: Cambridge University Press.

Goswami, U. (2000). Phonological representations, reading development and dyslexia: Towards a cross-linguistic theoretical framework, *Dyslexia. 6*, 133-151.

Goswami, U. (2003). Why the theories about developmental dyslexia require developmental designs. *Trends in Cognitive Sciences. 7*(12), 534-540.

Goswami, U. & Bryant, P.E. (1990). *Phonological Skills and Learning to Read.* Hillsdale, NJ: Erlbaum.

Gottardo, A., Pasquarella, A., Chen, X. & Ramirez, G. (2015). The impact of language on the relationships between phonological awareness and word reading in different orthographies: A test of the psycholinguistic grain size theory in bilinguals. *Applied Psycholinguistics. 37*(5), 1083-1115.

Gottardo, A., Yan, B., Siegel, L.S. & Wade-Woolley, L. (2001). Factors related to reading performance in children with Chinese as a first language: More evidence of cross-language transfer of phonological processing. *Journal of Educational Psychology. 93*, 530-542.

Hansen, J. & Bowey, J.A., (1994). Phonological analysis skills, verbal working memory and reading ability in second grade children. *Child Development.* 65, 938-950.

Harris, M. & Hatano, G. (1999) *Learning to Read and Write: A Cross-Linguistic Perspective*. Cambridge: Cambridge University Press.

Hatcher, P. J., Hulme, C. & Snowling, M.J. (2004). Explicit phoneme training combined with phonic reading instruction helps young children at risk of failure. *Journal of Child Psychology and Psychiatry. 45*, 338-358.

Hindson, B., Byrne, B., Fielding-Barnsley, R., Newman, C., Hine, D.W. & Shankweiler, D. (2005). Assessment and early instruction of preschool children at risk for reading disability. *Journal of Educational Psychology. 97*(4), 687-704.

Ho, C. S. H. & Bryant, P. (1997). Learning to Read Chinese beyond the Logographic Phase. *Reading Research Quarterly. 32*, 276-289.

Hulme, C., Hatcher, P.J., Nation, K., Brown, A., Adams, J. & Stuart, G. (2002). Phoneme awareness is a better predictor of early reading skill than onset-rime awareness. *Journal of Experimental Child Psychology. 82*(1), 2-28.

Jiménez, J. E. & del Rosario Ortiz, M. (2000). Metalinguistic awareness and reading acquisition in the Spanish language. *The Spanish Journal of Psychology. 3*, 37-46.

Joshi, R.M. & McBride-Chang, C. (2019). Introduction: Handbook of Literacy in Akshara Orthography. In R.M. Joshi & C. McBride-Chang (Eds) (pp. 3-9). *Handbook of literacy in akshara orthographies.* Literacy Studies series, Springer.

Ku, Y.-M. & Anderson, R. C. (2003). Development of morphological awareness in Chinese and English. *Reading and Writing. 16*(5), 399-422.

Kuo, L.-J. & Anderson, R. C. (2006). Morphological awareness and learning to read: A crosslanguage perspective. *Educational Psychologist. 41*(3), 161-180.

Lee, J. A. C. & Al Otaiba, S. (2017). End-of-kindergarten spelling outcomes: How can spelling error analysis data inform beginning reading instruction? *Reading & Writing Quarterly. 33*, 226–238. https://doi.org/10.1080/10573569.2016.1165639

Lee, L.W. (2016). Multisensory modalities for blending and segmenting among early readers. *Computer Assisted Language Learning. 29*(5), 1017-1032.

Lee, L. W. (2019). Design and development of a Malay word recognition intervention program for children with dyslexia, *Australian Journal of Learning Difficulties. 24*(2), 163-179. doi: 10.1080/19404158.2019.1661261

Lee, L.W., Low, H. M. & Lee S. S. (2019) Exploring phoneme-grapheme connections in Malay word building. *Writing Systems Research*. doi: 10.1080/17586801.2019.1662533

Lee, L. W. & Wheldall, K. (2011). Acquisition of Melayu word recognition skills: Lessons from low-progress early readers. *Dyslexia. 17*(1), 19-37.

Loizou, M. & Stuart, M. (2003). Phonological awareness in monolingual and bilingual English and Greek five-year-olds. *Journal of Research in Reading. 26*(1), 3-18.

MacLean, M., Bryant, P.E. & Bradley, L. (1987). Rhymes, nursery rhymes and reading in early childhood. *Merrill-Palmer Quarterly. 33*, 255-282.

Mayer, C., Wallner, S., Budde-Spengler N., Braunert, S., Arndt, P.A. & Kiefer, M. (2020). Literacy training of Kindergarten children with pencil, keyboard or tablet stylus: The influence of the writing tool on reading and writing performance at the letter and word level. *Frontiers in Psychology. 10*, 3054. doi: 10.3389/fpsyg.2019.03054

McBride-Chang, C. (1995). Phonological processing, speech perception and disability: An integrative review. *Educational Psychologist. 30*, 109-121.

McBride-Chang, C., Shu, H., Zhou, A., Wat, C. P. & Wagner, R. K. (2003). Morphological awareness uniquely predicts young children's Chinese character recognition. *Journal of Educational Psychology. 95*(4), 743-751.

Mishra, R. & Stainthorp, R. (2007). The relationship between phonological awareness and word reading accuracy in Oriya and English: A study of Oriya-speaking fifth graders. *Journal of Research in Reading. 30*(1), 23-37.

Nag, S. (2007). Early reading in Kanna: the pace of acquisition of orthographic knowledge and phonemic awareness. *Journal of Research in Reading. 30*(1), 7-22.

Nag, S. & Narayanan, B. (2019). Orthographic Knowledge, Reading and Spelling Development in Tamil: The First Three Years. In M.J. Joshi & C. McBride-Chang (Eds.). *Handbook of literacy in akshara orthographies* (pp. 55-83). Literacy Studies series, Springer.

Nagy, B.V., Abbott, R., Vaughan, K. & Vermeulen, K. (2003). Relationship of Morphology and Other Language Skills to Literacy Skills in At-Risk Second-Grade Readers and At-Risk Fourth-Grade Writers. *Journal of Educational Psychology. 95*(4), 730-742.

Nik Safiah Karim, Farid M. Onn, Hashim Hj. Musa & Abdul Hamid Mahmood. (2004). *Tatabahasa dewan*. Ed. baharu. [Melayu grammar. New edition]. Kuala Lumpur: Dewan Bahasa dan Pustaka.

O'Brien BA, Habib M & Onnis L (2019). Technology-based tools for English literacy intervention: Examining intervention grain size and individual differences. *Frontiers in Psychology. 10*, 2625. doi: 10.3389/fpsyg.2019.02625

O'Brien, B.A., Mohamed, M.B.H., Yussof, N.T. & Ng, S.C. (2019). The phonological awareness relation to early reading in English for three groups of simultaneous bilingual children. *Reading and Writing. 32*(4), 909-937.

Padakannaya, P., Rekha, D., Vaid, J. & Joshi, M.R. (2002). *Simultaneous acquisition of literacy skills in English and Kannada. A longitudinal study*. 13th World Congress of Applied Psycholinguistics (International Association of Applied Linguistics AILA), Singapore.

Pasquarella, A., Chen, X., Gottardo, A. & Geva, E. (2015). Cross-language transfer of word reading accuracy and word reading fluency in Spanish-English and Chinese-English bilinguals: Script-universal and script-specific processes. *Journal of Educational Psychology. 107*(1), 96-110.

Perfetti, C.A. & Dunlap, S. (2008). Learning to read: General principles and writing system variations. In K. Koda & A. Zehler (Eds.). *Learning to read across languages* (pp. 13-38). Mahwah, NJ: Erlbaum.

Rao, C., Vaid, J. & Chen, H.C. (2017). The processing cost for reading misaligned words is script-specific: Evidence from Hindi and Kannada/Hindi readers. *Journal of Cultural Cognitive Science. 1*(1), 46-55.

RickardLiow, S. J. (2014). Diversity in bilingual children's spelling skill development: The case of Singapore. In H. Winksel & P. Padakannaya (Eds.), *South and Southeast Asian Psycholinguistics* (pp. 212–220). Cambridge: Cambridge University Press.

Rickard Liow, S. J. & Lee, L. C. (2004). Metalinguistic awareness and semi-syllabic scripts: Children's spelling errors in Melayu. *Reading and Writing: An Interdisciplinary Journal. 17*, 7–26.

Rickard Liow, S. J. & Poon, K.K.L. (1998). Phonological awareness in multilingual Chinese children. *Applied Psycholinguistics. 19*, 339-362.

Salehuddin, K. (2014). The acquisition of Melayu numeral classifiers. In H. Winskel & P. Padakannaya (Eds.). *South and Southeast Asian Psycholinguistics* (pp. 71-78). Cambridge: Cambridge University Press.

Salehuddin, K. & Winskel, H. (2009). An investigation into Melayu numeral classifier acquisition through an elicited production task. *First Language. 29*(3), 291-313.

Sarma, V.M. (2014). Issues in the acquisition of Tamil verb morphology. In H. Winskel & P. Padakannaya (Eds.). *South and Southeast Asian Psycholinguistics* (pp. 110-113). Cambridge: Cambridge University Press.

Share, D. & Daniels, P. (2016). Aksharas, alphasyllabaries, abugidas, alphabets and orthographic depth: Reflections on Rimzhim, Katz, and Fowler (2014). *Writing Systems Research. 8*, 17–31.

Singson, M., Mahony, D. & Mann, V. (2000). The relation between reading ability and morphological skills: Evidence from derivational suffixes. *Reading and Writing. 12*(3), 219-252.

Snowling, M. J. & Hulme, C. (2011). Evidence based interventions for reading and language difficulties: Creating a virtuous circle. *British Journal of Educational Psychology. 81*(1), 1-23.

Snowling, M. J., Goulandris, N., Bowlby, M. & Howell, P. (1986).Segmentation and speech perception in relation to reading skill: a developmental analysis. *Journal of Experimental Child Psychology. 41*(3), 489-507.

Stanovich, K. E., Cunningham, A. E. & Cramer, B.B. (1984).Assessing phonological awareness in kindergarten children. Issues of task comparability. *Journal of Experimental Child Psychology. 38*, 175-190.

Stuart-Smith, J. & Martin, D. (1997). Investigating literacy and pre-literacy skills in Panjabi/English school children. *Educational Review. 49*(2), 181-197.

Stuart-Smith, J. & Martin. D. (1999). Developing assessment procedures for phonological awareness for use with Punjabi-English bilingual children. *The International Journal of Bilingualism. 3*(1), 55-80.

Tunmer, W. & Nesdale, A. (1985). Phonemic segmentation skill and beginning reading. *Journal of Educational Psychology. 77*, 417-427.

Vaid, J. & Gupta, A. (2002). Exploring word recognition in a semi-alphabetic script: The case of Devanagari. *Brain and Language. 81*, 679-690.

Wagner, R. K., Torgesen, J.K. & Rashotte, C.A. (1994). Development of reading-related phonological processing abilities: New Evidence of Bidirectional Causality from a Latent Variable Longitudinal Study. *Developmental Psychology. 30*(1), 73-87.

Wang, M. & Geva, E. (2003). Spelling performance of Chinese children using English as a second language: Lexical and visual-orthographic processes. *Applied Psycholinguistics. 24*, 1-25.

Wang, M., Cheng, C. & Chen, S.-W. (2006). Contribution of morphological awareness to Chinese-English biliteracy acquisition. *Journal of Educational Psychology. 98*(3), 542.

Wang, M., Perfetti C., A. & Liu, Y. (2005). Chinese–English biliteracy acquisition: Cross-Language and writing system transfer. *Cognition. 97*(1), 67-88.

Wimmer, H. & Goswami, U. (1994). The influence of orthographic consistency on reading development: Word recognition in English and German children. *Cognition. 51,* 91-103.

Winskel, H. & Lee, L. W. (2014). Learning to read and write in Malaysian/ Indonesian: A transparent alphabetic orthography. In H. Winskel & P. Padakannaya (Eds.). *South and Southeast Asian Psycholinguistics* (pp. 179-183). Cambridge: Cambridge University Press.

Winskel, H. & Widjaja, V. (2007). Phonological awareness, letter knowledge and literacy development in Indonesian beginner readers and spellers. *Applied Psycholinguistics. 28*, 21-43.

Yu, L. & Reichle, E.D. (2017). Chinese versus English: Insights on cognition during reading. *Trends in Cognitive Sciences. 21*(10), 721-724.

Zhang, D., Chin, C-F. & Li, L. (2017). Metalinguistic awareness in bilingual children's word reading: A cross-lagged panel study on cross-linguistic transfer facilitation, *Applied Psycholinguistics. 38*(2), 395-426.

Ziegler, J. C. & Goswami, U. (2005). Reading acquisition, developmental dyslexia, and skilled reading across languages: A psycholinguistic gram size theory. *Psychological Bulletin. 131*(1), 3-29.

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