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Transfer of Phonological Awareness from Thai to English among Grade-Three Students in Thailand

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ABSTRACT

Phonological awareness is a powerful predictor of success in reading and spelling (Chiappe, Siegel, & Gottardo, 2002; Perfetti, Beck, Bell, & Hughes, 1987; Snider, 1997). While there have been many empirical studies investigating the scope of phonological awareness transfer from alphabetic native languages (e.g., Spanish) and from non-alphabetic native languages with Romanized phonetic symbols (Chinese), there has been no research exploring phonological transfer from the Thai language. The current study fills this research gap by investigating the relationship between phonological awareness and reading ability in English and in Thai among 424 third-grade students in the nine northern provinces of Thailand. The research results provide empirical evidence of transfer from a non-alphabetic native language, namely Thai, to English. Instructional insights that contribute to the field of phonological awareness in native-language reading instruction are also provided.

INTRODUCTION

Phonological awareness refers to an awareness of the constituent sounds in spoken words (Goswami, 2000). In other words, phonological awareness is the understanding that sentences are made up of words, words are made up of groups of sounds (syllables), and syllables are made up of individual sounds, or *phonemes* (Allor, 2002). For the past twenty to thirty years, many studies in L1 (e.g., English as a first language) and L2 (e.g., English as a second language) have uncovered a strong relationship between phonological awareness and reading ability in English, suggesting that a pupil's phonological awareness in his or her native language is not only transferable to learning reading in English as a second or foreign language, but is also an important predictor of reading performance in L1. Awareness in phonology and phoneme is not only helpful in learning to read in English, but also in learning to read in other languages, such as Arabic, French, Italian, Serbo-Croatian, Spanish, and Swedish (Alegria, Pignot, & Morais, 1982; Cossu, Shankweiler, Liberman, Katz, & Tola, 1988; de Manrique & Gramigna, 1984; Lundberg,

Olofsson, & Wall, 1980; Ognjenović, Lukatela, Feldman, & Turvey, 1983; Saiegh-Haddad & Geva, 2008). It is possible that the strengths a child has built in his or her L1 literacy can be transferred and helpful in L2 word recognition and reading acquisition (Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Lopez & Greenfield, 2004).

In the past, empirical studies have demonstrated that phonological awareness is the most potent predictor of emergent literacy when students learn English as a second language (e.g., Cisero & Royer, 1995; Dickinson, McCabe, Clark-Chiarelli, & Wolf, 2004). The best phonological awareness predictors of performance in English *pseudoword* and word recognition tests are students' phonological awareness in their native language (Durgunoglu et al., 1993). Phoneme accuracy performance in students' native language can significantly predict L2 performance in reading (Lopez & Greenfield, 2004).

Cisero and Royer (1995) stated that, in order for the languages to be transferrable, they need to be alphabetic with similar phonological structures; however, studies on students whose native languages are not alphabetic find a transfer of phonological awareness between learners of L1 and L2. In addition to findings in Korean-English (Wang, Park, & Lee, 2006), a handful of studies on Chinese-English transfer have produced similar findings. For instance, the study of Wang, Yang, and Cheng (2009) demonstrated that cross-language phonological and morphological transfer occurs when Chinese first graders acquire two different writing systems simultaneously. The phonological transfer occurs for both the shared phonological unit (e.g., onset awareness) and the contrastive phonological unit (e.g., awareness of tones).

In another Chinese-English transfer study, Chien, Kao, and Wei (2008) reported that strong, positive associations exist between English-Chinese phonological awareness and English-Chinese abilities for all subjects. Skills in phoneme segmentation and phoneme deletion acquired in Chinese are transferable to English for young Chinese EFL beginning learners. They also reported that skills in first-phoneme oddity and initial-phoneme deletion are good predictors for success in learning an alphabetic language such as English. Apart from awareness transfer, reading-related cognitive skills between learning to read Chinese (L1) and English (L2) have been found in Chinese students who are learning English.

Keung and Ho (2008) found that Chinese rhyme detection was correlated significantly to English rhyme detection and English initial-phoneme deletion. Chinese rhyme detection did account for a significant unique amount of variance in the prediction of English initial phoneme deletion. They further stated that English initial-phoneme deletion and English rhyme detection predicted a significant amount of variance in English word reading. These Chinese-English transfer studies reveal that phonological processing skill, such as rhyme detection in non-alphabetic Chinese, is a strong predictor in English reading skills and performance. The phonological processing skill in the child's orthographic language (i.e., Chinese) helps decode the alphabetic English language (Gottardo, Yan, Siegel, & Wade-Woolley, 2001). Furthermore, Chen et al. (2004) found that bilingual Chinese children (Mandarin and Cantonese) have developed more advanced onset and rhyme awareness than monolingual Mandarin speaking children, and, therefore, their phonological awareness development is also accelerated.

On reviewing the aforementioned research findings, phonological awareness is transferable and is an important predictor of English learners' reading performance, regardless of the written systems of the learners' native language. Comparatively speaking, there are fewer studies (e.g., Allen-Tamai, 2000) carried out in an English-as-a-foreign-language (EFL) context than in an English-as-a-second-language (ESL) context, especially when the learner's native language system is non-alphabetic. Among the few studies between non-alphabetic language and

English phonological awareness transfer, there is a paucity of research in Thai-English phonological awareness transfer. Although the comparison of Chinese to English is very similar to that of Thai to English (i.e., different orthography and different phonological structures), empirical studies on the transfer of phonological awareness from Thai to English are absent. Therefore, the scant knowledge of the phonological awareness transfer of Thai students makes the current study pioneering. This study investigated the relationship between phonological awareness and reading ability in English and in Thai, and whether there is a transfer of phonological awareness from Thai to English among third-grade students.

The results of this empirical study will contribute to the growing knowledge of non-alphabetic L1 transfer to English L2 reading acquisition. In addition, the instructional exploration of Thai students' L1 phonological awareness transfer to L2 English reading and spelling will also be insightful to the EFL instructional context where students speak varieties of Thai. According to Kunlawanit (1984), people in northern India (Assam), northern Burma, southern China (Yunnan Province and Guangxi Region), Vietnam (in the north), and Laos also speak varieties of Thai.

METHOD

Participants

Four hundred and twenty four third-grade elementary students were chosen by using the stratified sampling method from ten schools in the nine provinces of the lower northern part of Thailand. The sample size was determined according to Krejcie and Morgan (1970, p. 608). The reason for choosing this geographic area was that people living here speak Standard Thai. These nine provinces are very close to each other and share a similar social economic development, and the annual income per capita is average. All students were Thai nationals; they spoke Thai as their primary language and started learning English no later than grade one. When the measures were administrated, all participants had been studying English for at least three years. No child with a history of hearing, oral language, or cognitive disabilities was selected into the sample. Third-grade students were deemed the ideal population from which to draw for this study because they had a background in English by then, but were not studying it as intensively as they would in grade four and beyond.

Measures

The measures of phonological awareness consist of two parts: those in English and those in Thai. These two parts were not translated from one language to the other, but in fact, they were created separately. Both of the two measures, in English and in Thai, consisted of *Initial Sound Detection, Final Sound Detection, Rhyme Task,* and *Phoneme Deletion*. Both measures of reading in English and in Thai included *Letter Identification, Real-Word Reading,* and *Pseudoword Reading*. Before data collection, a pilot study was conducted to check the reliability and construct validity of all measures, and necessary adjustments were made according to the results of the pilot study.

Phonological Awareness Subtests in English

1. *English Initial Sound Detection*. Students were asked to name the first sound in a word read to them. These words were selected from the third-grade English curriculum guideline issued by the Thai Ministry of Education, words which the students were expected to already have in their repertoire.

2. *English Final Sound Detection*. Students were asked to name the ending sound in a word read to them. These words were selected from the same source.

3. *English Rhyme Task*. In this subtest, two words were read to students, and they were asked to say whether they rhymed with each other. These words were also selected from the same source.

4. *English Phoneme Deletion*. Each child was asked to delete an initial or final phoneme from the word and reproduce the remaining part. Some words required deleting the initial sound and others required deleting the final sound. Please note that what was deleted was only the sound, not the letters.

Reading Ability Subtests in English

1. *English Letter Identification* (both upper and lower case as two variables). At the very beginning, we had planned to have 26 letters in upper case and 26 letters in lower case in one independent variable, but during the trials in Thailand we found that some students could read certain English letters only in lower case and not in upper case, and vice versa. Therefore, we decided to change this one variable into two variables (two scores) so that it would be clearer which variable predicts Thai students' reading ability.

2. *English Real-Word Reading*. Students were asked to read aloud words of different difficulty levels. All these words were selected from the source named above.

3. *English Pseudoword Reading*. Students were asked to read aloud given pseudowords. All these words were modified from the words selected from the third-grade English curriculum guideline. Students were expected to be able to read them because they follow basic English pronunciation rules, for example, "dat" (modified from the word "cat").

Measures in Thai

Linguists have classified Thai as belonging to a Chinese-Thai branch of the Sino-Tibetan family. Like Chinese, Thai is a tonal, uninflected, and predominantly monosyllabic language. The written Thai language consists of 22 consonants and 22 vowels that combine to formulate syllabic sounds. The sounds are combined with five different tones—middle (called normal or even tone), high, low, rising, and falling—to produce a melodious, lyrical language. A single, mandated Thai language textbook is required for each grade; however, some schools may add one additional textbook for their classes.

In order to be fair to all students, all words in the phonological awareness and Real-Word Reading measures in Thai were taken from the Grade-Three Thai Curriculum Guideline issued by the Ministry of Education. Pseudowords were created on the basis of those real words. We

followed almost the same procedures to create measures in Thai as we did for the English measures. Then four subtests were created including Thai Initial Sound Detection, Thai Final Sound Detection, Thai Rhyme Task, and Thai Phoneme Deletion for phonological awareness in Thai.

Certain differences between English and Thai are worth noting here. In English, one can delete almost any phoneme in a word and the remainder of the word will not normally have changes in sound or tone. However, in Thai, this is often not the case. Because Thai has five tones fixed on letters, the deletion of one phoneme could make the remainder of the word change in sound or tone. In addition, in English, if phonemes are changed in initial positions, the new words usually still rhyme (for example, *bat*, *cat* and *hat*). However, in Thai the change of the phoneme in the initial position could change the pronunciation of the whole word, which is very difficult for native English speakers to understand.

For Thai letters, each child was asked to name 44 Thai letters in random order. In an informal trial with three Thai students, the Thai letter identification measure included all 44 letters. After obtaining the discrimination index for each of these letters, 16 letters were deleted due to their low or negative discrimination indices. The 16 deleted Thai letters were letter number 1 ห, 3 ก, 4 ด, 7 น, 10 ล, 12 ว, 13 ง, 17 อ, 18 ท, 19 ม, 23 ค, 24 ต, 25 จ, 31 ย, 32 ศ, and 34 ฉ, leaving 28 letters in this measure. Thai letter identification is a very important part of reading readiness.

Data Collection

Since the study was carried out in nine provinces in Thailand, many qualified data collectors were needed. Five doctoral and 15 master's students from a national university were chosen to help with data collection. Participation was strictly voluntary and no remuneration was offered. One hour of intensive training was provided to the volunteers. A team of five volunteers went to each school, and they explained the purpose of the data collection and the directions for each subtest to all participating students. At the same time they created a good rapport with the students.

Then the five volunteers sat separately in five different testing rooms of a testing center in each school. Each volunteer administered only one or two subtests. Before the real test began, students practiced five trial items for each subtest. To avoid fatigue, they were given a ten-minute break after the measures in English and before the measures in Thai were administered individually. At that time, they were provided with some drinks and snacks. After the break, students entered other rooms to finish all other tests. On average, each measure took about 20 minutes plus a ten-minute break, so, totally, it took 50 minutes per student to finish all measures. Each day four teams of volunteers went to one or two schools in different provinces until all data had been collected.

RESULTS

In order to investigate whether there was any transfer of phonological awareness from Thai to English, two steps were taken. First, we checked the correlations between phonological awareness in English and phonological awareness in Thai. Then, we used a stepwise multiple regression analysis to investigate whether subtests of phonological awareness in Thai could

predict reading ability in English. For the first step, we entered all subtests of phonological awareness in English and in Thai into the SPSS correlation dialog box. The following table shows the Pearson product-moment correlations between phonological awareness in English and in Thai.

Table 1. Intercorrelations between Phonological Awareness in English and in Thai

Subtests	*Tinisd*	*Tfinsd*	*Trhyt*	*Tphod*
Einisd	.267***	.263***	.262***	.177***
Efinsd	.301***	.280***	.283***	.151**
Erhyt	.302***	.320***	.347***	.113*
Ephod	.300***	.382***	.280***	.268***

Note. 1. *Einisd* = English Initial Sound Detection; *Efinsd* = English Final Sound Detection; *Erhyt* = English Rhyme Task; *Ephod* = English Phoneme Deletion; *Tinisd* = Thai Initial Sound Detection; *Tfinsd* = Thai Final Sound Detection; *Trhyt* = Thai Rhyme Task; *Tphod* = Thai Phoneme Deletion. 2. *$p < .05$; **$p < .01$; ***$p < .001$ (2-tailed).

All subtests of phonological awareness in English were highly correlated with all subtests of phonological awareness in Thai. They were all significant at the .001 level (2-tailed), except one correlation significant at .01 (English Final Sound Detection and Thai Phoneme Deletion) and another one significant at the .05 level (English Rhyme Task and Thai Phoneme Deletion). For the second step, a multiple regression analysis was used to investigate whether phonological awareness in Thai could predict reading ability in English.

First, English Real-Word Reading was entered as the criterion, and all four subtests of phonological awareness in Thai, namely, Thai Initial Sound Detection, Thai Final Sound Detection, Thai Rhyme Task, and Thai Phoneme Deletion, were entered as the predictors. The method chosen was stepwise. The following ANOVA table shows the predictors and the criterion with an *F* test.

Table 2. ANOVA Test of the Predictors with English Real-Word Reading

Source	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig*
Regression	2482.905	3	827.635	25.209	.000
Residual	13788.935	420	32.831		
Total	16271.840	423			

Predictors: (constant) Thai Phoneme Deletion, Thai Rhyme Task, Thai Initial Sound Detection.

Three subtests of phonological awareness in Thai predicted English Real-Word Reading: Thai Phoneme Deletion, Thai Rhyme Task, and Thai Initial Sound Detection, $F(3, 420) = 25.209$, $p < .001$. This indicates that the three subtests could significantly explain variance in English Real-Word Reading, or they could linearly regress on the criterion and could further create the linear prediction equation.

The other subtest showed that Thai Final Sound Detection was not among the most useful predictors of English Real-Word Reading, indicating that it would not significantly increase predictive validity in explaining variance in English Real-Word Reading. The following table

shows the results of the stepwise multiple regression analysis with English Real-Word Reading as the criterion and four subtests of Thai Phonological Awareness as predictors.

Table 3. Stepwise Multiple Regression Analysis with English Real-Word Reading

Variable	*B*	*SE B*	*R*	R^2	*SE est*	*Beta*
(Constant)	.215	1.699				
Tphod	.315	.065				.271***
Trhyt	.404	.089				.243***
Tinisd	-.300	.105	.391	.153	5.730	-.151**

Note. 1. Adjusted R^2 = .147. 2. *Tinisd* = Thai Initial Sound Detection; *Trhyt* = Thai Rhyme Task; *Tphod* = Thai Phoneme Deletion. 2. ** $p < .01$; *** $p < .001$.

The multiple correlation coefficient (*R*) was .391 for the model, which was low. However, since all subtests of phonological awareness in English were significantly correlated, a *collinearity* diagnostic was necessary. A collinearity diagnostic, partial and part correlations, were selected under the linear regression analysis in SPSS. Table 3 shows that the values of partial and part correlations dropped slightly in the model, meaning that most of the variance was not explained by the predictors specified in the model. The tolerance is the percentage of the variance in a given predictor that cannot be explained by the other predictors. In this model, 28% - 36% of variance was explained by other predictors. The tolerances here were large, and none of the variance inflation factors (VIF) were more than two; there was no problem with *multicollinearity* from that perspective.

However, the collinearity diagnostics indicated a possible problem with multicollinearity. (Values of condition indices greater than 15 indicate a possible problem with collinearity, and values greater than 30 indicate a serious problem.) Here, one condition index was greater than 15 but smaller than 30; therefore, there was a possible problem with multicollinearity. We tried to fix the collinearity problems by rerunning the regression using log-transformed English Real-Word Reading as the criterion and *z* scores for all four subtests of phonological awareness in Thai as the predictors. The chosen entry method was stepwise in order to include only the most useful variables in the model.

All of the condition indices were much less than 15. The strategy worked, and the model built using the stepwise method did not have problems with collinearity. The following ANOVA table shows the predictors and the criterion with an *F* test and *z* scores for four subtests of Thai Phonological Awareness as predictors.

Table 4. ANOVA Test of the Predictors with Log-Transformed English Real-Word Reading

Source	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Regression	40.112	3	13.371	16.915	.000
Residual	237.926	301	.790		
Total	278.038	304			

Predictors: (constant) *z* score: Thai Rhyme Task; *z* score: Thai Phoneme Deletion; *z* score: Thai Initial Sound Detection.

Three subtests of phonological awareness in Thai predicted English Real-Word Reading: Thai Rhyme Task, Thai Phoneme Deletion, and Thai Initial Sound Detection, $F(3, 301) = 16.915$, $p < .001$. This indicates that the three subtests could significantly explain variance in English Real-Word Reading, or they could linearly regress on the criterion and could further create the linear-prediction equation.

The other subtest, Thai Final Sound Detection, was not among the most useful predictors of English Real-Word Reading indicating that it would not significantly increase predictive validity in explaining variance in English Real-Word Reading. Note (in Table 5) that the results were almost the same except that the Thai Rhyme Task became the best predictor among all four subtests.

Table 5. Stepwise Multiple Regression Analysis with Log-Transformed English Real-Word Reading

Variable	*B*	*SE B*	*R*	R^2	*SE est*	*Beta*
(Constant)	1.663	.052				
zTrhyt	.288	.063				.278***
zTphod	.252	.068				.236***
zTinisd	-.140	.058	.380	.144	.88907	-.152*

Note. 1. Adjusted $R^2 = .136$. 2. *zTinisd* = *z* score: Thai Initial Sound Detection; *zTrhyt* = *z* score: Thai Rhyme Task; *zTphod* = *z* score: Thai Phoneme Deletion. 2. *$p < .05$; **$p < .01$; *** $p < .001$.

Using Table 5, we derived the following equations for English Real-Word Reading:

Equation 1: LNereawr = 1.663 + .288zTrhyt +.252zTphod -.140zTinisd
Or
Equation 2: zEreawr = .278zTrhyt + .236zTphod - .152zTinisd

The variance of English Real-Word Reading that can be explained was 14.4%. The most effective predictors of English Real-Word Reading were Thai Rhyme Task, Thai Phoneme Deletion, and Thai Initial Sound Detection. We wanted to increase one unit of English Real-Word Reading, so we increased .278 units of Thai Rhyme Task and .236 units of Thai Phoneme Deletion, and decreased .152 units of Thai Initial Sound Detection.

Lastly, English Pseudoword Reading was entered as the criterion, and all four subtests of phonological awareness in Thai (Thai Initial Sound Detection, Thai Final Sound Detection, Thai Rhyme Task, and Thai Phoneme Deletion) were entered as the predictors. The method chosen was stepwise. The following ANOVA table shows four subtests of Thai Phonological Awareness as predictors with an *F* test.

Table 6. ANOVA Test with English Pseudoword Reading as the Criterion

Source	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig*
Regression	1097.625	2	548.813	18.835	.000
Residual	12266.976	421	29.138		
Total	13364.601	423			

Predictors: (constant) Thai Phoneme Deletion, Thai Rhyme Task.

Two subtests of phonological awareness in Thai predicted English Pseudoword Reading: Thai Phoneme Deletion and the Thai Rhyme Task, $F(2, 421) = 18.835$, $p < .001$, which indicates that the two subtests could significantly explain variance in English Real-Word Reading, or they could linearly regress on the criterion and could further create the linear prediction equation. The other subtests, Thai Initial Sound Detection and Thai Final Sound Detection, were not among the most useful predictors of English Pseudoword Reading, indicating that they would not significantly increase predictive validity in explaining variance in English Pseudoword Reading. The following table sho

DISCUSSION

Since there has been no earlier study investigating whether there is any phonological transfer from Thai to English, we could only reference some studies that focused on transfer between English and languages other than Thai. The results of the current study indicate that Thai students who could perform well in Thai phonological awareness subtests were likely able to read English Real Words and English Pseudowords. This finding echoes Saiegh-Haddad and Geva (2008) who suggest that the L1 and L2 cross-linguistic relationship in phonological awareness exists even between languages typologically different. The data and results are supplementary to studies showing evidence of phonological awareness that is strongly related to reaching acquisition across English and non-alphabetic language. They also parallel with existing findings (e.g., Durgunoglu et al., 1993; McBride-Chang & Kail, 2002) that phonological awareness across orthographies is important in reading acquisition, no matter if the symbols represent a morpheme/syllable, as in Chinese, or a phoneme, as in English.

The Thai students' performance in the two sets of measures reinforced the Durgunoglu et al. findings that, at least for the very earliest states of reading acquisition, some level of phonological awareness, depending on orthography/language, is a universal aspect of learning to read, and the level of awareness transfers across languages. Further, first-language phonological awareness (i.e., Thai in this study) helped students perform well in English word and pseudoword recognition tests. Therefore, developing phonological awareness and word recognition skills in the first language helps in second-language word recognition.

On the other hand, the current study is different from Cisero and Royer's (1995) claim that the only significant evidence they found in the regression analyses for cross-language transfer came from the initial phoneme task. The current study found more than one type of task that has significant evidence of cross-language transfer (Thai Phoneme Deletion, Thai Rhyme Task, and Thai Initial Sound Detection in English Real-Word Reading, and Thai Phoneme Deletion and Thai Rhyme Task in English Pseudoword Reading.) The reason that Cisero and Royer found only one type of task with transfer might have come from their unequal sample size and/or small sample size. The more significant evidence of cross-language transfer tasks in the current study, therefore, go against Cisero and Royer's conclusion that, with respect to the transfer of phonological awareness from the native language to another language, the language needed to be alphabetic with similar phonological structure. The Thai language uses a non-alphabetic orthography and does not have a phonological structure similar to English. However, the current study provided evidence that there is transfer from Thai to English even though the orthography and phonological structures are different. This supports Gottardo et al. (2001) in that native-language rhyme detection is predictive of English reading performance and is an important phonological processing skill for learning to decode an alphabetic orthography even if the orthography of the child's native language is not alphabetic.

Further, among phonological awareness transfer studies of non-alphabetic languages, researchers (e.g, Huang & Hanley, 1994; Read, Zhang, Nie, & Ding, 1986) found that students with alphabetic knowledge (i.e., instruction of a Romanized pronunciation spelling system such as Hanyu Pinyin or Zhuyin Fuhao in Chinese) in their native language have a better performance in a phoneme deletion task than those who do not. The current study supplemented this claim in that, although the Thai language has a non-alphabetic orthography and the Thai students do not receive instructions in Romanized spellings in the Thai language, there still is phonological awareness transfer from Thai to English among third-grade Thai students.

CONCLUSION

In conclusion, the results of the current study are consistent with findings of prior studies. Phonological awareness skills in one's native language are related to phonological skills in a second language, no matter if the native language is alphabetic (e.g., Lopez & Greenfield, 2004) or non-alphabetic (e.g., Gottardo et al., 2001). In addition, phonological awareness was a general, but not language-specific, cognitive process involved in early reading. Cross-linguistic transfer was not unique to phonological skills, but occurred for measures of print awareness (e.g., orthography in Spanish, Chinese, and Thai), and was predictive of word-identification skills (Quiroga, Lemos-Britton, Mostafapour, Abbott, & Berninger, 2002). This study has filled the void of phonological-awareness transfer studies. The current study has provided evidence to show that phonological awareness transfer occurs in different orthographies, that is, from shallow orthography (Thai) to deep orthography (English). The current study also showed that there is phonological-awareness transfer between Thai and English, regardless of the orthography and phonological structure of the Thai language or spelling instruction. This suggests that that reading literacy in one academic language can transfer to reading literacy in the second academic language.

Taken together, this study and several other studies support the assertion that there is a transfer of phonological awareness across languages, specifically from the native language to a foreign or second language, and foreign-language reading could be improved by focusing on either the foreign language or on the first language. Positive results from the current study, along with other studies concerning transfer of phonological awareness, suggest that a bilingual education might make sense, although this is different from current policies in many states. A bilingual education would allow the use of the home language as a bridge for newly arrived students to acquire their second language.

For EFL instructors, especially for those whose students' native language is Thai, understanding students' phonological awareness in the Thai language might help diagnose reading difficulties in the English language because prediction patterns of reading ability based on phonological awareness are different for the first language than for the second language. Based on what we found in this study, we may be able to improve students' second language by improving their native language. Development happens to the individual, not to the (academic) language. Equally, development happens after learning, according to Vygotsky (1978). If we accept this, then maybe we can say that the relationship between the learning processes and the internal development can be identified through attention to phonological awareness.

For foreign-language policy makers, it is important to consider the role of native language phonological awareness in understanding the reading ability of second language learners. It may not be "the earlier the better" for the onset of English education.

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