A STUDY OF TAIWANESE EFL TERTIARY LEVEL STUDENTS’ CHINESE AND ENGLISH PHONOLOGICAL AWARENESS ON THEIR ENGLISH PROFICIENCY

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ABSTRACT

This study aims to investigate the role of Chinese and English phonological awareness on EFL students’ English proficiency. A hundred and fifty EFL tertiary level freshmen participated in the study by taking Chinese and English phonological awareness tests, and TOEIC test. The results of Pearson correlation and multiple regression analyses showed that learners’ performance in English phonological awareness tests had high correlation with that of their TOEIC Test, and it contributed 58.4 % variance to English TOEIC. Chinese phonological awareness test had moderate relationship with TOEIC, but contributed only 5.8 % variance of TOEIC test. Also, learners’ L1 Chinese phonological awareness test scores had moderate relationship with that of their L2 English phonological awareness test. Finally, learners’ English proficiency had significant influence on both English and Chinese phonological awareness performance.

Keywords: Phonological Awareness, TOEIC, English Proficiency

1. INTRODUCTION

Phonological awareness is defined as the ability to attend to and manipulate the sound structure of languages, and low performance of phonological awareness is significantly related to poor language proficiency, spelling (Chen & Chien, 2002; Hu, 2004; Jian, 2004), vocabulary learning (Dixon, Stuart & Masterson, 2002; Hu, 2003; Wang, Koda, & Perfetti, 2003) and early reading skills (Bialystok, Luk, & Kwan, 2005; Chol, Ko, & Wang, 2009; Chiappe, Siegel & Wade-Woodley, 2002; Clare, Canobi, & Faulkner, 2004; Ho & Keung, 2008; Muter & Diethelm, 2001). The relationship between learners’ phonological awareness and reading literacy is more complex if the influence of learners’ native language is considered. Many studies (Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Muter & Diethelm, 2001) on language transfer have demonstrated a close relationship between L1 phonological awareness and L2 reading proficiency within two alphabetic languages like Spanish and English. However, the transfer effect from a non-alphabetic L1 to an alphabetic L2 is fewer and unclear. In addition, most L2 studies (Chen, 2009; Lee, 2006; Wu, 2010) explored young readers’ phonological awareness. Comparatively less research focuses on adult EFL learners’ phonological awareness and L2 reading. In order to fill in the gap, the researcher investigated the role of EFL learners’ L1 (i.e. Chinese) and English phonological awareness on their English reading performance. The research questions of this study are listed as follows:
1. What are the relationships among EFL college students' English phonological awareness test, Chinese phonological awareness test, and their TOEIC English reading proficiency performance?

2. Which one (i.e. Chinese or English phonological awareness) is a significant predictor of English proficiency?

3. For learners with high and low English proficiency, what are their differences in their English and Chinese phonological awareness test?

2. LITERATURE REVIEW

2.1 The Definition of Phonological Awareness

Phonological awareness refers to the ability to attend to and manipulate the sound structure of language. It involves the understanding that spoken languages can be broken down into smaller components in many different ways, including sentences into words and words into syllables, onsets and rimes, and individual phonemes (Jian, 2004; McBride-Chang & Ho, 2005; McBride-Chang & Kail, 2002; Shu et al., 2008; Siok & Fletcher, 2001; Wager, Torgesen & Rassotte, 1987; Yopp, 1992). The development of learners’ phonological awareness is gradual (Jian, 2004; McBride-Chang & Ho, 2005; Yopp, 1992), moving from the initial phonological skills of rhyming and sentence segmentation, followed by the ability of blending and segmentation of syllables. The identification of onset-rime to the most challenging and latest developing phonological awareness ability is to manipulate phonemes.

2.2 The Relationship between Phonological Awareness and Reading Proficiency

Research has demonstrated that children’s phonological awareness is related to their spelling and reading performances of an alphabetic language both concurrently and longitudinally (Adam, 1990; Hu, 2003; McBride-Chang & Ho, 2005; Lafrance & Gottardo, 2005; McBride-Chang & Kail, 2002; Shu et al., 2008; Wagner & Torgesen, 1987). Low performance of phonological awareness is significantly related to poor language proficiency, spelling (Chen & Chien, 2002; Hu, 2004; Jian, 2004), vocabulary learning (Dixon, Stuart, & Masterson, 2002; Hu, 2003; Wang, Koda, & Perfetti, 2003) and early reading skills (Bialystok, Luk, & Kwan, 2005; Chol, Ko, & Wang, 2009; Chiappe, Siegel & Wade-Woodley, 2002; Clare, Canobi, & Faulkner, 2004; Ho & Keung, 2008; Muter & Diethelm, 2001). For instance, Hu (2003) found that children with high phonological awareness learned new vocabulary obviously rapidly than those with low phonological awareness.

In terms of the effects of phonological awareness on learners’ with L1 alphabetic language background, many studies on L1 English-speaking children have showed that the development of phonological awareness is closely related with reading proficiency at all age levels (Adams; 1990; Goswami, 1999; Savage & Carless, 2004; Wagner & Torgeson, 1987), and a reciprocal relationship between reading proficiency and phonological awareness is also reported (Stahl & Murray, 1994: Yopp, 1992). In addition, L1 children phonological awareness is highly correlated with their reading proficiency (Ehri, 1997; Clare, Canobi, & Faulkner, 2004; Goswami, 1992), and it is a necessity for alphabetic literacy (Bryant, Maclean & Bradley, 1990). In other words, excellent reading proficiency lies in the development of vocabulary, syntax and phonology (Lundberg, 2002)

With regards to the effects of phonological awareness on learners’ with L2 alphabetic language background, research found that there is apparently a close phonological correlation between two alphabetic languages. Phonological awareness in one language is highly correlated with phonological awareness and word reading proficiency in the other language (Durgunoglu, Nagy, & Hancin-Bhatt, 1993). Phonological awareness was an obvious predictor of performance on word recognition tests both within and across languages (Cisero & Royer, 1995). Muter and Diethelm (2001) also found that phonological awareness of ESL children were a predictor of English reading proficiency regardless of children’ different language backgrounds.
Comeau, Cormier, Grandmaison, and Lacroix (1999) inspected the cross-language transfer of phonological awareness between alphabetic languages by examining 122 English-speaking children in French classes and found both French and English phonological awareness similarly led to reading proficiency of French. The study of Later, Lindsey, Manis and Bailey (2003) also showed that the phonological awareness of 249 Spanish ESL children transferred to English. The studies above all pointed out that cross-language transfer will occur within alphabetic languages.

2.3 Cross-Language Transfer of Phonological Awareness between Alphabetic and Non-Alphabetic Languages

Nevertheless, the research mentioned only carried on cross-language correlation of children learning to read in two alphabetic languages like Spanish and English. The results of two different writing systems like Chinese and English might differ (Akamatsu, 2003; Mann, 1987; McBride et al., 2005; Read, Zhang, Nie & Ding, 1986; Wang & Koda, 2005). The study of Akamatsu (2003) showed that L2 learners of a non-alphabetic L1 backgrounds such as Japanese or Chinese read English word slower than those of an alphabetic L1 background due to the disturbance of L1 orthographic characters. It seemed to support that learners of non-alphabetic language backgrounds might have difficulties in reading new words (Holm & Dodd, 1996), especially for ESL learners with poor L1 phonological awareness. They usually had difficulty in learning English. Wydell and Butterworth (1999) conducted a study about a 16-year-old Japanese boy, who performed well in Japanese phonological awareness and reading but poorer in English phonological awareness test and reading than his Japanese peers. Therefore, it is expected that phonological and orthographic processing will have great influence on children learning to read Chinese and English.

Negative transfer from a non-alphabetic L1 to an alphabetic reading proficiency is reported (Liow & Poon, 1998). Because English and Mandarin Chinese are two different writing systems, it takes different levels of phonological awareness to learn to read Mandarin Chinese and English (Atwill, Blanchard, Burstein, & Gorin, 2007; Huang & Hanley, 1997; McBride-Chang et al., 2008). Nonetheless, the previous studies have demonstrated that phonological awareness is an important predictor of Chinese character recognition in children, but the correlation between Chinese phonological awareness and English reading is not significant (Chow, Mc-Bride-Chang & Surgess, 2005; Ho & Bryant, 1997; Hu & Catts, 1998). The position of phonological awareness in reading English and Mandarin Chinese is similarly important. It can be implied that phonological awareness might be a general ability for children in learning to read not only an alphabetic language but also a non-alphabetic language (Chow et al., 2005). The reason why Chinese learners have difficulties in English reading might because Chinese writing system is different from English, thus Chinese learners have low skill to segment phonemes (Read, Zhang, Nie, & Ding, 1986). The study of Huang and Hanley (1994) also showed that children from Hong Kong who had learned English letters performed better on English phonological awareness but poorer on Chinese phonological awareness than Taiwanese children who had learned a Chinese phonetic script, Zhu-Yin-Fu-Hao. Accordingly, it is obvious that Zhu-Yin-Fu-Hao is insufficient for Taiwanese children to achieve high phonological awareness (Cheung, Chen, Lai, Won & Hills, 2001). L1 negative transfer in L2 spelling might occur because of the different phonology systems because they found Chinese ESL children living in Canada have difficulties in spelling the English sounds / θ / and / ð / which do not exist Chinese phonology (Wang & Geva, 2003).

However, a study of Lee (2006) investigated the relationship between phonological awareness and learners from a non-alphabetic language background. It found that English L2 phonological awareness from Taiwanese junior high school students was associated with their English proficiency and students with high phonological awareness performed apparently better than those with low phonological awareness. In the study, Lee found that rhythm is a
significant predictor of English phonological awareness (Siok & Fletcher, 2001). Similar study can be found in Chen (2009) in which it showed if Taiwanese students perform well with Chinese phonological awareness, the ability will have positive effects on their English phonological awareness. This indicated that L1 phonological awareness experiences affected L2 phonological awareness among EFL learners with non-alphabetic L1 backgrounds. That is to say, learners with high Chinese phonological awareness ability led to higher English phonological awareness. Recent study (Wu, 2010) has demonstrated that Chinese phonological awareness was significantly correlated not only with Mandarin Chinese proficiency but also with English proficiency. And it also found that onset is a significant predictor of Chinese phonological awareness. In addition, it showed that Mandarin Chinese phonological awareness was also significant correlated with English phonological awareness. Her study provided evidence that development of English phonological awareness on the part of Mandarin Chinese-speaking children was remarkable benefited from their development of Mandarin Chinese phonological awareness. And it also showed that English phonological awareness is a significant predictor of English proficiency. The results above were also consistent with previous studies (Chen, 2009; Chen et al., 2004; Cisero & Royer, 2005; Comeau et al, 1999; Ho & Keung, 2008; Lee, 2006; Liu, Perfetti, & Wang, 2004).

Previous studies focused more on children’ Chinese and English phonological awareness tests than those of adults. Research centered on adult EFL college students’ phonological awareness and its influence on English reading are few. To bridge the gap, this study aims to explore the relationship for college students’ Chinese, English phonological awareness and their English reading. Also, the relationship for high proficient and low proficient EFL learners’ Chinese, English phonological awareness and their English reading is another research focus.

3. METHODOLOGY

3.1 Participants

A hundred and fifty college freshmen from one technical university were selected to participate in this research. The average scores of their TOEIC were around 480. Their ages were nineteen or twenty, with 75 males and 75 females. Most of them have learned English for 12 years since they were in elementary schools. Because all of them were EFL learners with Mandarin Chinese as native languages, their levels of Chinese proficiency did not vary significantly.

3.2 Instrument

Three instruments were used in this study to investigate whether there is a correlation between a Taiwanese college student’s Chinese phonological awareness and English proficiency. The three instruments included Chinese phonological awareness test, English phonological awareness test and TOEIC test (including listening and reading proficiency).

3.2.1 Chinese and English phonological awareness tests

The Chinese phonological awareness test was designed to examine the participants’ Mandarin Chinese phonological awareness. Based on the study of Wu (2010), the test contains two parts: Chinese Rime Oddity Test (Hu, 2008) and Chinese Onset Test (Ko, 2004). In the first part, three examples were given first, and then the participants would hear 20 questions of monosyllabic spoken Mandarin Chinese characters through a tape recorder and they had to select the correct one from three different answers, then underlining the answer. Each question was played once and participants would get one point for answering each question correctly. The total score of this part was 20 points. The second part of the test was Chinese Onset Oddity Test, which was similar to the first part with 3 examples and 20 questions. The participants had to choose the one which varied in the initial phoneme from the other two. The total score of this part was 15 points with each question worth one
5

point. Cronbach's Alpha value for Chinese phonological awareness test is .734.

In terms of English Phonological Awareness Test, it was developed by Edrange Publications (2002). The English phonological awareness test consisted of five parts: phoneme segmentation, onset test, coda test, /s/ sound detection and rhythm test. Examples were given in the each part first. Phoneme segmentation was to examine whether a student could segment phonemes in a word because most college students could only count the syllables of a word. Their awareness of phoneme might be insufficient. There were four words on the question sheet for the participants, they were required to write down how many phonemes there were in each word (e.g., splash contains 5 sounds).

The second part of the onset test composed of five questions designed to test the examiners’ onset awareness. Participants were required to write down the first sound of the word in each question. Because the test was designed for college students, the questions were more difficult than that for children. For example, the first sound of chef is /ʃ/ not /tʃ/ literally. Therefore, students’ with low English proficiency could not perform well only by guessing.

The third part of the test was coda test, which measured the examiners’ coda awareness with four questions as well. The question level was as difficult as that of onset test. The fourth part was /s/ sound detection. The participants were given a sentence ‘Sam gave Susie a box of pencils for her sixth birthday.’ They had to mark the letters which were pronounced the sound /s/. Most Taiwanese college students did not know what the right pronunciation was (/z/ or /s/) while seeing words with the letter s. The last part was rhythm test, which measured students’ rime awareness with seven yes-no questions. Two words were given in each question and the examiners had to answer whether they rhymed with each other. The total points in the English phonological awareness test were 31 with each question worth one point and the time limitation was 20 minutes. The results would show the participants English phonological awareness. The Cronbach's Alpha value for English phonological awareness test is .626

3.2.2 TOEIC test

TOEIC Test (Test of English for International Communication) is an English proficiency test designed for people whose native languages are not English and professional knowledge is not required. The test results can reflect whether a person can communicate with others in English well and will be a criterion by many international business companies.

TOEIC test includes 100-item listening comprehension test and reading comprehension test. The total score is 990 and one question worth five points. The listening comprehension has four parts: Photographs, Question-Response, Conversations and Talks. All the 100 questions were played by a computer and the participants were required to finish them in forty-five minutes. The reading comprehension included three parts: Incomplete Sentences, Text Completion and Reading Comprehension. The 100 questions in reading comprehension were printed on text books and the time limitation was seventy-five minutes. The total score were measured by Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEF), which divides TOEIC score into six levels: A1, A2, B1, B2, C1 and C2. Therefore, TOEIC Test measures a wide range of English proficiency.

3.3 Data Collection Procedure

Three measures were prepared in advance including the question sheet, the answer sheet, the tape recorder and the computer. Because the participants were not all from the same departments, students of different departments took the three tests separately according to English courses schedule. The three tests were conducted in a quiet classroom. In the first ten minutes, the examiners listened to the instructions carefully. If they had questions, the researcher would give them help so that they could do well in the tests.
After all the participants understood the instructions of tests, the tests were administered to them step by step as follows. First of all, Chinese phonological awareness test was administered in 40 minutes. Second, the participant was required to finish English phonological awareness test in another 40 minutes. The final test, TOEIC Test was administered in the following week. The listening comprehension was done in 45 minutes and the reading comprehension lasted 75 minutes. The total time limitation of TOEIC Test was 120 minutes. The results of the three tests were examined by running the statistical package of the social science (SPSS) computer software. Through the results of the statistical analysis, the researcher could explore the role of Chinese and English phonological awareness on Taiwanese college students’ English proficiency.

3.4 Data Analysis

The statistical program SPSS 17.0 for Windows was applied for data analysis. The data collected from the scores of the three tests was processed by descriptive statistics. In addition, Pearson correlation was used to probe the correlation between a Taiwanese college student’s Chinese phonological awareness and English proficiency, Chinese phonological awareness and English phonological awareness, and English phonological awareness and English proficiency respectively. The correlation coefficient is a measure of linear association between two variables. It can vary from -1 (perfect negative correlation) through 0 (no correlation) to +1 (perfect positive correlation). As a rule of thumb, correlations less than 0.3 were deemed as low or weak. Those in the range of 0.3 to 0.69 were moderate, and those were greater than 0.7 as being strong or high (Bryman & Cramer, 2004). Finally, multiple regression analyses conducted to see whether Chinese or English phonological awareness is a significant predictor of English reading proficiency.

4. RESULTS AND DISCUSSIONS

The purpose of this study is to investigate the role of EFL learners’ L1 (i.e. Chinese) and English phonological awareness on their English reading performance. In this section, the findings were presented in accordance with the research questions, followed by the discussion about this study. English phonological awareness test included five factors: sound segmentation (E1), onset test (E2), coda test (E3), “s” sound detection (E4) and rhythm test (E5), while Chinese phonological awareness test was made up of onset test (C1) and coda test (C2).

4.1 Results of Research Question 1: What are the relationships among EFL college students’ English phonological awareness test, Chinese phonological awareness test, and their TOEIC English reading proficiency performance?

As shown in Table 1, the average TOEIC scores of the participants was 487.41, which means they had low intermediate English proficiency. In terms of the participants’ performance in the English Phonological Awareness Test, they did the best in Onset Test (M = 3.99) whereas they had the lowest score in Coda Test (M = 2.53). It seemed to imply that students were more sensitive to the initial sound than the final sound.

In addition, descriptive statistics of 150 participants’ Chinese Phonological Awareness Test showed that they performed well in both Rime Oddity Test (M = 17.95) and Onset Oddity Test (M = 12.95). Compared the test performance between English and Chinese Phonological Awareness Test, participants did better in Chinese phonological awareness test (30.70/35 = 0.88) than in English phonological awareness test (21.87/31 = 0.71). One possible reason might be that Chinese were their native tongue and they had contacted this language since childhood; thus, it was much easier for them to acquire and the existence of vast number of homophones gave them less memory load. On the other hand, the participants were not familiar with the sound system of English; therefore, it may be difficult for them to acquire the English sounds (Lee, 2006).
Table 1 Descriptive statistics of participants’ test performance

<table>
<thead>
<tr>
<th>Test</th>
<th>subtest</th>
<th>M</th>
<th>SD</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOEIC Test</td>
<td></td>
<td>487.41</td>
<td>111.619</td>
<td>990</td>
</tr>
<tr>
<td>Chinese Phonological</td>
<td>C1 Rime Oddity Test</td>
<td>17.95</td>
<td>1.849</td>
<td>20</td>
</tr>
<tr>
<td>Awareness Test</td>
<td>C2 Onset Oddity Test</td>
<td>12.95</td>
<td>1.636</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30.70</td>
<td>3.375</td>
<td>35</td>
</tr>
<tr>
<td>English Phonological</td>
<td>E1 Phoneme Segmentation</td>
<td>6.00</td>
<td>1.003</td>
<td>8</td>
</tr>
<tr>
<td>Awareness Test</td>
<td>E2 Onset Test</td>
<td>3.99</td>
<td>.306</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>E3 Coda Test</td>
<td>2.53</td>
<td>1.066</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>E4 /s/ Sound Detection</td>
<td>4.67</td>
<td>1.052</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>E5 Rhythm Test</td>
<td>4.62</td>
<td>1.379</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>21.87</td>
<td>2.898</td>
<td>31</td>
</tr>
</tbody>
</table>

In terms of the relationship between participants’ TOEIC and English phonological awareness test performance, Pearson Correlation analyses showed that there were high correlation between TOEIC and the overall performance of English phonological awareness test (r = .764, p < .001). The results were consistent with previous studies (Chen, 2009; Chiappe, Siegel & Wade-Woodley, 2002; Chow et al., 2005; Lee, 2006; McBride-Chang & Ho, 2005; Muter & Diethelm, 2001; Wu, 2010) which reported that learners’ English L2 phonological awareness was strongly associated with their English proficiency. Specifically, TOEIC had significant and medium correlation with the subtests of Phoneme Segmentation (r = .460, p < .001), coda test (r = .463, p < .001), /s/ Sound Detection (r = .434, p < .001), and Rhythm Test (r = .556, p < .001). However, TOEIC only had low correlation with the Onset Test (r = .217, p < .001).

Secondly, the relationship between learners phonological awareness and proficiency is more complex if the influence of learners’ native language is considered. Many studies (Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Muter & Diethelm, 2001) on language transfer have demonstrated a close relationship between L1 phonological awareness and L2 proficiency within two alphabetic languages like Spanish and English. However, whether the situation holds true if learners’ native language is of non-alphabetic language system (e.g. Chinese).

Results showed that participants’ TOEIC English proficiency test has moderate relationship with their L1 Chinese phonological awareness test (r = .648, p < .001). The findings were in agreement with previous studies (Chen, 2009; Lee, 2006; Wu, 2010) that Chinese phonological awareness was significantly
correlated with English proficiency. Similarly, TOEIC had significant and moderate relationship with both subtests including Rime Oddity Test ($r = .526, p < .001$), and Onset Oddity Test ($r = .531, p < .001$).

For the relationship between learners’ L2 English and their L1 Chinese phonological awareness tests, Pearson Correlation showed that Chinese phonological awareness test has moderate relationship with English phonological awareness test ($r = .594, p < .001$). The findings were in support of previous studies (Chen, 2009; Comeau et al, 1999) that cross-language transfer of phonological awareness was found across languages with different orthographic systems (Atwill et al., 2007; Chen, 2009; Gottardo, 2002; Gottardo et al., 2001; Ho & Keung, 2008; McBride-Chang et al., 2008).

4.2 Results of Research Question 2: Which one (i.e. Chinese or English phonological awareness) is a significant predictor of English proficiency?

Regression analysis can show which variables are significant contributors to the dependent variable, as well as how much of the variance in English reading performance can be accounted for by the two phonological awareness tests. Adjusted R Square change indicated that English phonological awareness contributed most variance ($R=.764$, $R^2= .584$; 58.4%) to English reading performance, while Chinese phonological awareness test accounted for 5.8% of the variance. The result exhibited that English phonological awareness is a significant predictor of English reading proficiency and the result is in agreement with previous studies (Chen, 2009; Lee, 2006, Wu 2010).

Table 3. Statistics between Chinese and English phonological awareness test

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-Squared</th>
<th>Adjusted R-Squared</th>
<th>Std. Error</th>
<th>R-Squared Change</th>
<th>F Chang</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.764*</td>
<td>.584</td>
<td>.581</td>
<td>72.249</td>
<td>.584</td>
<td>207.637</td>
</tr>
<tr>
<td>2</td>
<td>.801b</td>
<td>.642</td>
<td>.637</td>
<td>67.256</td>
<td>.058</td>
<td>23.789</td>
</tr>
</tbody>
</table>

a. Predict Variable: (Constant), English
b. Predict Variable: (Constant ), English, Chinese

4.3 Results of Research Question 3: For learners with high and low English proficiency, what are their differences in their English and Chinese phonological awareness test?

The high proficient group (40 persons) was made up of the top 27% of the total 150 participants, whereas the low proficient (40 persons) group was composed of the bottom 27% of the total 150 participants. Each group consisted of 40 persons. Table 4 showed the descriptive statistics and the results of independent t tests.

Table 4 also displayed significant group differences between the high and the low groups in both the English and the Chinese overall phonological awareness test ($p < .05$), as well as in all the subtests. Consistent with previous studies (Chen & Chien, 2002; Chiappe, Siegel & Wade-Woodley, 2002; Hu, 2004; Lee, 2006; Muter & Diethelm, 2001), the result showed that proficient students had significantly better phonological awareness performance than those less proficient ones in their phonological awareness tests.
Table 4. Groups’ performance in the subtests of English and Chinese phonological awareness tests

<table>
<thead>
<tr>
<th>Test</th>
<th>group</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 Phoneme Segmentation</td>
<td>High</td>
<td>6.65</td>
<td>.834</td>
<td>0.168</td>
<td>6.68</td>
<td>78</td>
<td>.00***</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>5.40</td>
<td>.841</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2 Onset Test</td>
<td>High</td>
<td>4.05</td>
<td>.221</td>
<td>5.15</td>
<td>2.163</td>
<td>78</td>
<td>.034**</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>3.90</td>
<td>.379</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E3 Coda Test</td>
<td>High</td>
<td>3.15</td>
<td>.893</td>
<td>0.47</td>
<td>6.24</td>
<td>78</td>
<td>.00***</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>1.90</td>
<td>.900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E4 /s/ Sound Detection</td>
<td>High</td>
<td>5.20</td>
<td>.853</td>
<td>2.70</td>
<td>4.85</td>
<td>78</td>
<td>.00***</td>
<td>1.07</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>4.13</td>
<td>1.114</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5 Rhythm Test</td>
<td>High</td>
<td>5.83</td>
<td>1.217</td>
<td>1.56</td>
<td>7.77</td>
<td>78</td>
<td>.00***</td>
<td>1.97</td>
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<td>1.051</td>
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<td></td>
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</tr>
<tr>
<td>overall performance of English phonological test</td>
<td>High</td>
<td>24.88</td>
<td>2.377</td>
<td>2.65</td>
<td>11.65</td>
<td>78</td>
<td>.00***</td>
<td>5.60</td>
</tr>
<tr>
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<td>78</td>
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<td>C2 Onset Oddity Test</td>
<td>High</td>
<td>13.83</td>
<td>1.083</td>
<td>12.36</td>
<td>6.19</td>
<td>78</td>
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<td>2.25</td>
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<td>2.024</td>
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<td>overall performance of Chinese phonological test</td>
<td>High</td>
<td>32.92</td>
<td>1.575</td>
<td>23.12</td>
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<td>78</td>
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<tr>
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<td>Low</td>
<td>27.38</td>
<td>4.198</td>
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</table>

Note: **p < .01, ***p < .001.
5. CONCLUSION

5.1 Summary of the Main Findings

Previous studies have explored the relationship between the language proficiency and phonological awareness and found that children’s language proficiency was closely related to both Chinese and English phonological awareness (Chen, 2009; Lee, 2006; Wu, 2010). The present study aims to investigate the relationship among the university students’ English proficiency and their Chinese and English phonological awareness. The findings were stated as follow: 1) EFL tertiary level students’ L2 (English) phonological awareness was associated with their English proficiency, 2) Chinese phonological awareness was significantly correlated with their English proficiency, 3) EFL tertiary level students’ English L2 phonological awareness was associated with their L1 Chinese phonological awareness, 4) English phonological awareness is a significant predictor of English reading proficiency, 5) students with high language proficiency performed apparently better than less–proficient ones in both English and Chinese phonological awareness tests.

5.2 Pedagogical Implication and Limitation of the Study

In conclusion, phonological awareness has significant effect on L2 language proficiency. Previous studies (Harrison & Krol, 2007; Savage & Carless, 2005) have emphasized the importance of phonological awareness for early reading ability. Therefore, teachers are suggested to designed some phonological awareness activities with various degrees of difficulty, for English phonological awareness training could also be an effective way to help learners understand the sound structures in their native and the target language, and even further improve their reading proficiency. Zapparoli (2006) recommends that a story-based phonological awareness curriculum would be helpful to give a rich context for learners to acquire phonological awareness skills. According to Lee (2006), a phonological awareness training concentrating on phoneme segmentation and phoneme deletion skills would be more helpful in promoting learners’ reading and pronunciation accuracy.

And because cross-language transfer of phonological awareness is clear across two languages with different orthographies, teachers should not concentrate only on students’ English development but should give them more chances to notice and manipulate individual sounds both in L1 and L2 (Wu, 2010). After the improvement of learners’ L1 Chinese phonological awareness, learners’ ability in L2 English phonological awareness may improve as well. So the training of L1 Chinese phonological awareness seems necessary for EFL students to develop English phonological awareness even though they are of two different languages systems.

In terms of Chinese phonological training, another Romanization system, Zhuyin Fuhao, which uses symbols based on Chinese characters to represent the sounds of spoken Mandarin, can help Taiwanese learners in learning phoneme deletion and pseudo-word reading(Chen, 2009). Thus, the Chinese Zhuyin system should be conscientiously introduced in the phonological awareness training program as a support for their later English literacy education.

In terms of English phonological awareness training, Taiwanese EFL instructors used phonics to train students to acquire the phonological awareness skills. According to Chen and Chien (2002), phonics is an approach employed for coding the grapheme-phoneme correspondences and the spelling patterns for orthographic language reading. Understanding that words are composed of graphemes and phonemes, teachers should design activities to raise learner’s phoneme and phonological awareness. Because of the orthographic differences between Chinese and English and the cross-cultural transfer from these two languages, teachers could introduce phonological awareness knowledge to help EFL learners to decode English words. These teaching methods can reinforce learners’ phonological awareness and improve English proficiency in second language education.
There were at least two limitations in the present study. First, the English phonological awareness test may be too difficult for the participants because the test was mainly designed for the English-speaking adults. Second, because the Chinese phonological awareness test was mainly designed for children, there were only two subtests (i.e. rime and onset) included. Other subtest like phoneme segmentation was not included in this Chinese phonological awareness test. Even though this research has revealed a positive linkage between EFL learners' English proficiency and their phonological awareness, more research is called for a better control of the instruments administered to the participants.

REFERENCES


