Exploring the Effectiveness and Impacts of Teaching Intervention in Chinese Learning

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Received: July 28, 2023 Accepted: October 4, 2023 Online Published: October 14, 2023

doi:10.5430/wje.v13n5p9 URL: https://doi.org/10.5430/wje.v13n5p9

Abstract

The present study aimed to investigate the effectiveness of teaching intervention for Chinese learners, who were English speakers who tended to focus on phonemic awareness, in learning Chinese. It also tried to examine the impacts of Chinese phonological and morphological awareness on their English language development. The study was conducted in classrooms for third graders from an elementary school in Beijing. The intervention of Chinese program was implemented for a whole year. The morphology-related instruction was adopted in the experimental class, and tradition Chinese teaching instruction was used in the control class. Results showed that students' reading proficiency (including character reading and sentence reading) in experimental class was significantly higher than the one in control class, which suggested that the teaching intervention was effective and successful in improving these learners' Chinese reading proficiency, and they made a great progress after one year Chinese learning. Chinese radical awareness was a significant contributor to their English comprehension and could predict their English development. Pedagogical implications for promoting English speakers' Chinese learning were provided.

Keywords: Chinese instruction, Chinese learning, morphological awareness, phonological awareness

1. Introduction

With the surging interest for learning Chinese as a second language, little research evidence guides the development of appropriate curriculum and effective instruction for this group of learners. Effective pedagogical knowledge for teacher development is necessary and crucial. Previous research demonstrated that phonological awareness was one of the essential skills in literacy acquisition (Derby et al., 2022; Xue, 2021; Ye et al., 2021). Phonological awareness is important in learning both alphabetic languages and morphem-syllabic languages such as Chinese (Juan et al., 2017; Li et al., 2002). A great number of studies have examined the role of phonological processing in reading acquisition and found its predictive value in the acquisition of both alphabetic and non-alphabetic languages (e.g., Pan et al., 2011; Park & Uno, 2015).

However, due to the distinctive features of Chinese language, it is difficult to master Chinese and there is little agreement in the research literature on whether phonological awareness benefits Chinese learning or not. For example, according to McBride-Chang et al. (2005), the effects of phonological awareness are limited in Chinese reading. Chinese is a visual-character-based morphosyllabic language, and morphemes rather than phonemes are directly represented in Chinese characters (Pae et al., 2020; Schmitt & Zhang, 2012). English is a letters-and-phonemes-based phonographic language. It uses "strings of easily pronounceable but meaningless letters, seem to be characterized by a higher degree of phonological processing and a lower degree of semantic processing" than Chinese (Schmitt & Zhang, 2012, p.656). Phonological skills alone cannot effectively promote Chinese reading since Chinese requires a higher degree of semantic processing than English (Schmitt & Zhang, 2012). Morphological awareness also can contribute to Chinese learning (Li et al., 2012; Yeung et al., 2011), and this morphological awareness from Chinese and instruction in morphology can impact both Chinese and English development (Zhang et al., 2010). Chinese provides morphological information, like radical awareness, orthographic awareness, and morphemic awareness, and phonological information, such as onset, rime, tone, and syllable awareness as well. Morphological and phonological awareness are critical to Chinese learning (Li et al., 2012). However, morphological

awareness and related instruction has not been examined thoroughly. Thus, besides phonological awareness, the present study focuses on the morphological aspects for L2 Chinese learning.

2. Literature Review

Morphological awareness has received attention in language research and second language learning recently (Li et al., 2012; Yeung et al., 2011; Zhang, 2021). Kuo and Anderson (2006) defined that "the ability to reflect upon and manipulate morphemes and employ word formation rules in one's languages is therefore referred to as *morphological awareness*" (p. 161). They also described, "Morphological awareness comprises primarily knowledge about the pairing of sound and meaning in a language and the word formation rules that guide the possible combination of morphemes" (p. 161).

Morphological awareness has increasing become strongly related to reading as children grow older but limited to English and probably other alphabetic languages, and the relationship between morphological awareness and reading is reciprocal instead of unidirectional (Kou & Anderson, 2006). Researchers suggested that Chinese was a unique morphology (Pae et al., 2020), each morpheme was represented as a single syllable, and Chinese character represented both a syllable as well as a morpheme, and the words written in characters which bear different pronunciations for different meanings (McBride-Chang et al., 2003; Olmanson et al., 2021). Moreover, in Chinese, over 75% of words are formed through compounding (Kuo & Anderson, 2006). Research investigated the relationship between compound awareness and vocabulary shown that English compound awareness had a reciprocal relationship with Chinese vocabulary (Pasquarella et al., 2011), concluding that "Chinese vocabulary was linked, not only with English compound awareness, but also with English vocabulary through English compound awareness" (p. 36). This finding indicated that there was a reciprocal impact of morphological awareness between Chinese and English. Their research demonstrated that English compound awareness was significantly related to Chinese reading comprehension (Pasquarella et al., 2011). Zhang et al. (2010) also identified that Chinese children who received instruction in Chinese were more able to transfer the knowledge that they had acquired of compound types in Chinese to comparable types in English, compared to those who received no instruction in the morphology of compound words in Chinese.

Morphological awareness is closely related to L1 Chinese learning, and it predicts and contributes Chinese learning (e.g. Li, et al., 2012; Yeung et al., 2011), but as for L2 Chinese learning, there is still an urgent need to explore whether it is also applicable. The present study examined the effectiveness of teaching intervention for English speakers in learning Chinese. The research questions are as follows: 1. Is teaching intervention effective in teaching Chinese? 2. What are the impacts of Chinese phonological and morphological awareness?

3. Study Design

The intervention of Chinese program was implemented in school for a whole year. Students who took a Chinese class participated in this study in an elementary school in Beijing. One class from grade 3 (total 30 students, with 54% female, 46% male) was selected as experimental group, and other one from grade 3 (total 31 students, with 58% female, 42% male) was the control group. Subjects were recruited through a convenience sample. Parents provided informed consent. The morphology-related instruction was implemented in the experimental classroom, and tradition Chinese teaching instruction was used in the control classroom. This experimental study was to compare the experimental and control group on the effectiveness of the teaching intervention.

4. Measures

Chinese phonological awareness consists of three tests: onset, tone and syllable awareness. Morphological awareness tasks consists of morphemic awareness, radical awareness and orthographic awareness. This is pre/post-test. After the morphology-related instruction implemented in experimental classrooms, the same tasks were used to measure phonological awareness and morphological awareness in the posttests. In addition, in the posttests, reading tasks including Chinese character reading and sentence reading were designed to investigate the effectiveness of the teaching intervention. An English comprehension task was also conducted in the posttest.

5. Results

The reliability coefficients ranging from .67-.89. The data of pre- and post-testing on Chinese phonological and morphological awareness tasks and paired t-test were also reported (see Table). Overall subjects' performance on post-tests were better than pre-tests. Paired t-tests were conducted and indicated the significant differences on all tasks of phonological and morphological awareness. It showed the students made a great progress on Chinese phonological and morphological skills after one year learning Chinese.

Table 1. Students' Average Score and Standard Deviation in Pre- and Post-Test of Experimental Group

Tasks	Mean	Std.	t test
Pre_Onset Awareness	0.21	0.32	-11.78**
Post_Onset Awareness	0.68	0.29	
Pre_Tone Awareness	0.25	0.38	-9.71**
Post_Tone Awareness	0.66	0.34	
Pre_Syllable Awareness	0.41	0.48	-11.12**
Post_Syllable Awareness	0.93	0.23	
Pre_Morphemic Awareness	0.24	0.34	-9.54**
Post_Morphemic Awareness	0.60	0.25	
Pre_Orthographic Awareness	0.31	0.38	-8.56**
Post_Orthographic Awareness	0.69	0.31	
Pre_Radical Awareness	0.11	0.20	-11.65**
Post_Radical Awareness	0.49	0.25	

*p<.05, **p<.01

Besides, students' score on Chinese character reading in experimental group (M=0.38) is much higher than their peers in control group (M=0.23, p<.05). The students' score on Chinese sentence reading in experimental group (M=0.43) is much higher than their peers in control group (M=0.30, p<.05).

In order to examine the impacts of Chinese phonological and morphological awareness, the regression analysis was conducted. It showed the coefficients of Chinese phonological and morphological awareness tasks on English comprehension. The model was acceptable (p<.01; R^2 = 35.2%). Chinese radical awareness significantly predicted these learners' English comprehension (β = .34, p<.05).

To summarize, after morphology-related instruction implemented in experimental group, English speakers made a great progress on Chinese phonological and morphological awareness after one year Chinese learning; Students' score on Chinese character reading and sentence reading in experimental group are much higher than their peers in control group. The Chinese radical awareness was a significant contributor to these learners' English comprehension.

6. Discussions

The present study examined the effectiveness of teaching intervention in teaching English speakers to learn Chinese and the impacts of Chinese phonological and morphological awareness. Results showed that students' reading proficiency (including character reading and sentence reading) in experimental group was significantly higher than the one in control group. It suggested that the teaching intervention was effective in improving their reading proficiency, and students made a great progress after one year Chinese learning. The instruction of morphological awareness was very successful. It is in line with studies which found that morphological awareness not only predicted L1 Chinese learning, it was also critical for L2 Chinese learning (Nagy et al., 2003). It affirmed that concerning Chinese, a morphosyllabic language, morphemes rather than phonemes were directly represented in Chinese characters. When English speakers switch to learning Chinese, which is syllabic-morphemic language (Juan et al., 2017), the Chinese morphological awareness would be developed. According to previous studies, each morpheme was represented as a single syllable, and Chinese character represented both a syllable as well as a morpheme, and one character corresponds roughly to one word or meaning for Chinese language (Nick et al., 2004). Previous studies have found that morphological awareness predicted improved literacy skills including vocabulary,

word reading and reading comprehension not only in alphabetic language learning but also in Chinese learning for bilingual children as well as monolinguals (e.g. Wang et al., 2006; Wang et al., 2009). As many intervention studies reported that morphological awareness training enhanced literacy development (e.g., Chow et al., 2008; Zhang, 2021), it is suggested that more morphology-related instruction could benefit L2 Chinese learning. The students in this study were from grade 3, thus, teachers could pay more attention to morphological awareness in latter grade when students learn Chinese as second language.

This study also found that Chinese radical awareness was a significant contributor to English comprehension and could predict these learners' English development. The previous studies found that there was a reciprocal impact of morphological awareness between Chinese and English, and the impact of morphological awareness was influenced by the morphological structures of the languages involved (Pasquarella et al., 2011; Zhang et al., 2010). Most of Chinese characters are compound characters, which suggested why in Chinese learning, English speakers' English comprehension could be impacted in terms of radical awareness. The finding supported that radicals play more important roles in Chinese character learning (Li, 2021; Yan et al., 2019). This study also affirmed some of previous studies (e.g., Chen et al., 2004; Gottardo et al., 2001; Xue, 2021; Ye et al., 2021), but the difference is that the present study found the predictive value of Chinese learning for English comprehension.

7. Conclusions

This study concluded that the teaching intervention was effective in improving L2 Chinese learners' reading proficiency, and these students made a great progress after one year Chinese learning. Chinese radical awareness was a significant contributor to their English comprehension and could predict their English development. The study suggested that enhancing learners' morphological awareness, using more morphology-related instruction methods or adopting morpheme-based mental lexicon models could benefit L2 Chinese learning. Chinese instructors can emphasize the practice on morphemic and radical awareness for English speaker since this factor is critical for them to make progress and achievement in Chinese learning as well as English language development.

8. Suggestions for Future Research

This study explored Chinese learning of third graders, who were selected from one elementary school. More students from larger communities across the grade levels could be investigated in future studies. Chinese teachers' perspective can be explored together with students' perspective to develop effective pedagogical practices or strategies for Chinese instruction in classrooms.

References

Chen, X., Anderson, R.C., Li, W., Hao, M., Wu, X., & Shu, H. (2004). Phonological awareness of bilingual and monolingual Chinese children. *Journal of Educational Psychology*, *96*, 142-151.

Chow, B. W.-Y., McBride-Chang, C., Cheung, H., & Chow, C.S.-L. (2008). Dialogic reading and morphology training in Chinese children: Effects on language and literacy. *Developmental Psychology, 44*, 233-244. https://doi.org/10.1037/0012-1649.44.1.233

Derby, M., Macfarlane, A., & Gillon, G. (2022). Early literacy and child wellbeing: Exploring the efficacy of a home-based literacy intervention on children's foundational literacy skills. *Journal of Early Childhood Literacy*, *22*(2), 254-278.

Gottardo, A., Yan, B., Siegel, L., & Wade-Woolley, L. (2001). Factors related to English reading performance in children with Chinese as a first language: More evidence of cross-linguistic transfer of phonological processing. *Journal of Educational Psychology, 93*, 530-542. https://doi.org/10.1348/000712607X181304

Juan, Z., Yaxuan, M., Chenggang, W., & Zhou, D. Q. (2017). Writing system modulates the association between sensitivity to acoustic cues in music and reading ability: Evidence from Chinese-English bilingual children. *Frontiers in Psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.01965

Kuo, L., & Anderson, R.C. (2006). Morphological awareness and learning to read: A cross-linguistic perspective. *Educational Psychologist, 41*, 161-180. https://doi.org/10.1207/s15326985ep4103_3

Li, B. (2021). Chinese character teaching and learning with marginalized radicals and non-radical components in a character. *Journal of Language Teaching and Research*, *12*(1), 76.

Li, H., Shu, H., McBride-Chang, C., Liu, H., & Peng, H. (2012). Chinese children's character recognition: Visuo-orthographic, phonological processing and morphological skills. *Journal of Research in Reading, 35*, 287-307.

Li, W., Anderson, R. C., Nagy, W., & Zhang, H. (2002). Facets of metalinguistic awareness that contribute to Chinese literacy. In W. Li, J. S. Gaffney, & J. L. Packard (Eds.), *Chinese children's reading acquisition: Theoretical and pedagogical issues* (pp. 87-106). Boston: Kluwer.

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.

McBride-Chang, C., Cho, J.-R., Liu, H., Wagner, R. K., Shu, H., Zhou, A., & Muse, A. (2005). Changing models across cultures: Associations of phonological awareness and morphological structure awareness with vocabulary and word recognition in second graders from Beijing, Hong Kong, Korea, and the United States. *Journal of Experimental Child Psychology*, *92*, 140-160.

Nagy, W., Berninger, V., Abott, 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*, 730-742. https://doi.org/10.1037/0022-0663.95.4.730

Nick, C. E., Miwa, N., Katerina, S., Lorenc H., Victor H.P. V., Nicoletta, P., Maria- Louisa, T., & Michalis, P. (2004). The effects of orthographic depth on learning to read alphabetic, syllabic, and logographic scripts. *International Reading Association*, *39*(4), 438-468.

Olmanson, J., Liu, X., Heselton, C. C., Srivastava, A., & Wang, N. (2021). Chinese character recognition and literacy development via a techno-pedagogical pivot. *Educational Technology Research and Development*, (2). https://doi.org/10.1007/s11423-021-09976-5

Pae, H. K., Bae, S., & Yi, K. (2020). Lexical properties influencing visual word recognition in hangul. *Reading and Writing*, *33*(1). https://doi.org/10.1007/s11145-020-10042-4

Pan, J., McBride-Chang, C., Shu, H., Liu, H. Y., Zhang, Y. P., & Li, H. (2011). What is in the Naming? A 5-year longitudinal study of early rapid naming and phonological sensitivity in relation to subsequent reading skills in both native Chinese and English as a second language. *Journal of Educational Psychology, 103*, 897-908.

Park, H.-R., & Uno, A. (2015). Cognitive abilities underlying reading accuracy, fluency, and spelling acquisition in Korean Hangul learners from Grades 1 to 4: A cross-sectional study. *Dyslexia, 21*, 235-253.

Pasquarella, A., Chen, X., Lam, K., Luo, Y. C., & Ramirez, G. (2011). Cross-language transfer of morphological awareness in Chinese–English bilinguals. *Journal of Research in Reading, 34*(1), 23-42.

Schmitt, B. H., & Zhang, S. (2012). Selecting the right brand name: An examination of tacit and explicit linguistic knowledge in name translations. *Journal of Brand Management*, *19*(8), 655-665.

Wang, M., Cheng, C., & Chen, S. (2006). Contribution of morphological awareness to Chinese-English biliteracy acquisition. *Journal of Educational Psychology, 98*, 542-553. https://doi.org/10.1037/0022-0663.98.3.542

Wang, M., Yang, C., & Chen, C. (2009). The contribution of phonology, orthography, and morphology in Chinese-English biliteracy acquisition. *Applied Psycholinguistics, 30*, 291-314. https://doi.org/10.1017/S0142716409090122

Xue, J. (2021). The developmental trajectory of biliteracy for Chinese-English adult EFL learners: A longitudinal study. *Reading and Writing*, *34*(4). https://doi.org/10.1007/s11145-020-10105-6

Yan, W., Tianhong, L., Yuefei, G., Psychology, S. O., & University, N. N. (2019). Semantic radical processing during Chinese phonogram recognition among two, third and fifth grade children. *Journal of Psychological Science*, *42*(2), 322-328.

Ye, Y., Yan, M., Ruan, Y., Mcbride, C., & Yeung, C. F. (2021). Literacy learning in early Chinese-English bilinguals: the role of pure copying skill. *Early Childhood Research Quarterly*, *55*, 263-274.

Yeung, P.-S., Ho, C. S.-H., Chik, P. P.-M., Lo, L.-Y., Luan, H., Chan, D. W.-O., & Chung, K. K. H. (2011). Reading and spelling Chinese among beginning readers: What skills make a difference? *Scientific Studies of Reading*, *15*, 285-313.

Zhang, H. (2021). The longitudinal effect of morphological awareness on higher-order literacy skills among college L2 learners. *Contemporary Educational Psychology*, *65*(4). https://doi.org/10.1016/j.cedpsych.2021.101969

Zhang, J., Anderson, R.C., Li, H., Dong, Q., Wu, X., & Zhang, Y. (2010). Cross-language transfer of insight into the structure of compound words. *Reading and Writing: An Interdisciplinary Journal, 23*, 311-336. https://doi.org/10.1007/s11145-009-9205-7

Acknowledgments

Not applicable

Authors contributions

Not applicable

Funding

This work was supported by Science Foundation of China University of Petroleum, Beijing [project number ZX20230108].

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.