



## Empirical study

## Unpacking the relation between morphological awareness and Chinese word reading: Levels of morphological awareness and vocabulary

Xiuhong Tong<sup>a,\*</sup>, Xiuli Tong<sup>b,\*</sup>, Catherine McBride<sup>c</sup><sup>a</sup> Institute of Psychological Sciences, Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Center for Cognition and Brain Disorders, Hangzhou Normal University, Hangzhou, Zhejiang, China<sup>b</sup> Division of Speech and Hearing Sciences, Faculty of Education, University of Hong Kong, Hong Kong, China<sup>c</sup> Psychology Department, The Chinese University of Hong Kong, Hong Kong, China

## ARTICLE INFO

## Article history:

Available online 26 July 2016

## Keywords:

Sublexical and lexical morphological awareness  
Vocabulary  
Word reading  
Chinese

## ABSTRACT

The nature of the relations among morphological awareness, vocabulary and word reading in Chinese children remains relatively unclear. The present study aimed to distinguish between sublexical morphological awareness, referring to the ability to use the meaning cues of semantic radicals embedded in a compound character, and lexical level morphological awareness, defined as the ability to understand and manipulate single characters (i.e., morphemes) comprising Chinese compound words, on word reading. We also examined the role of vocabulary knowledge on the relation between morphological awareness and word reading at both the sublexical and lexical levels. A group of 172 Chinese second graders were administered measures of sublexical and lexical level morphological awareness, vocabulary knowledge, phonological awareness, orthographic knowledge, nonverbal ability, and word reading. Both sublexical and lexical levels of morphological awareness were moderately correlated with word reading. Vocabulary knowledge appeared to partially mediate the effect of sublexical morphological awareness on word reading, but it fully mediated the effect of lexical level morphological awareness on word reading. These results suggest that sublexical and lexical level morphological awareness play distinct roles in Chinese word reading; vocabulary knowledge is an important factor influencing the relation between morphological awareness and word reading in Chinese.

© 2016 Elsevier Inc. All rights reserved.

## 1. Introduction

Morphological awareness, operationally defined as the ability to access, analyze, and manipulate morphological information within a word, is uniquely, and possibly causally, associated with children's reading development (e.g., [Carlisle, 1995, 2000](#); [Deacon & Kirby, 2004](#); [Kuo & Anderson, 2006](#), for a review). This relation is reciprocal, with morphological awareness facilitating children's reading development and reading experience, in turn, boosting children's acquisition and understanding of morphological knowledge (e.g., [Deacon, Benere, & Pasquarella, 2013](#); [Kruk & Bergman, 2013](#)).

Despite the importance of morphological awareness in reading, the nature of this relation is far from clear, particularly as compared to what has been known about the relation between phonological awareness and reading ([Carlisle, 2010](#)). One important, as

yet unresolved, issue concerns the multidimensional nature of morphological awareness. There is growing evidence showing that morphological awareness is a multidimensional construct ([Carlisle, 2000](#); [Deacon, Tong, & Francis, 2015](#)). That is, morphological awareness involves identification and manipulation of morphemes and the understanding of the functions and structures of a word at different levels in a language; these might include both sublexical and lexical levels (e.g., [He & Xiao, 2008](#); [Tyler & Nagy, 1989](#)). However, less is known about the extent to which different levels of morphological skills contribute to reading, and whether the relations between different levels of morphological awareness and reading would be influenced by other factors such as vocabulary knowledge. We examined these two questions in Chinese word reading among Hong Kong second graders.

## 1.1. Sublexical and lexical levels of morphological awareness in Chinese

Chinese provides a fascinating window into the role of sublexical and lexical levels of morphological awareness in word reading

\* Corresponding authors at: Hangzhou Normal University, No. 16 Xuelin Road, Jianggan District, Hangzhou, Zhejiang, China (X. Tong). Room 804C, Meng Wah Complex, Division of Speech and Hearing Sciences, Faculty of Education, The University of Hong Kong, Pokfulam Road, Hong Kong, China (X. Tong).

E-mail addresses: [tongxiuhong@gmail.com](mailto:tongxiuhong@gmail.com) (X. Tong), [xltong@hku.hk](mailto:xltong@hku.hk) (X. Tong).

because of its unique features of morphology. Unlike the morpho-phonemic language of English, Chinese is a morphosyllabic system in which each spoken syllable maps onto one morpheme (i.e., the smallest unit of meaning in a language) or character, with the exception of a few morphemes that are two characters (Leong, 1997; Mattingly, 1992). A character is written in a roughly square shape and is composed of strokes or stroke patterns. The smallest and most basic unit within the character is the stroke. There are two types of characters: simple characters and compound characters. The single characters are made up of eight basic strokes: horizontal (一), vertical (丨), left-falling (丿), right-falling (㇇), dot (丶), rising (㇇), turning (㇇), and hook (㇇) strokes. Less than 20% of characters are single characters. In contrast, the majority of Chinese characters (over 80%) are semantic-phonetic compound characters containing a submorphemic unit, i.e., radicals that provide some clues as to the meaning and sound of the character. For example, the semantic-phonetic compound character 瞪/ dang1/ (to stare at) consists of a left-sided semantic radical 目 (eye) and a right-sided phonetic 登/ dang1 /.

The semantic radical or the submorphemic unit of the Chinese character exhibits certain characteristics that are similar to the derivational affixes in English (see Gonnerman, Seidenberg, & Andersen, 2007). First, the semantic radical can be recombined to form a set of characters sharing some degree of semantics or common meaning. For example, the semantic radical 目 (eye) is recombined to form characters such as 盯 (to gaze at), 眨 (to wink), 瞧 (to look), 睛 (the pupil of the eye), 睑 (eyelid), 睫 (eyelashes), and 睹 (to observe). All these characters represent an eye-related concept. Second, semantic radicals are diverse: Some semantic radicals are graphomorphological units that unify orthographical, phonological and semantic information, such as 目 (eye) having its own sound / muk6/ and meaning (eye). In contrast, there are some other semantic radicals, which are graphosemantic units that roughly encode semantic information, but have no independent sound or morphemic structure, such as 犛 (animal-related concept). Third, semantic radicals are positionally specific. The function of the radical may change if its position changes. For example, the semantic radical 木 (wood) serves as a semantic radical when it is localized on the left-sided of a character, such as 橋 (bridge), 板 (board), 枝 (branch), and 松 (pine). However, it becomes a phonetic radical when it appears on the right-side of a character, such as in 沐 (to bathe), indicating the sound of / muk6/. The semantic radicals may have a separate level of representation that is distinct from character in the mental lexicon (e.g., Taft & Zhu, 1997a, 1997b; Zhou & Marslen-Wilson, 1999).

It seems that some of these semantic radicals (the semantic radicals which have their own sound and meaning) function similarly to the derivational morpheme in English in that they both contribute to the meaning of the word. However, unlike English derivational morphemes that are more linked with phonological codes, these semantic radicals are more tied with orthographic codes. Thus, from a theoretical viewpoint, a focus on semantic radicals that illustrate graphomorphological features of the Chinese writing system sheds light on the controversial issue as to whether orthographic ability should be included in the definition of morphological awareness for Chinese. Chinese is also widely recognized as an important language in which to explore morphological awareness because of its unique morphology at the lexical level (Packard, 2000). Unlike English in which words can be formed in three different ways including inflection, derivational, and compounding morphology (see Kuo & Anderson, 2006, for a review), the predominant way of Chinese word formation is lexical compounding (Chen, Hao, Geva, Zhu, & Shu, 2009). Specifically, one single morpheme can combine with other morphemes to form a compound word representing a new concept. For example,

the single morpheme 讀 (to read) can combine with other morphemes such as 寫 (to write) or 書 (book) in forming the compound words of 讀寫 (read and write) and 讀書 (to read a book). The newly formed compounds are the semantic combinations, to a certain extent, of the two component morphemes. In other words, this is similar to compounding in English, with each component morpheme contributing to the meaning of the single compound words (e.g., moon + light = moonlight). Also, Chinese has a limited number of syllables, which leads to a great number of characters or morphemes that share an identical sound, defined as homophones. For example, one monosyllable /jyun4/ can represent more than four characters 猿 (ape), 圓 (circle), 園 (garden), 員 (member) and 原 (origin) with different meanings. These homophones can be distinguished by their orthographic forms or the lexical context. However, most research on Chinese morphological awareness has conceptualized homophone awareness as one aspect of morphological awareness (e.g., McBride-Chang, Shu, Zhou, Wat, & Wagner, 2003).

On the basis of these characteristics of Chinese mentioned above, there is no clear-cut distinction of morphemes, characters, and words in Chinese. For example, one character can be either a morpheme or a word, e.g., 目 (eye) or a submorphemic unit in a compound character, such as 眨 (to wink). Thus, it may not be ecologically valid or language-sensitive to apply the definition of morpheme or morphological awareness from English to Chinese without considering the nature or uniqueness of Chinese morphology. In particular, the idea of confining morphological awareness to the oral language domain without involving orthographic forms would not make sense for Chinese, a logographic language. Thus, considering the unique features of Chinese, morphological awareness in Chinese can be extended to include graphomorphological units (semantic radicals), and it can be further distinguished into sublexical level morphological awareness and lexical level morphological awareness. At the sublexical level, morphological awareness refers to the ability to use meaning cues of semantic radicals embedded in a semantic-phonetic compound character (Shu & Anderson, 1997). Lexical morphological awareness is defined as the ability to identify, analyze and manipulate the morphological structure of the morphemes comprising a Chinese compound word (e.g., McBride-Chang et al., 2003). The conceptual distinctions between sublexical and lexical levels of morphological awareness are derived from previous empirical studies, which have separately evaluated the role of these two levels of morphological awareness in Chinese word reading (e.g., McBride-Chang et al., 2003; Shu & Anderson, 1997).

The distinction of sublexical and lexical morphological awareness is supported by theoretical accounts of Chinese word recognition, i.e., the multilevel interactive-activation model and the lexical constituency model. The multilevel interactive-activation model assumes that the activations of sublexical units (i.e., radicals) mediate the activations of their lexical counterparts as independent characters; such activation can either facilitate or inhibit the recognition of whole characters depending on the relatedness of sublexical units and their composite characters (Taft, 1994; Taft & Zhu, 1997a, 1997b; Taft, Zhu, & Peng, 1999). The different level components may form two pathways for word reading: the semantic pathway and the non-semantic pathway. The semantic radical may contribute to word reading through both the semantic pathway and the non-semantic pathway given the fact that the semantic radical is a convergence of sound, meaning and orthography and most Chinese characters contain both phonetic and semantic radicals (Zhou & Marslen-Wilson, 1999).

Given that the multilevel interactive-activation model emphasizes the independent representation of radicals that are distinct from the characters (lexical morpheme), we wondered how

Download English Version:

<https://daneshyari.com/en/article/4937930>

Download Persian Version:

<https://daneshyari.com/article/4937930>

[Daneshyari.com](https://daneshyari.com)