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The Critical Role of Phonological Syllabification in English Language Teaching for L1 Chinese Learners

Liching Lin
School of Foreign Languages, Shandong Vocational and Technical University of International Studies, Rizhao 276826, Shandong, China

Abstract

This study investigates the critical role of phonological syllabification in English language teaching for L1 Chinese learners, arguing that the fundamental, often-overlooked discrepancy between orthographic and phonological syllabification is a primary source of decoding difficulty for polysyllabic words. The central thesis of this study is to analyze this fundamental distinction, explore the specific challenges it creates for L1 Chinese learners of English, and argue for the necessity of integrating explicit phonological syllabification instruction into ESL/EFL pedagogy. Consequently, the research concludes that current ESL/EFL methodologies are insufficient, strongly recommending the explicit integration of phonological syllabification strategy instruction to provide learners with the analytical tools to break words down by their phonological structure, thereby strengthening phonics skills, establishing robust grapheme-phoneme correspondence, and ultimately enhancing the efficiency and independence of English vocabulary acquisition.

Keywords

Syllable; Syllabification; L1 Chinese; ESL/EFL learners; ESL/EFL pedagogy

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1. The functional role of syllables in visual word recognition

Given the predominance of multisyllabic words in various languages, and the importance of syllables to their oral forms, syllables have been proposed to fill a sublexical role in recognizing multisyllabic written words in English [1], Spanish [2], and Portuguese [3], *inter alia*. A syllable is generally understood to be composed of at least a vowel sound. Likewise, a phoneme that begins or ends a syllable must also be a legal beginning or end of a word. Linguists have suggested other criteria (such as morphology, speech rate, or sonority contour), but disagree on syllabification rules.

Taft [4] parses English words using a Basic Orthographic Syllabic Structure (BOSS) that maximizes the coda of the first printed syllable (e.g., *rad-io* rather than *ra-dio*), as long as this can be done without breaking the rules of English orthography. However,

behavioral and ERP studies point to phonological syllable structure rather than BOSS, suggesting that syllabic effects are phonological in nature [5–11]. It is possible to posit syllables as an intermediary level between letters and words (an activation-based model [12]). However, instead of phonological syllabification, the principles of orthographic syllabification are often used to analyze the phonological syllables. For this reason, phonological and orthographic syllabification needs to be kept distinct.

The central thesis of this paper is to analyze this fundamental distinction, explore the specific challenges it creates for L1 Chinese learners of English, and argue for the necessity of integrating explicit phonological syllabification instruction into ESL/EFL pedagogy.

2. Phonological vs. orthographic syllabification: A foundational distinction

A strategic distinction between phonological and orthographic syllabification is essential for effective language instruction. This distinction is crucial because English phonotactic constraints, phonological rules, and stress rules are all based on the structure of phonological syllables, not the conventions of written word breaks [13]. Understanding this difference is a prerequisite for accurately decoding and encoding polysyllabic English words.

2.1. Orthographic syllabification

Orthographic syllabification is primarily a print convention, intended not to reflect pronunciation but to indicate convenient positions for a word break when a word must be divided at the end of a line. For example, the word syl•la•ble might be divided in print as syl-lable or sylla-ble. According to Yavaş [13], orthographic syllabification is guided by two main principles. The first involves morphology, where prefixes and suffixes are treated as discrete units; the word hoping, for instance, is divided orthographically as hop•ing. The second principle relates to vowel length in polysyllabic words. In a word like coma, where "o" represents a long vowel (/əʊ/), the word is divided as co•ma. Conversely, in comma, where "o" represents a short vowel (/ɒ/), the word is divided after the consonant as com•ma to signal the short vowel, despite its phonological similarity to coma.

2.2. Phonological syllabification

In contrast, phonological syllabification is based entirely on pronunciation and the sound structure of a word. Re-examining the previous examples reveals the stark difference. Orthographic hop•ing is phonologically /ˈhəʊ-pɪŋ/, a two-syllable word divided between the vowel and the final consonant cluster. Orthographic co•ma is phonologically /ˈkəʊ-mə/, and comma is /ˈkɒ-mə/; their phonological syllable breaks are identical, unlike their orthographic forms. The word sitting provides another clear illustration of this divide. While dictionaries, following orthographic rules, divide it as sit•ting, English speakers pronounce it closer to /ˈsɪ-tɪŋ/, with the medial consonant initiating the second syllable [14]. This discrepancy underscores that written breaks should not be confused with phonological syllables.

2.3. Key discrepancies between orthographic and phonological systems

The differences between the two systems are systematic and can create significant confusion for learners who rely on written conventions to infer pronunciation. The following seven points highlight the most significant discrepancies [15].

2.3.1. Morphological integrity vs. pronunciation

Orthography prioritizes preserving the integrity of morphological units like prefixes and suffixes, while phonology follows the flow of pronunciation. For example, ex•as•per•ate is divided orthographically to preserve the prefix ex- and suffix -ate, but its phonological division is /ɪgˈzæs-pə-reɪt/. Similarly, of•fend•er is phonologically syllabified as /əˈfen-də(r)/.

2.3.2. Intervocalic doubled letters

In words with doubled consonants, orthography divides the letters (e.g., com•mon, hap•pen, but•ter). Phonologically, however, these doubled letters represent a single phoneme which is parsed as the onset of the second syllable: /ˈkɒ-mən/, /ˈhæ-pən/, /ˈbʌ-tə(r)/.

2.3.3. Intervocalic consonant groups

In cases where two different intervocalic letters represent two distinct phonemes, both systems may align (e.g., sol•dier as /ˈsəʊl-dʒə(r)/, ob•tain as /əbˈteɪn/, and ath•lete

as /ˈæθ-liːt/). However, when a consonant is silent, orthography still divides the graphemes, while phonology assigns the single pronounced phoneme to the second syllable. This is seen in of•ten (/ˈɒ-fn/) and shep•herd (/ˈʃe-pəd/).

2.3.4. Syllable count mismatch

The number of syllables can differ dramatically between the two systems. For instance, the•ater is two syllables orthographically but three phonologically (2:3, /ˈθɪ-ə-tə(r)/). Conversely, choc•o•late is three syllables in writing but two in speech (3:2, /ˈtʃɒ-klət/). Other examples include veg•e•ta•ble (4:3, /ˈvedʒ-tə-bl/) and his•to•ry (3:2, /ˈhɪs-tri/).

2.3.5. Specific letter combinations (e.g., "sm")

The letter combination *sm* cannot form an orthographic syllable. Phonologically, the sounds represented by these letters form a phonological syllable, with the first consonant sound typically forming the onset of the following syllable, as in *prism* /ˈprɪ-zəm/, *chasm* /ˈkæ-zəm/, and op•ti•mism /ˈɒp-tɪ-mɪ-zəm/.

2.3.6. The letter "x"

The letter "x" is typically pronounced as a two-consonant cluster, /ks/ or /gz/. When intervocalic, these two phonemes are divided into different phonological syllables, as seen in *taxi* /ˈtæk-si/ and *exit* /ˈek-sɪt/ or /ˈeg-zɪt/.

2.3.7. Legal consonant clusters

Phonological syllabification, unlike its orthographic counterpart, incorporates legal consonant clusters into the onset of the following syllable. This is evident in words like ex•qui•site /ɪkˈskwɪ-zɪt/, prog•ress /ˈprəʊ-gres/, prob•lem /ˈprɒ-bləm/, and par•tic•u•lar /pəˈtɪ-kjə-lə(r)/.

These fundamental differences in how English words are structured in print versus speech create a specific set of predictable challenges for learners, particularly for those whose first language, like Chinese, has a profoundly different syllabic and orthographic system.

3. Syllable-based challenges for L1 Chinese EFL learners

The inherent linguistic differences between Mandarin Chinese and English, particularly in syllable structure and writing systems, create significant difficulties for L1 Chinese learners. This issue is compounded by the natural impulse to transfer reading techniques from a native language (L1) to a new language (L2) [16]. For Chinese learners of English, this transfer can impede the development of skills necessary for decoding a complex alphabetic script. The primary challenges they face can be categorized into three main areas.

3.1. Mismatch in syllabic complexity

The structural differences between English and Mandarin Chinese syllables are profound. The English syllable can have a highly complex structure, represented as (C)(C)(C)V(C)(C)(C)(C), allowing for a maximum of three consonants in the onset (syllable beginning) and four in the coda (syllable end). This yields a total of 19 possible permutations (see **Table 1**), which can be divided into "simple" and "complex" categories, the latter consisting of the 15 possibilities in which consonant clusters appear.

In stark contrast, the Mandarin Chinese syllable has a much simpler structure, represented as (C)(G)V(X) [17], where G is a glide, and X is a nasal consonant or part of a diphthong. Crucially, Mandarin has no consonant clusters; it is composed entirely of simple syllables (see **Table 2**). The tables below illustrate this structural disparity.

This mismatch has direct consequences for pronunciation. L1 Chinese learners often struggle with English consonant clusters because such structures are phonotactically illegal in their native language. For example, while the individual phonemes /s/, /p/, /r/, and /eɪ/ exist in Chinese, the onset /spr/ in a word like "spray" is impossible in Mandarin, leading to predictable production difficulties.

3.2. Difficulty with polysyllabic words

The root cause of difficulty with English polysyllabic words lies in the fundamental difference between the processing units of English and Chinese. As an alphabetic language, English maps letters to phonemes, making phonemic awareness—the ability to identify and manipulate individual sounds—a critical predictor of reading skill [18]. Readers of English must learn to decode words at the segmental level.

The Chinese writing system, however, operates

Table 1. Types of English syllables

	Syllable type	Word example	
	Simple syllables		
(1)	V	I	/aɪ/
(2)	CV	go	/gəʊ/
(3)	VC	it	/ɪt/
(4)	CVC	sit	/sɪt /
	Complex syllables		
(5)	CCV	free	/friː/
(6)	VCC	ox	/ɒks/
(7)	CCCV	spray	/spreɪ/
(8)	VCCC	asked	/æskt/
(9)	CVCC	cooked	/kʊkt/
(10)	CVCCC	depths	/depθs/
(11)	CVCCCC	sixths	/sɪksθs/
(12)	CCVC	stood	/stʊd/
(13)	CCCVC	strike	/straɪk/
(14)	CCVCC	treats	/triːts/
(15)	CCVCCC	trusts	/trʌsts/
(16)	CCVCCCC	twelfths	/twelfθs/
(17)	CCCVCC	strikes	/straɪks/
(18)	CCCVCCC	strengths	/streŋθs/
(19)	CCCVCCCC	strengths	/streŋkθs/

Note: The word *strengths* pronounced as /streŋkθs/ is a dialectal variation in which /k/ is inserted.

Table 2. Types of Mandarin Chinese syllables

	Syllable type	Word example
(1)	V	阿 a
(2)	CV	八 ba
(3)	GV	窝 wo
(4)	CGV	拖 tuo
(5)	VX	肮 ang 安 an
(6)	CVX	帮 bang 般 ban
(7)	GVX	央 yang 烟 yan
(8)	CGVX	江 jiang 间 jian

Created by the researcher of the present study according to the notational system of Duanmu (2006).

differently. A Chinese character is simultaneously the basic unit of writing (grapheme), pronunciation (syllable), and meaning (morpheme). This logographic system does not map components to phonemes. Consequently, Chinese readers are conditioned to process phonological information at the syllabic level rather than the phonemic level [19,20]. Because L1 Chinese learners have a greater reliance on orthographic and syllabic information, they often struggle to break down unfamiliar, polysyllabic English words into their constituent phonological syllables, a skill essential for accurate decoding [21–23].

3.3. The challenge of variable and mobile stress

Stress is a suprasegmental feature that applies to whole syllables and is typically marked by longer duration, greater intensity, or higher pitch [24]. In English, stress is both variable and mobile, posing a significant hurdle for learners.

Variable stress means that the primary stress can fall on any syllable of a polysyllabic word. For example, stress can be on the first syllable in *algebra* (/ˈæl-dʒɪ-brə/), the second in *zucchini* (/zuˈkiː-ni/), or the third in *kangaroo* (/ˌkæŋ-gəˈruː/).

Mobile stress refers to the fact that stress can shift between related words. For example, the stress falls on the first syllable in *origin* (/ˈɒ-rɪ-dʒɪn/), moves to the second in *original* (/əˈrɪ-dʒə-nl/), and shifts to the third in *originality* (/əˌrɪ-dʒəˈnæ-lə-ti/).

This unpredictability means that stress patterns often must be memorized much like vocabulary items. Without a strong awareness of phonological syllable structure—the very domain of stress assignment—learners lack a systematic way to approach this feature, although an understanding of syllabification can offer critical assistance. These combined challenges highlight the urgent need for a pedagogical approach that directly addresses the phonological realities of English.

4. Conclusion: The pedagogical imperative for explicit instruction

The complex syllable structure of English is proven to pose significant difficulties for learners from languages with simpler structures, such as Mandarin Chinese [25]. The analysis presented in this paper demonstrates that these

difficulties are exacerbated by the fundamental disconnect between English orthography and phonology. For L1 Chinese speakers, whose greater reliance on orthographic information to identify words has been confirmed in multiple studies, this disconnect is particularly damaging.

Current ESL/EFL teaching methods, which may over-emphasize whole-word approaches or standard phonics, are insufficient to address this core problem. While phonics instruction has been incorporated into many standard curricula, explicit instruction in phonological syllabification is generally not provided. This is a critical omission, as research shows that skilled readers rely on processing phonological representations, not just orthographic ones, to recognize polysyllabic words [6,7].

Therefore, the findings of this analysis lead to a clear recommendation: phonological syllabification strategy instruction must be explicitly integrated into ESL/EFL pedagogy. Such an approach would directly confront the challenges posed by English consonant clusters, polysyllabic words, and variable stress by giving learners the analytical tools to break words down by their sound structure. By teaching learners to identify phonological syllables, educators can move beyond the misleading conventions of print. This instructional shift will empower L1 Chinese EFL learners to become more independent and confident in their ability to encode or decode English words.

The explicit integration of phonological syllabification strategy instruction can facilitate L1 Chinese learners to effectively utilize phonics skills, thereby strengthening English vocabulary acquisition. Through clear pronunciation knowledge, this approach helps learners establish a robust grapheme-phoneme correspondence link. This systematic instructional shift will substantially enhance the efficiency and depth of memory in English vocabulary learning, while also contributing to cultivating students' independence and sense of accomplishment in English learning.

Disclosure statement

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