

Learning Second Language Writing Systems

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Abstract

Learning to read and write a second language writing system requires developing new skills or adapting pre-existing ones. Different writing systems represent different language units, with different levels of transparency and different symbols. L2WS learners, who developed processes and strategies appropriate for their L1 writing system, must adapt to the cognitive demands of their new writing system. Learners may need to become aware of new language units, to adjust their reliance on the phonological route, to adapt their eye-movement patterns and hand movements, to learn new orthographic conventions. Learning an L2 writing system is therefore a complex but rewarding task.

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1. Introduction

Most second language learners are not only learning a second language but also a **second language writing system** ('L2WS'), i.e. a writing system which represents a second language and is learnt after the first language writing system (Cook & Bassetti 2005). Anyone who is learning the written form of an L2 is learning an L2 writing system. This does not necessarily mean learning new symbols (as is the case for English learners of Japanese or Arabic): English learners of Spanish are also learning an L2WS because the English and Spanish writing systems use the same alphabet differently to represent the English and Spanish languages.

Different writing systems represent different language units (some represent syllables, other phonemes or morphemes), use different symbols, are more or less regular and have different physical properties. Therefore, learning an L2WS may involve learning to identify new linguistic units, learning to read and write new written symbols, learning new rules for converting written symbols to sounds and sounds to symbols, learning new punctuation and orthographic conventions, and even acquiring new hand or eye movements. Once the learning process is over, L2 users of a writing system ('biculturals' or 'biliterates') differ from native users of the same writing system in the way they read, write and think about this writing system, and may even differ from native users of their L1 writing system in the way they use or think about their L1 writing system.

2. Writing systems, scripts and orthographies

A writing system represents a language by segmenting it into a sequence of small discrete units, each represented by a **grapheme** (the smallest identifiable unit of a writing system). For instance, the English writing system segments language into phonemes, represented by letters or letter combinations (represents /b/, <sh> represents /ʃ/). The Chinese writing system segments language into monosyllabic morphemes represented by 'hanzi', or 'Chinese characters' (东 represents the morpheme 'East', pronounced /tuŋ/; 冬 represents 'winter', also pronounced /tuŋ/). Japanese kana mostly represent syllables (か represents /ka/, き represents /ki/); Arabic and Hebrew graphemes represent consonants; and so on. There are different types of writing systems, depending on what linguistic units are represented by their graphemes: phonemic (or alphabetic) writing systems represent phonemes (e.g. English, Greek); consonantal writing systems represent consonants (e.g. Hebrew, Arabic); syllabic writing systems represent syllables (e.g. Thai, Tibetan); morphemic writing systems represent morphemes (e.g. Chinese, Japanese).

Scripts are the actual sets of graphemes used to write languages. The Chinese script is the set of all Chinese hanzi; the Roman alphabet is the set of all the Roman alphabet letters, etc. The Roman alphabet (a b c) and the Greek alphabet (α β γ) are different scripts, but they both belong to the category of alphabetic writing systems.

The same script can be used to represent different languages; **orthography** determines the way a script is used to represent a specific language. For instance, the Roman alphabet is used to represent both the English and Italian languages. Orthography includes grapheme-sound correspondence rules, which determine how graphemes are read: in both the English and Italian orthographies corresponds to /b/, but whereas <ch> corresponds to /k/ in the Italian orthography, in the English orthography it corresponds to /ʃ/ ('machine'), /tʃ/ ('child') and /k/ ('chaos'), so that <chine> corresponds to /kine/ in Italian and to /tʃaɪn/ in English. In alphabetic writing systems these rules are called **grapheme-phoneme correspondence rules**.

Different writing systems have different levels of **phonological transparency**, i.e. the amount of phonological information they provide. Different types of writing systems are phonologically transparent to differing degrees: alphabetic and syllabic writing systems (which represent each phoneme/syllable of the language) are more phonologically transparent than consonantal writing systems (which do not represent vowels); these are more phonologically transparent than morphemic writing systems (which represent phonology only indirectly). Within the same type of writing system, different orthographies can also vary in phonological transparency. The Italian writing system is more transparent than the English one. For instance, in Italian the grapheme <d> can only be read as /d/, and the phoneme /d/ can only be spelled as <d>; in English <d> can be read

as /d/ ('red'), /dʒ/ ('procedure'), or it can be silent ('sandwich'). While more phonologically transparent writing systems are generally called 'transparent', 'shallow' or 'regular', here they will be called 'phonologically transparent' because 'transparency' can also refer to **morphological transparency**. English is more morphologically transparent than Italian, for instance, spelling /sam/ as <sign> to show its common morpheme with <signature> regardless of their pronunciation, whereas Italian represents the sound of words regardless of their morphology, spelling <segno> with <e> and <significato> with <i>.

Apart from differences in the linguistic units they represent and in the degree of phonological and morphological transparency, writing systems also differ in other respects, such as punctuation or directionality. All of these affect the way writing systems are learnt, read, written and thought about by both native users and L2 learners and users.

3. Learning a second language writing system

In some respects, L2WS learners are not different from native-speaking children acquiring literacy in the same writing system. Both L2WS learners and children need more time and effort to learn some writing systems than others. For instance, pointed Hebrew (which represents both consonants and vowels) is learnt faster than the much less regular English writing system: for this reason, English-speaking children learn to read L2 Hebrew more easily than L1 English. Like native-speaking children, L2WS learners and users are less proficient than adult users of the target writing system. L2WS users need more time and effort to decode the written L2, which results in slower reading and reduced comprehension and memorization.

On the other hand, L2WS learners (both children and adults) differ from native-speaking children because the former already know another writing system. They know some basic facts about writing, for instance that it represents language and that symbols are arranged sequentially. But above all L2WS learners have already developed processes, strategies and skills to read and write their L1 writing system. Learners' previous knowledge of another writing system affects how they learn and use their L2 writing system.

3.1 Learning a new type of writing system

The L2 writing system may represent different linguistic units from the L1WS. For instance, the L1WS may represent morphemes and the L2WS syllables, or the L1WS may represent consonants and the L2WS phonemes. When the two writing systems represent the same linguistic units, L2WS learning is facilitated, but even when they represent different units, the L1WS affects the use of the L2WS.

Learning and using an L2WS is easier if it represents the same linguistic units as the L1WS. For instance, Spanish readers of L2 English (ESL) outperform Chinese ESL readers, because Spanish, like English, represents phonemes. Japanese learners of Chinese read hanzi faster than native users of alphabetic writing systems; Chinese learners of Japanese learn syllabic kana faster than romanized Japanese, although kana is a new script to them.

When the two writing systems differ, L2WS learners are affected by the processes and strategies developed to use their L1 writing system. Different writing systems are read differently. Roughly speaking, more phonologically transparent writing systems are read by converting each grapheme

into a phoneme. For instance, one can read <city> by converting <c> to /s/, <i> to /i/, etc., and then looking up the meaning of /siti/ in the mental lexicon (a mental repository of all words known to the speaker). Readers of Italian, Japanese kana and other phonologically transparent writing systems mostly rely on this ‘**phonological route**’. On the other hand, less phonologically transparent writing systems are read by recognizing the written word as a whole, via the ‘**lexical route**’ (or ‘visual route’). For instance, the Chinese 东 can only be read by recognizing it and then looking up its meaning and pronunciation in the mental lexicon. Chinese and Japanese readers recognize graphemes using the lexical route, Spanish and Italian readers mostly rely on the phonological route; the same two routes are used for both reading and spelling.

These differences affect L2WS users, who often rely on the strategies developed to read their L1 writing system. When Chinese and Japanese learners/users of English read English words, they rely more on sight-word knowledge, whereas native users of alphabetic writing systems rely more on the phonological route. This means that Chinese and Japanese learners of English are less able to read unknown words by decoding graphemes into phonemes; on the other hand, Spanish learners of English are slower at word recognition, because they tend to convert graphemes into phonemes rather than making any attempt to quickly identify whole words. Readers of (consonantal) Arabic rely more on consonants than on vowels in reading English and may believe that vowels represent unnecessary information; English learners can read (morphemic) Chinese or Japanese without morphemic information (i.e. when it is romanized, or written only with syllabic kana), whereas native readers have more difficulty when the morphemic information present in hanzi and kanji is removed.

The relative importance of the phonology also affects the L2WS learning process. English readers of Chinese rely on the phonetic element contained inside some hanzi to learn new hanzi, whereas Japanese learners of Chinese do not. English-speaking learners of Japanese may even develop negative attitudes towards the L2 (morphemic) kanji and prefer to use only (syllabic) kana, which can be phonologically decoded.

When L2WS learners learn a new type of writing system, they need to develop a **metalinguistic awareness** of the linguistic units represented by the new writing system. Users of an alphabetic writing system learn to identify and manipulate the phonemes of the spoken language in order to convert phonemes into letters and letters into phonemes; readers of a syllabic writing system learn to segment the spoken language in syllables, an ability that is not necessary for alphabetic readers. The differences in the metalinguistic awareness needed to read different writing systems affect L2WS learners/users. Russian ESL readers are better than Japanese ESL readers at manipulating English phonemes; English learners of Hebrew are better than Hebrew native readers at manipulating Hebrew phonemes, especially vowels; Hebrew ESL readers segment English words in phonemes differently from English speakers. Knowledge of an L2 writing system can even help develop awareness of L1 linguistic units which are not represented in the L1 writing system: users of the (syllabic) Kannada writing system can identify Kannada phonemes much better if they have learnt L2WS English.

3.2 Learning a new script

Learning a new script requires learning to recognize and handwrite (or typewrite) new symbols (graphemes). These may represent the same linguistic units, as in the case of the Cyrillic and Roman alphabets, or different ones, as in the case of the consonantal Arabic script and the alphabetic Cyrillic script. Learning an L2WS is easier when it is written with the same script as the

L1WS. Learning a new script requires, among other things, learning a new way of handwriting: different ways of holding the writing instrument, of drawing graphemes (which lines are drawn first, how loops are drawn), of joining graphemes together, etc. The L1 script can affect the writing of an L2 script, as in Japanese ESL learners who handwrite the horizontal line in <t> before the vertical line, because writing Japanese kanji requires starting with the horizontal line. Different scripts may also require different skills. For instance, children learning to read Chinese or Japanese need good visual skills, which are not needed to read English. This has implications for L2WS learners: among English-speaking learners of Japanese the best readers are those with better symbol identification skills.

3.3 Learning a new orthography

While different types of writing systems require more or less reliance on the phonological or lexical routes, different orthographies using the same script can also require more or less reliance on the two routes. For instance, although English and Italian are both written with the Roman alphabet, Italian is more phonologically transparent. While Italian can be read and spelled letter by letter, reading and spelling English often involves looking at longer units: a long bit of a word ('ough' in 'through'), or even the whole word ('yacht'). Analogy is also important in English, as one word is read aloud or spelled in analogy with another word; this is not necessary for users of phonologically transparent writing systems. As a consequence, when the L1WS is less phonologically transparent than the L2WS, L2WS learners and users may rely too much on the lexical route and have problems reading via the phonological route. On the other hand, when the L1WS is more phonologically transparent than the L2WS, L2WS learners and users may rely too much on the phonological route. Finally, learning a more phonologically transparent L2 writing system may improve L1 reading, writing and phonological awareness. For instance, English-speaking children who learnt L2WS Italian outperform monolingual English-speaking children in English word reading and spelling; English-speaking children who are literate in Greek outperform English children on English phonemic awareness (D'Angiulli, Siegel & Serra, 2001; Loizou & Stuart, 2003).

3.4 Learning other aspects of an L2 writing system

Apart from representing different linguistic units, with different scripts and/or different orthographies, L2 writing systems may differ from L1 writing systems in other aspects, from punctuation to physical properties such as directionality.

Punctuation: writing systems may have new punctuation marks that do not exist in the L1 writing system (for instance, the Chinese listing comma 、, which is used to separate items in a list, does not exist in English), or they may use the same punctuation mark differently (for instance, inserting a space before colons, fullstops or exclamation marks), or they may use a different punctuation mark for the same function (e.g., quotation marks are «» in French and ‘ ’ in English). L2WS learners can be affected by their L1WS punctuation, as when Arabic ESL writers use quotation marks as brackets, or add a space before punctuation marks.

An interesting aspect of punctuation is **spacing**. Spacing separates words in English, but it separates phrases in Thai; in the Hebrew writing systems it separates words but nouns and prepositions are joined. The use of spacing affects eye movements, as readers of word-spaced writing systems tend to fixate the middle of words. When spacing is added in Chinese, English readers of Chinese change their eye movements but Chinese readers do not. English learners of Hebrew read better if nouns

and prepositions are separated, but Hebrew readers do not. Spacing also affects metalinguistic awareness. Since English marks word boundaries with spacing and Chinese uses spacing to mark morpheme boundaries, English learners of Chinese have a different concept of the Chinese word compared with Chinese speakers.

Directionality: sequences of graphemes are mostly arranged in left-to-right horizontal lines (as in English), in right-to-left horizontal lines (Arabic) or in right-to-left vertical columns (Japanese). Although learners very rarely read or write in the wrong direction, the directionality of the L1 writing system can affect L2WS reading: for instance, when English is written vertically, English native readers read more slowly, but Chinese readers of English are much less affected. The directionality of a writing system can even affect how people represent time. English speakers who want to advertise a washing powder will show a pile of dirty laundry on the left, followed by the washing powder in the middle, and then a pile of clean laundry on the right. Hebrew speakers, whose writing system runs right-to-left, show the same events in the opposite direction. Hebrew children learning L2WS English use both directions.

4. Conclusion

The acquisition and use of a second language writing system has long been a neglected area of research, but recent studies have begun to redress this unbalance. Given the little knowledge available, the main conclusions that can be drawn at present are:

- 1) L1 and L2 writing systems **differ**. The difference may be more or less extreme, depending on whether the two writing systems represent different linguistic units, use different scripts, or have different levels of phonological transparency, but there are always differences in the way the two writing systems are used. Many language textbooks assume that L2 learners can learn to read and write their L2 writing system simply because they can read and write their first language, but the two may require different processes and strategies.
 - 2) L2WS learners are **different from children** learning to read their L1WS. L2WS learners already have another language and writing system in their mind. This affects the way they learn, read, write and think about their L2 writing system.
 - 3) learning an L2 writing system is a **complex but rewarding** task. It is complex because it requires the development of new skills or the adaptation of pre-existing ones: from metalinguistic awareness to holding the pen, from word spelling strategies to eye movements. On the other hand, L2WS learners can benefit from enhanced metalinguistic awareness of one or both languages, better reading and writing of the second and/or first language, and even new ways of representing time or drawing pictures.
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Writing Systems. A website that provides information, amusement and advice about writing systems in general and the English writing system in particular. By the author of *The English Writing System* and *Accommodating Broccoli in the Cemetery*. Available at:

<http://homepage.ntlworld.com/vivian.c/wstopics.htm>

Omniglot. A website that contains details of most writing systems currently in use, as well as ancient and invented ones. It also includes information about some of the languages written with those writing systems, multilingual texts, tips on learning languages, and other materials.

Available at: <http://www.omniglot.com/aboutus.htm>