Linguistics for Language Teachers

Lessons for Classroom Practice

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11 Writing Systems

11.1 Introduction

Look around your surroundings right now. Chances are, you will see many examples of writing. Books and academic texts are good examples, certainly, but you might also notice writing on ordinary everyday things: labels, logos, notes, junk mail, takeout menus, posters, tags, bills, signs, websites, or today's date and time on your phone. Written language is an essential part of our daily lives, and this extends beyond the formal genre of academic texts and into informal registers. We use writing to send messages and exchange information. We use writing to tell stories and remember our history. We use writing to relate to others and learn about their lives.

It is important to look at all the different types of written language to better understand where our students are coming from, and what difficulties they might encounter when learning the written component of the target language. In this chapter, we first discuss the difference between written language and spoken language. We then describe how different types of writing systems have developed from earliest times. We explain how all writing can be grouped into two basic types—logographic (e.g., cuneiform, hieroglyphs, Chinese characters) and phonographic (e.g., syllabic writing, alphabetic writing). We will see that just as spoken language exhibits an arbitrary connection between sound and meaning, written language involves an arbitrary link between sound and symbol. Finally, we will discuss transparent versus opaque orthographies and the different literacy demands placed on readers of different languages.

11.2 Written Language vs. Spoken Language

In language teaching, we often talk about the four domains of language: listening, speaking, reading, and writing (see Table 11.1). However, what we don't often discuss as language teachers is how very different the first two domains—listening and speaking—are from the written domains, reading and writing. If you have tried to learn a second language, you might find that your oral language skills are at a different level than your written language skills. Some learners, like heritage speakers, tend to be more comfortable

Table 11.1 Domains of Language

	Receptive	*Productive*
Oral	Listening	Speaking
Written	Reading	Writing

with conversational spoken language but find written language more difficult. Meanwhile, other learners—like adult ESL students—find that they are much more comfortable with reading and writing but struggle with speaking and listening. You might also find that your students display a mismatch of skill level between their oral and written skills.

Why is this the case? Aren't all these skills just part of language? It turns out that although both oral and written skills are essential for academic success, there are some key differences. Firstly, spoken language has been around for over 100,000 years, but the earliest writing we have discovered goes back to only 3500 BC. This means that humans existed for over 95 millennia without written language. In comparison to spoken language, the written form is a very recent human invention.

Secondly, there are many cultures and languages that do not have an **orthography**, or written component. In fact, nearly half of the world's languages do not have an orthography. It is important to note that the lack of a writing system does not mean that a language is any less complex than those that are written. These cultures might have an oral tradition instead of a written tradition, and value other forms of record-keeping, storytelling, and communication that are not based on writing. Although knowing how to read and write is considered a necessity in many western cultures, this is not the case across all cultures.

Thirdly, spoken language and written language are different in that while babies do not need to be explicitly taught a first language—no one sits down an infant to teach them the alveolar fricative or verb conjugations—people do need to be explicitly taught how to read and write. A baby will acquire the spoken language without special instruction, but that same baby will not just naturally develop literacy skills by being next to a book. Literacy, or the ability to read and write, is very much an outcome of schooling.

Finally, one of the major differences between oral language and written language is that the former is an unedited, raw form of language that contains hesitations, false starts, and repetitions. Written language, however, is a processed, edited, and modifiable form of language. You can think about what you want to write before you write it, and usually you can edit what has been written to "clean it up", like you might do if you are constructing an email to your boss. You cannot really do that in spoken language: once it is spoken, it is out there. With written language you can read something over and over again, or you can read something slowly at your own pace. With listening, that is usually not possible unless it is a recording. In sum, oral language and written language are related but fundamentally quite different.

Voices From the Classroom 11.1—Differentiating Spoken and Written Language

To create a positive learning environment right from the start of the year in my World Language classroom, I found it particularly effective to take a moment to explain to my students how spoken language and written language are historically, structurally, and fundamentally very different from one another. I want them to know that, unlike written language, everyday spoken language is rarely perfect, even among native speakers, because it is not planned, revised, rehearsed, etc. I also make this same distinction with formal speeches, which while spoken, are written down, edited, rehearsed, and sometimes given with the aid of a teleprompter. Therefore, they should not expect their speaking skills in the target language to be perfect. The point here is, do not be afraid to make mistakes because everyone makes them! It's a natural part of spoken language and of the learning process.

Craig Boxx, High School World Language Teacher

11.3 Writing Systems

You are probably well aware there are many different types of writing systems in the world. You probably have come across Chinese characters before, used a few Greek letters in math or science, and have seen pictures of Egyptian hieroglyphs. What you may not have known is that a given alphabet can be used as writing systems for different languages. Take the Latin alphabet, for example. It is used to represent English, Spanish, French, Dutch, Icelandic, Croatian, Hungarian, and dozens of other European languages. Likewise, Chinese characters are used to represent various Chinese languages as well, like Mandarin, Cantonese, Hakka, and Taiwanese. Some languages like Azerbaijani, Turkmen, and Uzbek are officially in Latin but have a considerable number of users also writing them in Cyrillic.

American Sign Language (ASL) presents a very interesting case when it comes to writing. ASL users typically write in English. What is unique about this is that ASL speakers have to learn to read and write in a language that they do not hear, a remarkable feat given that ASL and English have vastly different syntactic structures. The takeaway from this is that writing systems are not dependent on the spoken—or signed—language itself. The relationship between a language and its writing system is quite arbitrary.

As spoken languages in contact borrow words and phrases from one another, scripts are often borrowed from one language to another, and some are developed out of a merge between two different writing systems. Written systems can also be related to one another the way that spoken languages can be. For example, the Tibetan writing system (Figure 11.1) was originally based on Sanskrit (Figure 11.2). The two share similar characteristics, most noticeable in the angular and downstroke lines.

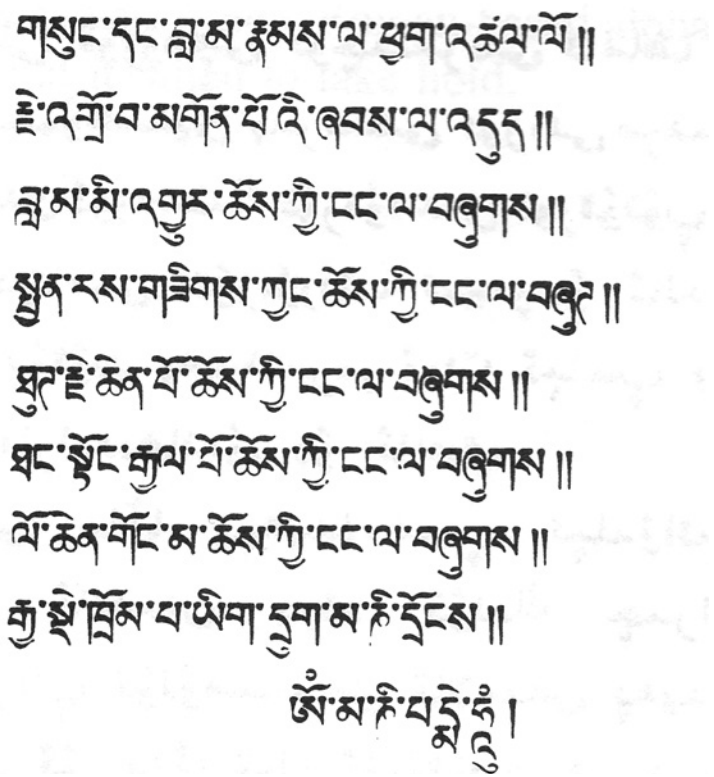

Figure 11.1 Tibetan Script

अस्ति हस्तिनापुरे कर्पूरविलासो नाम रजकः। तस्य गर्दे-
भो ऽतिभारवाहनाद्दुर्बलो मुमूर्षुरिवाभवत्। ततस्तेन रज-
केनासौ व्याघ्रचर्मणा प्रच्छाद्यारण्यसमीपे सस्यक्षेत्रे मोचितः।
ततो दूरादवलोक्य व्याघ्रबुद्ध्या क्षेत्रपतयः सत्वरं पलायन्ते। स
च सुखेन सस्यं चरति। अथैकदा केनापि सस्यरक्षकेण धूसर-
कम्बलकृततनुत्राणेन धनुष्काण्डं सज्जीकृत्यावनतकायेनैकान्ते
स्थितम्। तं च दूरे दृष्ट्वा गर्दभः पुष्टाङ्गो गर्दभीयमिति मत्वा
शब्दं कुर्वाणस्तदभिमुखं धावितः। ततस्तेन सस्यरक्षकेण गर्दे-
भो ऽयमिति ज्ञात्वा लीलयैव व्यापादितः।

Figure 11.2 Sanskrit Script

All writing systems can be grouped into two main types: logographic and phonographic. Next we will discuss the characteristics of each type, as well as some examples of languages that use each system.

11.3.1 Logographic Systems

Logographic writing systems are orthographies in which symbols represent meanings. There is very little sound-to-symbol correspondence, such that learners would not be able to "sound things out" if they come across symbols they do not know. Each symbol and its associated meaning and sound must be learned individually and committed to memory. Logographic writing systems are among the earliest writing that have been discovered. The first known example is cuneiform, which was developed by the Sumerians around 3300 BC. As you can see in Figure 11.3, cuneiform is characterized by wedge-shaped cuts, which were carved into clay by a stylus. There were about 1000 different characters that were used in various combinations to express meaning. Another ancient form of writing is hieroglyphs, which were developed by Egyptians around 3000 BC. Hieroglyphs consist of **logograms** (symbols that represent meaning), **phonograms** (symbols that represent sound), and

Figure 11.3 Sumerian Cuneiform

symbols that represent functional morphemes, such as plurality. Like cuneiform, hieroglyphs consist of about 1000 characters and are used in combination to represent language in written form.

Mayan glyphs are another example of a logographic writing system. These were developed around 300 BC in the Yucatán Peninsula of Mexico and are one of most complex writing systems discovered (Figure 11.4). Linguists have found that Mayan glyphs are comprised not only of logograms, but also of **rebus** symbols, which are pictorial representations of words. The Mayan writing system is so complex that scholars have only deciphered 85% of the glyphs to date (Katzner, 2002).

Another logographic writing system that people still use today is Chinese characters. Developed around 1200 BC in China, this system was historically used to represent languages such as Korean, Japanese, and Vietnamese. In present day, Chinese characters are used to represent Chinese languages such as Mandarin, Cantonese, and Shanghainese. In fact, even though many Chinese languages are mutually unintelligible, because they share a common writing system, speakers of different Chinese languages are able to communicate with one another through writing.

The Chinese writing system is composed of **radicals**, which are symbols that are combined to form a character. Chinese characters have both a meaning component and a pronunciation component. Examine the characters in Table 11.2. Notice that the radicals in the first column provide the meaning. The radicals in the second column provide the sound. In the last column are characters that combine both the meaning and sound components to give the reader information on the meaning and pronunciation of a character. For instance, in the first row, you will see that the radical for "water" is combined with that for "sheep" to form the character 洋 for "ocean". The radical for "water" 氵 provides the meaning component, and the phonogram 羊provides the pronunciation component. Thus, you know that 洋 has a meaning related to water but pronunciation related to "yang". The same holds true for the rest of the examples.

Logographic writing systems are different from, say, a series of pictures that tell a story. In other words, logographic writing is not iconic. **Iconic** means that a symbol looks like its meaning, like a picture of a mountain to mean "mountain". Although logographic languages such as Chinese do have few iconic elements (e.g., 火 *huǒ* means "fire"; 山 *shān* means "mountain"), for the most part, logographic writing systems use an arbitrary system with no apparent connection between the meaning and its orthographic representation. In other words, the reader and writer have to know that the Chinese character 言 means "to speak", as there is nothing inherent about the shape of that character that lends itself to the meaning.

11.3.2 Phonographic Systems

Phonographic writing systems are those in which the symbols represent sounds. Languages that use a phonographic writing system allow readers to

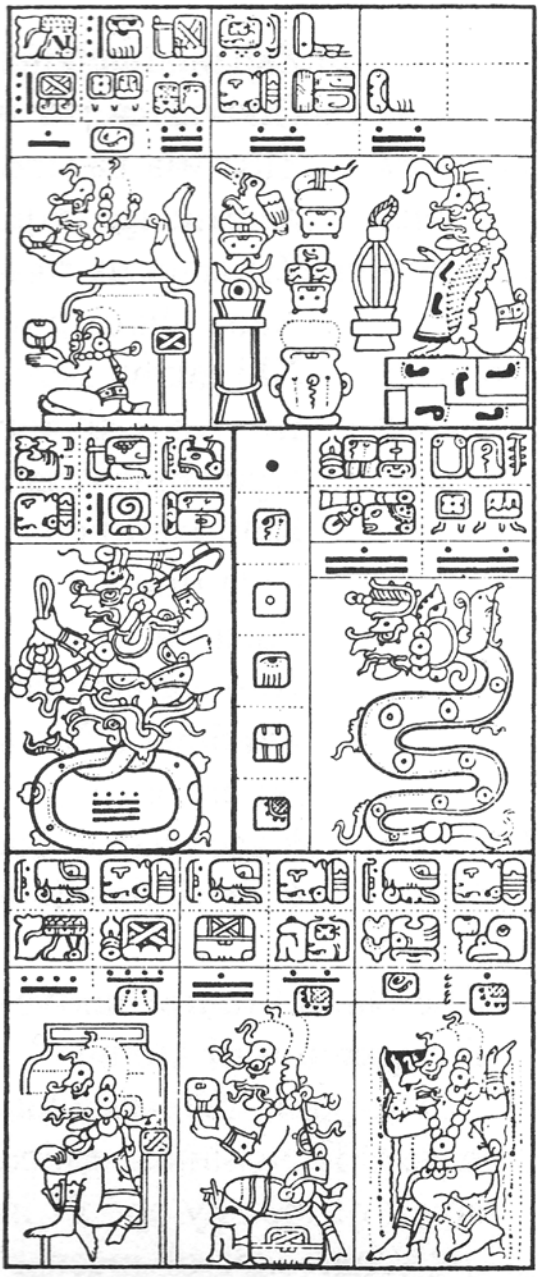

Figure 11.4 Mayan Glyphs

Table 11.2 Chinese Characters

Meaning	*Pronunciation*	*Combined Character*
氵 "water"	羊 "sheep" pronounced as <yang>	洋 "ocean" pronounced <yang>
氵 "water"	青 "green" pronounced as <qing>	清 "clear" pronounced as <qing>
氵 "water"	包 "bundle" pronounced as <bao>	泡 "soak" pronounced as <bao>
忄 "heart"	青 "green" pronounced as <qing>	情 "emotion" pronounced as <qing>
言 "word"	青 "green" pronounced as <qing>	請 "please" pronounced as <qing>

Table 11.3 Hiragana and Katakana

Phonetic	a	ka	sa	ta	na	ha	ma	ya	ra	wa	n
Sign	あ	か	さ	た	な	は	ま	や	ら	わ	ん
Hiragana	ア	カ	サ	タ	ナ	ハ	マ	ヤ	ラ	ワ	ン
Katakana											
Phonetic	i	ki	shi	chi	ni	hi	mi		ri		
Sign	い	き	し	ち	に	ひ	み		り		
Hiragana	イ	キ	シ	チ	ニ	ヒ	ミ		リ		
Katakana											
Phonetic	u	ku	su	tsu	nu	fu	mu	yu	ru		
Sign	う	く	す	つ	ぬ	ふ	む	ゆ	る		
Hiragana	ウ	ク	ス	ツ	ヌ	フ	ム	ユ	ル		
Katakana											
Phonetic	e	ke	se	te	ne	he	me		re		
Sign	え	け	せ	て	ね	へ	め		れ		
Hiragana	エ	ケ	セ	テ	ネ	へ	メ		レ		
Katakana											
Phonetic	o	ko	so	to	no	ho	mo	yo	ro	o	
Sign	お	こ	そ	と	の	ほ	も	よ	ろ	を	
Hiragana	オ	コ	ソ	ト	ノ	ホ	モ	ヨ	ロ	ヲ	
Katakana											

sound out a word because the way it is written is a direct clue as to how it is pronounced. The earliest known phonographic system was developed by the Phoenicians around 1500 BC. The alphabet consisted of 22 letters, all consonants and no vowels. The Phoenician alphabet is said to be the precursor to Greek and Latin alphabets. One type of phonographic writing system is syllabic writing system. In a **syllabic writing system**, characters represent syllables and are combined to form *morphemes*. Most commonly, syllabic writing systems only allow vowel (V) or consonant-vowel (CV) syllable structure. The Japanese kana (both hiragana and katakana—see Table 11.3) and Devanagari are examples of syllabic writing systems.

Another type of phonographic writing system is **alphabetic syllabary**, in which symbols that represent consonants and vowels are combined to form discrete phonograms, each representing one syllable. The Korean writing system,

developed in the 15th century, is an example of alphabetic syllabary. The system has nineteen consonant symbols and twenty-one vowel symbols, each corresponding with a sound in the spoken language. The consonants and vowels are combined to form a phonogram representing one syllable. For instance, the Korean word for "mountain" is [san], which consists of one syllable made up of the sounds [s], [a], and [n]. The Korean letters ㅅ, ㅏ, ㄴ, corresponding to the sound [s], [a], and [n] respectively, are combined in a block to form the word 산. The onset is written in the upper left of the phonogram, the nucleus is written in the upper right of the phonogram, and the coda is written at the bottom of the phonogram. An example of a two-syllable word is the Korean word for "ocean", or [bada]. Since there are two syllables in [bada], there are two phonograms, one for [ba] and one for [da]. The Korean letters ㅂ, ㅏ, ㄷ, ㅏ correspond to the sounds [b], [a], [d], [a], respectively, and are combined to form the two phonograms, 바다. Since neither syllable has a coda, the bottom slot of the phonogram is empty.

Another type of phonographic writing system is the one you are using to read right now: **alphabetic writing**. Alphabetic writing systems have symbols corresponding to sounds in the language it represents, and these symbols are strung together in sequence to form morphemes, words, and phrases. These symbols can be written and read from left to right or right to left. Some alphabetic writing systems are consonantal systems, in which the writing supplies the consonants and the reader must fill in the vowels as they read. For example, the Arabic writing system, developed around 700, is used to represent many spoken languages today including Arabic, Persian, Urdu, and Pashto. The Arabic alphabet has twenty-eight consonants and is written from right to left. Although there are a few symbols for vowels, the writing is largely consonantal, and readers can easily figure out what the words mean through context. For example, the word for "child" in Arabic is [tˤifl]. Although the spoken pronunciation has the vowel [i], only the consonants [tˤ] ط, [f]ف and [l] ل are written: طفل.

11.4 Learning to Read and Write

Earlier, we talked about how reading and writing are very different from speaking and listening. Reading and writing require explicit instruction, meaning you cannot just pick them up by watching someone read or being next to someone who is writing. Although written language is a representation of spoken language, the connection between the two is largely arbitrary. In other words, there is really no particular rationale between how something is said and how something is written. For instance, the English word "cat" is pronounced [kæt]. But there is nothing about a voiceless velar stop, a low front vowel, and a voiceless alveolar stop that look anything like the letters *c, a*, and *t*. For all it matters, it could be written as ♍♋♦ or □. The point is, there is no logical connection between sound and symbol; the relationship is completely arbitrary.

Perhaps this is one of the reasons why learning to read and write takes time for learners. Even native speakers, who have been exposed to the spoken language from birth, do not naturally and spontaneously learn to read and write. As we said before, left alone, native speakers would become fine speakers of the language but would be illiterate. Similarly, we cannot expect a second language learner to just spontaneously learn to read and write, even if their first language has a similar writing system. Heritage speakers, who grow up speaking a language at home that is different from the one they use at school or society, might have excellent speaking and listening skills but struggle with reading or writing because they have not been taught it. Relatedly, just because a student can speak well does not necessarily mean they can read and write at the same level.

Difficulty with reading and writing may be linked to how closely and consistently a sound corresponds to a symbol. Yes, the logical connection between sound and symbol is almost always arbitrary, but the *correspondence* between sound and symbol can differ. In other words, there is a range when it comes to sound-to-symbol correspondence. Let us give you an example. Suppose Language A contains the sound [s] in its phonetic inventory, and the written language represents it as ◆. Every time a word contains the [s] sound, whether at the beginning, middle, or end of the word, it is always represented as ◆ in writing. That means Language A has close sound-to-symbol correspondence. This makes things easy; you know that every time you see ◆ in writing, it will always be pronounced [s]. Now, let us suppose Language B contains the sound [s], but it is sometimes represented as ❁, other times it appears as ❖, and in some cases it can be written as ■. A language like Language B has a less direct and correspondence between sound and symbol. This is a little more difficult for learners because it is less consistent.

Writing systems that have a close sound-to-symbol correspondence are said to have a **shallow (transparent) orthography**. These systems have a more consistent 1:1 correspondence between the sound and symbol, such that whenever a reader sees a particular symbol, they know it will always make one particular sound. Languages like Spanish, Italian, and Korean have transparent orthographies. Students who study these languages learn the orthographies faster because of the consistency. They also tend to have better accuracy when reading aloud as a result. In fact, even if you have not studied Italian, if you were given a passage in Italian, you could probably read it aloud right now with decent accuracy. Of course, you wouldn't know the meaning of what you read, but you could sound out most words. A quick five-minute primer on how to decipher the more difficult aspects of Italian orthography (e.g., *ch* is pronounced [k]) would probably boost your accuracy significantly.

Let us take Spanish as another example. Whenever the letter *e* appears in Spanish writing, it is always pronounced the same way, [e]. Whether the *e* appears at the beginning, end, or middle of a word, and whether it comes before or after certain combinations of letters, it will always be pronounced

[e]. For example, the *e* in all these words is pronounced the same way: *beso* "kiss", *entre* "between", *calle* "street", *treinta* "thirty". The point is, the closer the sound-to-symbol correspondence, the easier it is to learn to read and write in that language.

In contrast, there is less direct correspondence between sounds and symbols in languages that have **deep** (**opaque**) **orthographies**. Languages like French and English have opaque orthographies. Think about all the ways we can represent the schwa vowel [ə] in English: *alive, repair, direct, polite, undo, cousin*. For the single sound, there are a handful of different ways it can be written. This goes the other way as well. The same letter can have multiple pronunciations: *c* can be pronounced two different ways, (*cake*, *lace* as [k] and [s], respectively); *gh* can have three different pronunciations (*rough, ghost, though* as [f], [g], and ø respectively); *ea* can be pronounced three ways (*each, bread, great* as [i], [ɛ], [ei]). Languages with logographic writing systems are all opaque, as there is very little sound-to-symbol correspondence by design. Learners of Chinese, for example, must learn the characters that represent meaning, sound, and morphology, and have to combine these elements to write.

Students who learn opaque orthographies tend to take longer to learn how to read and write. This includes native-speaking children; it might take children several years to fully learn to decode a language they already speak. The added difficulty for second language learners, of course, is that they have to learn to read and write at the same time that they are learning to speak and listen. In both native and nonnative cases, students cannot always rely on sounding words out, so words must be learned by sight. These are what are known as **sight words**, or words that have to be memorized visually in chunks because they do not follow the standard rules of pronunciation. Some early sight words that are taught to English-speaking children include the following: *the, their, there, he, she, these, would, could, because, right*.

Students sometimes struggle when learning to read and write in their second language because they come from a system that functions quite differently. For instance, if English speakers are learning Greek, they have to learn a new phonetic alphabet. But sometimes the writing systems can differ in more ways than just the symbols. For instance, if you have students who are used to a phonographic alphabet in their first language (English) and are learning a logographic system (Chinese), they have to understand that a single character can combine not only sound but also meaning. Even more challenging is when the script looks the same, but the conventions are different. For example, Spanish speakers are used to a script that is quite transparent, with consistent sound-to-symbol correspondence. However, when they learn English, they may be lulled into a false sense of security because the script looks the same—Spanish and English writing systems both use the same alphabet—but one is a transparent system and other is an opaque system. Spanish speakers can no longer rely on the fact that an *e* is always pronounced like [e]; it can be pronounced as [ɛ], [i], [ə], or silent: *bed, me, elect, mice*.

Voices From the Classroom 11.2—Helping Spanish Speakers Learn English Spelling

I have observed that some Spanish-speaking children who are used to spelling easily in Spanish are disappointed to find it difficult to spell in English. But when they phoneticize the English word in the same way they learned to do in Spanish, then it no longer is a problem. For example, the children take the word *beautiful* and sound it out in Spanish: *bĕ, ah, oo, tĭ, fo͞o͞l*. Then they write the word as they hear it in Spanish. This way they can remember all the vowels in the English word.

From: Igoa, C. (1995). *The Inner World of the Immigrant Child*. Mahwah, NJ: Erlbaum.

In sum, it is important for language teachers to be aware of three main facts. Firstly, we must keep in mind that there is a disconnect between the oral language and written language, and students may show higher proficiency with one but not the other. This is not because there is a problem with the student necessarily, but because oral and written language are related but separate skills. Teachers are sometimes puzzled when their excellent speaker has difficulty writing an essay in the same language, but this is like expecting an excellent piano player to just naturally play the guitar well too. Secondly, it is crucial to keep in mind that there is a wide range of differences between writing systems, with some that use symbols to represent sound and others that use symbols to represent both meaning and sound. Switching one's mindset from one system to another is not an automatic process. Lastly, it is important to remember that even among writing systems that are similar, like English and Spanish, there are differences in the sound-to-symbol correspondence that can make reading and writing difficult. The superficial similarity can be misleading and deceptively difficult if one is transparent and the other is opaque.

Further Reading

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Exercises

1. Writing and speaking are fundamentally different. Record someone speaking spontaneously for one minute and transcribe it. Note how the spoken language is different from written language.

2. Rebus puzzles are word picture puzzles with hidden meanings. Two examples of a rebus puzzle are seen below:

   STAN4CE ("4 in stance" → "For instance")

   MIND
   MATTER ("mind over matter")

   You can also find many examples of rebus puzzles online.

   a. What are the characteristics of rebus puzzles? How do they relate to both logographic and phonographic systems?
   b. Construct two rebus puzzles of your own. How might these help learners with both meaning and pronunciation?

3. Unlike spoken language, written language is a human construction. Design your own writing system to represent a language that you speak. Choose a logographic system or phonographic system. What are some considerations you have to consider? Challenges?

4. Look at the following groups of sight words in English. What makes these difficult to sound out? What are some of the incongruities in the sound-to-symbol correspondence in each group?

   a. think, the
   b. some, sum
   c. though, through, thought
   d. read (present tense), read (past tense)
   e. said, paid
   f. why, what, who

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