

PronunciationforTeachers.com/Key Conceptions

How Does Orthography Affect Pronunciation in a Second Language?

Especially in instructed settings, learners are often exposed to the second language (L2) in written form. Indeed, in some cases, the majority of L2 input is experienced through reading rather than listening. Over the past decade or so, researchers have become increasingly interested in the impact that written input can have on L2 learners' acquisition of the L2 sound system (see, e.g., Bassetti, Escudero, & Hayes-Harb, 2015).

How might written input influence L2 learners? Imagine a native speaker of Japanese who experiences difficulty with the English /ɪ/ - /I/ distinction, who initially perceives words like 'rake' and 'lake' as homophones when hearing them produced out loud. To the extent that they expect written forms to provide phonologically relevant information, on the basis of the written forms <rake> and <lake>, they may infer that the initial sounds in the two words are in fact importantly different in English, and subsequently attend more carefully to the initial sounds when hearing the words produced out loud.

There is some evidence that L2 learners make exactly these kinds of inferences about the pronunciation of words based on their knowledge of the words' written forms. For example, Escudero, Hayes-Harb, and Mitterer (2008) found that native speakers of Dutch, who typically experience difficulty with the English /æ/ - /ɛ/ distinction, were able to remember the difference between newly-learned English-like words containing these two vowels better when they heard the words and saw the words' spellings (where the /æ/ - /ɛ/ distinction was indicated by the letters <a> and <e>) than when they did not see the spelled words. Another study, conducted by Showalter and Hayes-Harb (2015), demonstrated that native speakers of English are better able to remember the tones associated with newly-learned Mandarin-like words when they see *Pinyin* (Romanized Mandarin) spelled forms that include tone marks than when they see spelled forms that do not indicate tone. On the basis of these and other studies, we can conclude that written input that systematically captures difficult-to-perceive L2 distinctions can be helpful to learners.

On the other hand, we have also seen that written input can sometimes *interfere* with L2 pronunciation development. This has been demonstrated in studies where participants are taught a set of new words whose spelled forms do not follow the same spelling conventions as their L1. For example, Hayes-Harb, Nicol, and Barker (2010) taught native English speakers a set of words in a made-up L2. One group of participants saw spelled forms of these new words that were consistent with the words' pronunciations (e.g., the word pronounced [kɑməd] was spelled <kamad>), while another group of participants saw spelled forms that were incongruent with the words' pronunciations (e.g., [kɑməd] was spelled <kamand>). At test, participants in the latter group were more likely to misremember the pronunciation of the word as [kɑmænd], suggesting that their memory for the words' pronunciations was (mis-)informed by the incongruent spelled forms.

It has also been shown that in some cases, written input can lead learners to misunderstand the sound system of a language in more general ways. For example, Bassetti (2006) showed that

English-speaking learners of L2 Chinese show confusion about certain vowel sounds because the way they are written in Pinyin is incongruent with English.

Written input, when it is incongruent in the sense that it does not follow the same spelling conventions as the learner's native language, can also interfere with the acquisition of L2 phonological processes. In this regard, the case of German final devoicing has received the most attention by researchers thus far. In German (and many other languages), some final consonants are devoiced (become voiceless)—for example, the words spelled <Rad> 'wheel' and <Rat> 'advice' are both pronounced with a final [t]. Young-Scholten (2002) observed that native English speakers learning German often produce <Rad> with a final [d] instead of [t], and hypothesized that their exposure to German words' spelled forms may interfere with their acquisition of German final devoicing. Hayes-Harb, Brown, and Smith (2017) tested this hypothesis by means of an experiment where they taught native English speakers a set of German-like words, all of which were pronounced by a native German speaker (and therefore exhibited final devoicing). One group of participants also saw the words' spellings (some of which ended in voiced final obstruent letters like <d>), while the other group did not see the written forms. When participants were asked to pronounce the newly-learned words, those who saw the spelled forms were more likely than those who did not to mispronounce the newly-learned words with final voiced consonants, even though they had never heard them pronounced that way when learning the words.

It is worth noting that not all studies have found clear beneficial or interference effects like those mentioned above. Studies of native English speakers learning French vowels (Simon & Van Herreweghe, 2010), native English speakers learning Russian lexical stress (Hayes-Harb & Hacking, 2015), native English speakers learning Arabic consonants (Showalter & Hayes-Harb, 2015), and native English speakers learning Mandarin sound contrasts (Pytlyk, 2011), have not demonstrated either beneficial or interference effects of written input on L2 learning. Some work has helped us understand why we sometimes see effects and sometimes do not: it appears that the role that written input plays in L2 learning is moderated by a number of factors, including learners' ability to perceive L2 sound distinctions (e.g., Escudero, 2015) and how familiar learners are with the graphemes (letters) of the L2 (e.g., Hayes-Harb & Cheng, 2016; Mathieu, 2015) or specific L2 words (e.g., Vokic, 2011).

Language teachers and their students may benefit from awareness that written input can support or interfere with L2 pronunciation development. While literacy is an important part of L2 learning, it is important to note aspects of the L2 writing system that are incongruent with the native language have the potential to cause learners confusion, at least at the beginning stages of L2 learning. However, we do not yet know enough about how learners overcome difficulties associated with L1-L2 orthographic incongruence, and more research looking at learner development over time is needed. The beneficial effects of written input should also be of interest to pronunciation teachers in that written forms may support learners' perception and production abilities for difficult L2 sounds. While a great deal more research is needed to understand the factors that determine the helpful and harmful effects of written input in second language learning, it is clear that a judicious use of written input in L2 pronunciation teaching is warranted.

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