

L2 phonological acquisition: What does orthography have to do with it?

Yasaman Rafat (yrafat@uwo.ca)
Western University

Whereas the body of literature on the role of orthography in L2 phonological acquisition is growing (Young-Scholten, 2002; Erdener & Burnham (2005); Bassetti, 2007, 2009; Escudero & Wanrooij, 2010; Hayes-Harb et al., 2010), less is known about orthography-induced transfer (Young-Scholten, 2002) as well as the factors that modulate the rate of orthography-induced transfer. This study examines the effect of exposure to auditory-orthographic input on phonological transfer in novice adult English-speaking learners of Spanish. Specifically it investigates the degree to which inconsistency between Spanish and English grapheme (letter)-to-phoneme correspondences affects transfer in the absolute beginning stages of acquisition. Two types of grapheme-to-phoneme correspondences were studied: four that are the same in Spanish and English and four that are different. An example of a same grapheme-to-phoneme correspondence is <m>-/m/ where <m> corresponds to the same phoneme, namely /m/, in both Spanish (<metopa>-/metopa/) and in English (e.g., <man>-/mæn/). An example of a different grapheme-to-phoneme correspondence is <ll>-/j/, where <ll> corresponds to /j/ in (some varieties of) Spanish (e.g., <pollero>-/pojero/) and to /l/ in English (e.g., <pillow>-/pɪlo/).

The study consisted of a picture-naming task adopted from Steele (2002). 40 participants were assigned to 4 auditory-orthographic conditions (10 x condition). The 4 conditions consisted of three auditory-orthographic conditions (orthography at training and testing, orthography at testing only, orthography at production only) and one auditory only condition. Whereas the conditions differed with respect to the presence of orthographic input at training and/or at testing, they were the same with respect to the presence or absence of auditory input. All conditions had a training phase and a testing phase, where at training the participants saw images of the target words and heard the words in Spanish and at testing they were presented with the images and were required to name the pictures in Spanish.

The results showed that exposure to orthography significantly affected the rate of phonological transfer when the target grapheme-to-phoneme correspondences differed between Spanish and English (χ^2 (df = 3) = 243.73, p = .000). For example, <zapato> which is [sapato] in Spanish was produced as [zapato]. In addition, the rate of transfer significantly differed between individual grapheme-to-phoneme correspondences that resulted in transfer (χ^2 (df = 3) = 199.70, p = .000). The following hierarchy of difficulty was established, where the rate of transfer decreases from left to right: <v>-/b/ (99%) ~ <d>-/ð/ (98%), <z>-/s/ (60%), <ll>-/j/ (21%). The between grapheme-to-phoneme differences is attributed to frequency effects as well as the differences in the degree of salience of the phonetic-acoustic difference between the first language and the target language sounds that a shared grapheme corresponds to. For example, it is proposed that the lower rate of transfer for <ll>-/j/ in comparison with <z>-/s/ is due to the fact that the acoustic/phonetic difference between /l/ (English phoneme) and /j/ (Spanish phoneme) is much more salient than the difference between /s/ (Spanish phoneme) and /z/ (English phoneme). In all, this study is important because (a) it highlights the importance of exposure to orthographic input on L2 phonological acquisition, specifically transfer and potentially category formation which has been ignored in some of the most prominent models of acquisition (e.g., Flege, 1995; Brown, 1998, 2000) (b) it identifies new findings regarding the factors that promote orthography-induced transfer which have not been identified previously (c) it sheds light on our understanding of transfer at the very beginning stages of acquisition and (d) it has pedagogical implications for pronunciation teaching.

References

- Bassetti, B. (2007). Effects of hanyu pinyin on pronunciation in learners of Chinese as a foreign language. In A. Guder, X. Jiang & Y. Wan (Eds.), *The cognition, learning and teaching of Chinese characters* (pp. 156-179). Beijing, China: Beijing Language and Culture University.
- Bassetti, B. (2009). Effects of adding interword spacing on Chinese reading: a comparison of Chinese native readers and English readers of Chinese as a second language. *Applied Psycholinguistics*, 30(4), 757-775.
- Brown, C. A. (1998). The role of the L1 grammar in the acquisition of segmental structure. *Second Language Research*, 14(2), 139-193.
- Brown, C. A. (2000). The interrelation between speech perception and phonological acquisition from infant to adult. In John Archibald (Ed). *Second Language Acquisition and Linguistic Theory*. (pp.4 – 63). Oxford: Blackwell.
- Erdener, V.D. & Burnham, D.K. (2005). The role of audiovisual speech and orthographic information in non native speech production, *Language Learning*, 55(2), 191-228.

- Escudero, P., & Wanrooij, K. (2010). Learning the phonological forms of new words: effects of orthographic and auditory input. *Language and Speech*, 53(3), 361-381.
- Flege, J. E. (1995). Second language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech perception and linguistic experience: Issues in cross-linguistic research* (pp. 233-277). Timonium, MD: York Press.
- Hayes-Harb, R., Nicol, J., & Barker, J. (2010). Learning the phonological forms of new words: effects of orthographic and auditory input. *Language and Speech*, 53(3), 367-381.
- Steele, J. (2002). Representation and phonological licensing in the L2 acquisition of prosodic complexity (Unpublished doctoral dissertation). McGill University, Montreal.
- Young-Scholten, M. (2002). Orthographic input in L2 phonological development. In P. Burmeister, T. Piske & A. Rohde (Eds.), *An integrated view of language development: Papers in honor of Henning Wode* (pp. 263-279). Trier: Wissenschaftlicher Verlag Trier.