Early readers make use of orthographic representations in speech perception and production.

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Studies on the Orthographic Consistency Effect (OCE) provide evidence that orthographic information affects the ease with which listeners access lexical representations [1]. For example, words with consistently-spelled rhymes (e.g., French /iʃ/ as in *r**iche*** or *f**iche***) are recognized faster than words with rhymes that can be spelled in multiple ways (e.g., French /ɔk/ as in *t**oque*** or *r**oc***). The current study addresses some issues that have not been covered in previous research. First, findings on the OCE derive from experiments in which stimuli were manipulated at the suprasegmental level. To test whether the OCE emerges at the segmental level, the stimuli of the present study were manipulated at the phonemic level. Second, previous research is limited to languages with highly opaque orthographies. The current study seeks to answer whether and to what extent the OCE affects languages with fairly transparent orthographies, in this case Spanish. Third, previous research failed to find supporting evidence in language production (e.g., [2]). Consequently, this study fills this gap by testing whether the OCE is present in speech perception and production, thus addressing the highly-debated topic on the perception-production link [3]. Finally, we address the issue of whether the OCE affects the early stage of reading acquisition, given that children do not have stable phoneme-to-grapheme mappings while they are learning to read [4]. Forty-five typically-developing Spanish second-graders (M_{age} 7;6 years) were tested in an auditory lexical decision task (LDT) and in a picture naming task (PNT). The LDT consisted of 60 words and 60 pseudowords matched on a series of confounding variables. Each item either contained inconsistent phonemes (i.e., with multiple spellings, Spanish /b/ = <b> or <v>) or it contained only consistently-spelled phonemes (e.g., Spanish /f/ = <f>). The measured variable was accuracy and consistent items were expected to generate fewer errors than inconsistent items. As hypothesized, the results show that children recognized consistently-spelled items more accurately than inconsistently-spelled items independent of their lexical status (*β*=-0.276, *SE*=0.116, *p*=0.017). Nevertheless, visual inspection of the data indicates that the consistency effect is more solid in word recognition than in pseudoword recognition (Figure 1). In the PNT, the same participants named a total of 60 pictures representing consistent and inconsistent words also matched on a series of confounding variables. Speech Onset Time (SOT) was measured and longer SOTs were expected for inconsistent words than for consistent words. The model included Familiarity is a predictor, as it is known as an important factor in PNT with young children [5]. Results show that Familiarity interacts with Consistency (β=-0.011, SE= 0.004, p= 0.013). Further analysis revealed that the OCE is driven only by nouns with lower Familiarity (Figure 2). In summary, the systematic manipulation of the stimuli on individual phoneme-to-grapheme mappings suggests that orthographic information influences phonemic representations, implying that the OCE emerges at the phonemic level. Moreover, this study provides the first evidence that a fairly transparent language is affected by orthographic consistency. As for the emergence of the OCE in early stages of reading acquisition, this study shows that children rely on orthographic representations during phonological processing. This can be explained by the fact that children likely make use of decoding during language processing. As for language production, this study provides evidence, in contrast to previous research [3], that orthography does play. However, the interaction between Consistency and Familiarity shows that children rely on orthographic representations only when the word is less familiar. These results imply that orthography could support lexical retrieval of words to which children were probably less exposed. Further theoretical implications on the perception-production link will be discussed.

Figure 1. Accuracy over participants in the LDT

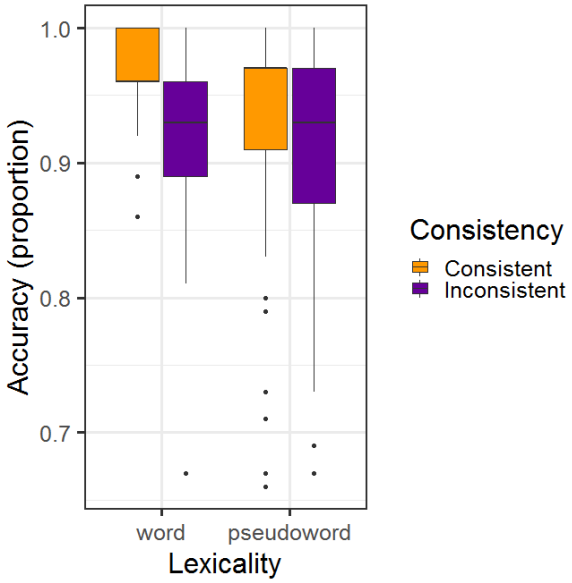
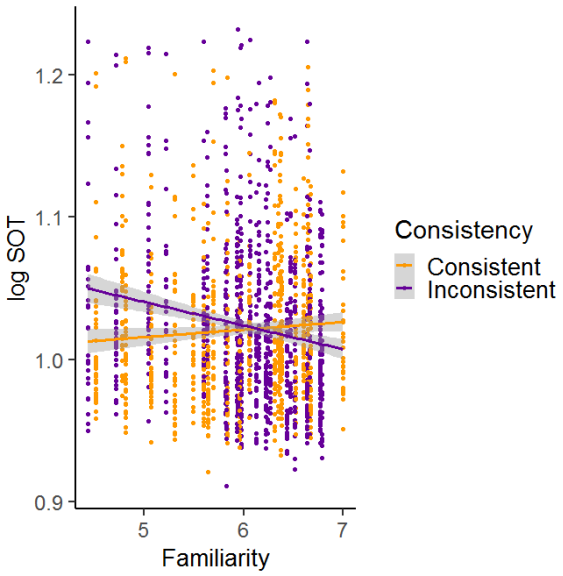


Figure 2. Interaction between Consistency and Familiarity in the PNT



English translations of the examples:
Riche: rich
Fiche: form/plug
Toc: crazy
Roc rock

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