Recent studies have provided evidence that second language learners (L2) make inferences about the phonological forms of new L2 words from the words' spelled forms. Indeed, they appear to make such inferences even when orthographic and auditory information about a word's phonological form are in conflict. However, the effect of orthographic input is often beneficial to learners, as the availability of orthographic contrasts has been shown to improve learners’ ability to distinguish lexical items containing difficult-to-perceive L2 contrasts. These studies have tended to focus on cases where the native and second languages employ similar alphabets, and it is yet unclear whether the effects of orthographic input demonstrated thus far are dependent upon familiarity with the orthographic symbols. To address this issue, colleagues and I have examined the effects of unfamiliar (i.e., novel) orthographic symbols in second language word learning, with mixed results. We have found that the benefit experienced by learners when a novel orthographic contrast corresponds to a novel auditory contrast may be moderated by the visual complexity of the orthographic contrast and/or the difficulty of the auditory contrast.