Predicting Second Language Reading Ability from Eye Fixation Patterns During Subtitled Video Viewing

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Abstract

Reading requires eye movements. This study examines how second-language (L2) reading ability predicts eye fixation patterns on subtitles during L2 video viewing. Thirty-six native Chinese speakers watched English (L2) videos under three conditions: no subtitle, Chinese subtitle, and English subtitle. Eye movements were recorded using WebGazer. L2 reading ability was assessed in terms of reading fluency and reading accuracy. Results showed compared with the no-subtitle condition, there were significantly increased subtitle dwell time proportion and fixation counts in both Chinese and English subtitle conditions. Furthermore, participants with lower L2 reading ability, particularly lower reading accuracy, showed greater reliance on English subtitles, even when eye movements on Chinese subtitles were controlled for. Reading fluency was negatively associated with dwell time and fixation counts during English subtitle viewing. These results suggest that individual differences in L2 reading skills shape visual attention allocation and cognitive load during multimodal language comprehension.

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