

Where do children look when watching videos with same-language subtitles?

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Abstract

Influential campaigns in the UK and USA have argued that turning on same-language television subtitles could dramatically improve children's reading outcomes (e.g. <https://turnonthesubtitles.org/>). However, we don't know whether children even look at subtitles. The purpose of our study was to determine the extent to which primary-school children pay attention to and read same-language subtitles and whether this is influenced by their reading proficiency.

We tested 180 British children from Years 1-6 (30 per school year group; 96 girls; age range 5-11). Each participant watched two videos with subtitles and two without subtitles, while their eyes were tracked with the Eyelink Portable Duo eye-tracker. We also measured children's reading fluency using the TOWRE.

For the analysis, we divided the screen into the video region and the subtitle region and analyzed eye-movement behaviour in videos with and without subtitles. We found that children spent more time looking at the subtitles region in the subtitle condition compared to the no-subtitle condition. However, this effect was modulated by children's reading fluency (see Figure 1). For the subtitle condition only, we estimated the probability of skipping a subtitle. We found that children with higher TOWRE scores and increasing school year skipped fewer subtitles.

Then, we assessed whether the eye movements in the subtitles region reflected linguistic processing by examining fixation durations on words of different length and frequency. We found longer total fixation durations on longer words compared to shorter words and on less frequent words compared to more frequent words.

The results indicate that some degree of reading fluency is necessary before children pay attention to subtitles. In Year 1, children ignored around 59% of subtitles, but starting from Years 2 and 3, they spent substantial time looking at the subtitles. When children looked at words in the subtitles they read them. We conclude that while children will not learn to read from same-language subtitles, they could serve as valuable reading practice for those children who have achieved sufficient reading fluency to engage with them.

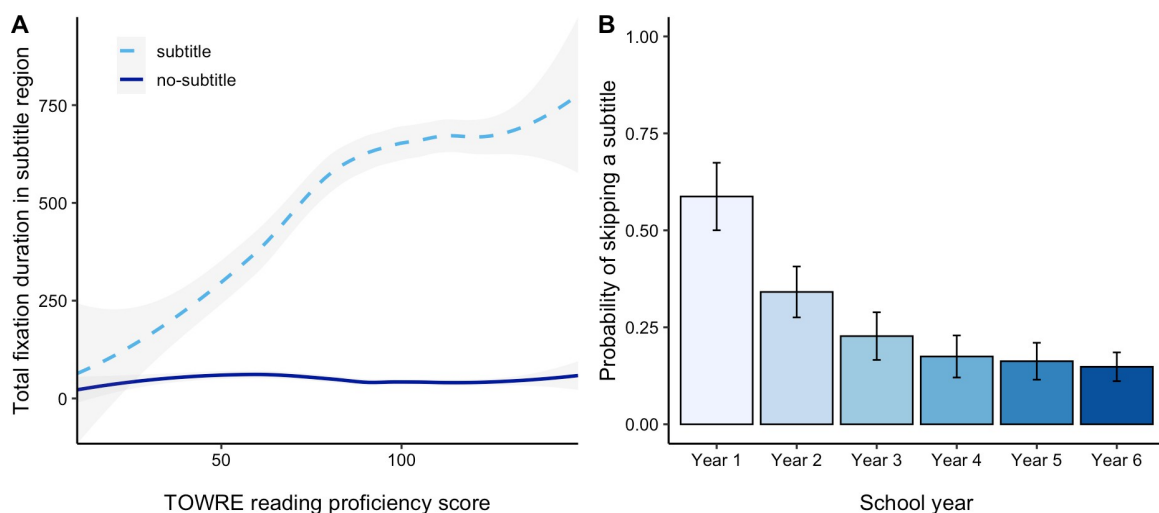


Figure 1. Eye movements in the subtitle region. Panel A: the effect of condition (with subtitles – dashed line or without subtitles – solid line) and its interaction with TOWRE on total fixation duration in the subtitle region. Panel B: probability of skipping a subtitle across six year groups.