

Stuttering and silent reading: Evidence from eye-tracking studies

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The etiology of stammering is still unclear. Some theories hold that the problem arises at the output stage, reflecting a problem with the motor processes involved in articulation, while others situate the problem at an earlier pre-motor stage, reflecting linguistic failures.

Two experiments investigated the differences in the silent reading processes of people who stutter (PWS) and people who do not stutter (PNS) using eye-tracking. Because PWS tend to stutter on longer words and words early in a sentence, we compared reading times for long and short main verbs in normal sentences across both groups.

- (1) The barman quit when he was accused of stealing from the till.
- (2) The barman confessed when he was accused of stealing from the till.

Experiment 1 showed no differences between PWS and PNS when reading short words, but disproportionately longer fixation times on long words for PWS, indicating that PWS experienced additional processing difficulties for words thought to cause a stuttering event when spoken aloud. This interaction was already apparent in the gaze duration analyses and also showed up in the number of fixations on the target word.

Experiment 2 tested whether this effect could be situated at the subvocalisation stage. PWS and PNS read normal sentences either in silence or during articulatory suppression (saying “bababa” while reading). We replicated the length effect found in Experiment 1, and this effect was not modulated by articulatory suppression.

Together, these findings suggest that stuttering is not (only) a problem at the output (overt vocalisation) level, but also that it is not situated at the subvocalisation level. Experiments currently underway test whether the effect is due to problems applying grapheme-phoneme conversion rules or at the level of deficient phonological representations.