Anticipatory eye movements in L2 wh-movement

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In this study, we conducted an eye tracking experiment using the visual world paradigm (VWP) to examine how speech rate and working memory capacity influence (n=21) German L2 English speaker’s ability to anticipate an upcoming object in a wh-question (e.g. Who did the boy kiss at school). Working memory (WM) may be important for language given that WM allows for short-term connections between objects by linguistic and visuospatial representations. Previous research using the VWP suggests that the input rate of speech affects people’s ability to anticipate gaps in wh-questions and we therefore varied the speed of the auditory input.

Individual differences in WM capacity and L2 proficiency were examined by averaging participant’s scores on their performance in 3 complex span tasks (e.g., operation span, symmetry span and rotation span) allowing for the assessment of a dynamic WM process which involves both processing and storage capacity. We predicted that L2 low spanners would be slower at shifting their attention to the relevant object in the display compared to high spanners.

Target-advantage scores were examined 200ms following the verb. We looked at target-advantage scores (target minus competitor, where a positive advantage showed participant’s preference for the object over the subject) during the wh-movement question and comprehension accuracy using general linear mixed models in a 2x4 factorial design: WM (high/low) x speech rate (3.5, 4.5, 5.5, 6 syllables per second). Preliminary results show no significant effect of input rate or WM (p>.05). In terms of accuracy there was an interaction between WM and speech rate with differences between the WM groups occurring at the 4.5 and 5.5 speech rates (see figure). While the preliminary results fail to demonstrate that L2 speakers actively anticipate an object following the verb at any input rate, we do see that WM plays a role in accurate comprehension.
Figure 1: Accuracy across speech rate and WM capacity

References
