Relationship between attentional processing of input and working memory: an eye-tracking study

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Working memory (WM) plays a key role in second language (L2) acquisition by facilitating the regulation of attentional resources and the processing of input. Individual differences in working memory abilities, however, might interact with the conditions in which input is provided to L2 learners. The aims of the study reported in this presentation were to investigate how attention paid to a target syntactic construction (causative ‘had’) in written L2 input is related to the functioning of WM including both phonological loop and central executive (CE) and how WM moderates the change of knowledge of the target grammatical construction in different input conditions.

In our study we used four WM tests to measure both the capacity of the phonological loop and the functions of the CE in a sample of 100 Sri Lankan learners of English. Learners were exposed to examples of the target construction in explicit and implicit learning conditions and their eye movements were tracked as they read the input. A sentence reconstruction (SR) and a grammaticality judgment (GJ) task were administered to assess gains in knowledge of the target construction.

Correlational and multiple regression analyses indicated a very strong relationship between WM abilities and the gain scores in both tasks. The results revealed that WM was predictive of gains in implicit knowledge in all input conditions; however, WM had a somewhat smaller effect on the improvement of explicit knowledge in the implicit learning conditions. The amount of attention paid to input was very closely associated with the WM capacity of the participants. We argue that L2 learners with a higher WM capacity pay more attention to input and are, therefore at an advantage when learning a novel grammatical construction both in explicit and implicit learning conditions.

Keywords: attention, Working memory, input processing, eye-tracking.