Exploring the link between re-reading and comprehension

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ABSTRACT

When people have trouble understanding what they are reading, they tend to go back and re-read a portion of the text. In other words, your eyes don't continuously move left to right when reading English. Instead, your eye movements are often interrupted as you return to look at one or more previously read portions of the text. It has been assumed that returning to earlier parts of a sentence helps the reader understand the text. Although reading an entire text multiple times does result in a more detailed understanding, no studies have yet shown that readers' selective backwards eye movements are related to specific corrections of earlier misinterpretations or even to more accurate understanding. It is also not known how individual readers differ with respect to how they re-read, or whether individual strategies or patterns of re-reading behavior are related to better reading comprehension. Reading is fundamental to learning, education, and daily life and reading difficulties can hinder learning in all areas. Thus, understanding how real-time reading behaviors relate to comprehension is critically important.

During normal, skilled silent reading, approximately 15% of eye movements return to earlier portions of the text (i.e., they are "regressive"). Regressions are typically triggered by some sort of disruption to the normal forward progress through the text and subsequent re-reading is typically interpreted as a reanalysis, revision, or reprocessing of some or all of the previously read text. This reprocessing is generally taken as an indication that the reader has derived a more accurate, grammatically licensed interpretation. However, in the psycholinguistic and reading literatures, the actual affect of these re-reading behaviors on comprehension has been largely assumed. Moreover, studies have not linked the various aspects of re-reading (location of

regressions, scan paths during re-reading, time spent re-reading, as so on) to accuracy rates on comprehension probes of the type often used in educational assessments of reading comprehension. The proposed project includes three series of eye-tracking experiments that examine (1) the triggers for regressions; (2) the type of reprocessing performed during re-reading; (3) the influence of re-reading on reading comprehension; and (4) individual differences in working memory capacity and reading fluency on re-reading and text comprehension. The proposed project is a large-scale systematic exploration of the fundamental assumption that re-reading enhances comprehension. The results of the proposed work will inform the fields of psycholinguistics, psychology, reading, education, linguistics, and STEM instruction -- indeed, any area that relies on extracting complex information from text.