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The Influence of Reading Skill on the Given-New Strategy

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It is well established that speakers adopt a given-new strategy when engaged in conversation (Clark & Haviland, 1977). The goal of this study was to assess the extent to which readers of varying skill adopt a given-new strategy when thinking-aloud to scientific texts. A given new-strategy assumes that when thinking aloud readers first establish their understanding of the current sentence the (i.e., the given) before establishing how that sentence can be integrated into the prior context and/or elaborated upon based on world knowledge (e.g., the new).

Method

The study included 75 participants enrolled in a critical thinking class at Northern Illinois University. Participants read and thought-aloud to two of four science texts. The four texts were adopted from high-school textbooks on life sciences. Self-explanations were collected after each sentence was presented. We measured reading skill using the Nelson-Denny Skills test. A tertiary split was conducted to identify those participants who performed in the upper and lower third. Of the 75 participants, 48 were selected for the analysis. Participants whose scores fell within the lower third were classified as less-skilled readers (total $N = 25$). Participants whose scores fell within the upper third were classified as skilled readers ($N = 23$).

Protocol Analysis

The protocols produced during thinking-aloud were first parsed into clauses (e.g., Trabasso & Magliano, 1996). The average number of clauses produced per think-aloud protocol was 1.96. The mean number of clauses produced for skilled readers was 1.84. The mean number of clauses produced for less-skilled readers was 1.92. Each clause contained both a main a predicate and one or more arguments (e.g., nouns, adjectives, adverbs). Information source for both the predicates and arguments was observed as occurring from three different sources: world knowledge, prior text, and current sentence. The length of each protocol was classified according to the number of clauses that were present: one clause, two clauses, three or more clauses.

Results and Discussion

Three separate analyses were conducted on each of the different protocol lengths in order to assess the inclusion of constituents from different information sources as a function of clause length, position, and reader skill. Only the analyses for one clause and three or more clause protocols are presented here. For think-aloud protocols that contained only one clause, a 3 (constituent source) X 2 (reading skill) ANOVA was conducted. The analysis revealed a significant reading skill by constituent source interaction, $F(2, 92) = 5.485$, $Mse = .044$, $p < .01$. The data indicate that less-skilled readers produced more current sentence constituents than did skilled readers. Skilled readers on the other hand, produced more constituents from world knowledge than did less skilled readers. A 3 (clause position) X 3 (constituent source) ANOVA was conducted on protocols containing three or more clauses. The analysis revealed a significant clause position by constituent source interaction, $F(4, 184) = 28.121$, $MSE = .018$, $P < .01$. There was a significant decrease in the proportion of information from the current sentence across clause position. Conversely, there was significantly more information from world knowledge in the third clause than the first clause. There was no difference in the amount of information from the prior text across the three clauses. There was no main effect or interaction involving reading skill (all $p > .10$).

These data suggest that when thinking-aloud, readers of varying skill differentially engage in a given-new strategy. More specifically, skilled readers are able to establish the given and the new more efficiently and with less verbiage than are less-skilled readers. These difference, however, were attenuated with longer protocols.

References

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