AGE DIFFERENCES IN THE EFFECTS OF DISCOURSE CONTEXT ON SELF-REGULATED READING

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RATIONALE

The self-regulation of input when reading can play a role in comprehension and memory performance. Some research suggests that more elaborative discourse that provides contextual support for the encoding of individual ideas may differentially benefit older adults’ memory for text (Johnson, 2003). With such contextual support, older adults may be able to use situation model processing to “bootstrap” encoding of the textbase (Miller & Stine-Morrow, 1998; Stine-Morrow et al., 2004), and thereby improve recall. Using a “judgment of learning” (JOL) paradigm, we examined age differences in the processes and outcomes of self-regulated reading as a function of text elaboration.

METHODS

Participants

Young       Old
N           45       46
Age Range   18-29   55-82
Age *       20.22 (1.70) 65.78 (7.12)
Working Memory †† 5.34 (.14) 4.55 (.20)
Vocabulary ‡ 46.36 (.98) 48.70 (1.16)
Education † 13.60 (.15) 16.00 (.36)

* Means reported with S.E. or S.D. in parentheses
† Significant group difference
‡ Average listening and reading span

Materials

Miller Adult Intelligence Scale-Revised
Stimulus materials consisted of 45 factual sentences about Connecticut (CT) and 45 about Rhode Island (RI), covering a diversity of topics on nature, history, and tourism. The sentences varied in the number of propositions or “idea units” they contained (Kintsch & van Dijk, 1978). Thus, sentences varied in difficulty level not simply as a matter of length (number of words), but also the amount of elaborative material about the topic. Sentence characteristics (e.g., syllables, complexions) were matched within elaboration levels and across state.

Elaboration Sample Sentence Level

Connecticut
No elaboration/ “Factual” The cotton gin was invented in Connecticut.
Low Elaboration The Mountain Laurel is a popular flower because it swaths the hills in pink and white, mostly in the spring.
High Elaboration The low, eroded hills of eastern Connecticut begin in the far north as rugged bedrock with dramatic, glacial-cut valleys where streams rush through the cliffs.

Rhode Island
No elaboration/ “Factual” The Thunder Toy Company was founded in Rhode Island.
Low Elaboration Although there are older cemeteries in America, none are as stirring as the Crescent Park.
High Elaboration In Bristol, Rhode Island, the state’s largest aquarium, which is sponsored in part by the Audubon Society, features a life-size model of a right whale.

Design & Procedure

Sentences about each state (CT or RI) were blocked for presentation. Participants read each set under instructions to learn as much about each state as possible. The order of the sets was counterbalanced across subjects.

Younger and older adults read each sentence twice, in a self-paced fashion on a computer, with sentence reading times recorded. After each sentence was read, participants made a judgment of learning (JOL) in which they estimated their memory of the material on a continuous scale from “Not at All” to “Complete Mastery” (Figure 1). Participants repeated this process twice for all 45 sentences for a state, and after a brief distractor task, were asked to recall of all the information they could remember about that state.

RESULTS

Residual Reading Times

There were no effects of Age Group on residual reading times (controlling for length of sentences in syllables), suggesting that young and old allocated effort similarly across the various levels of discourse complexity, F(1,90) = 1.97, p = .16. Overall, participants allocated less time to reading factoids relative to elaborated discourse, F(1,90) = 83.43, p < .001 (see Figure 2).

Memory Monitoring

Using a Judgment of Learning (JOL) and subsequent memory monitoring, as shown by Gamma correlations all greater than zero (all p < .001). However, a main effect of Age, F(1,88) = .746, p = .01, showed that younger adults were more accurately monitoring the contents of their memory, though this effect did not interact with text elaboration (see Figure 4).

CONCLUSIONS

For younger adults, monitoring accuracy for factoids was predictive of recall performance across all levels of elaboration (No-Elaboration, r = .46, p < .01; Low-Elaboration, r = .24, p = .11; High-Elaboration, r = .30, p < .05), suggesting that among the young, metacognitive monitoring of factoid learning facilitated learning from discourse. However, this was not true for older adults (No-Elaboration, r = .14, Low-Elaboration, r = .03, High-Elaboration, r = .19, all p > .20).

REFERENCES


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