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How the relationship between text and headings influences readers' memory

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Abstract

Two questions regarding signals' influence on memory were examined. First, the relationship between headings and text was manipulated to determine whether headings serve as visual cues, directing readers to recall all subsequent information, or content-specific cues, directing readers to recall only to certain information. Second, distance between headings and signaled information was manipulated to determine the extent to which headings focus readers' recall. College students read a multiple-topic expository text. Free recall for main topics was facilitated by being related to headings and being close to headings and inhibited by being unrelated to headings and distant from headings. Conditional recall (recall of subordinate information pertaining to a main topic) was not affected by either relatedness of heading or distance. Results are consistent with research showing signals' mixed influence on recall and suggest relation and distance as factors to consider when writing and reading exposition.

Keywords: Headings; Signals; Text; Topic recall; Reading

1. Introduction

One question that guides much of the text processing literature is how readers construct a coherent representation of a text as they read and how that representation influences what they recall from a text (Lorch & Lorch, 1995; Meyer, 1975). Given that we often conceptualize expository text as a hierarchical network of propositions (e.g., Just & Carpen-

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ter, 1980; Kintsch & van Dijk, 1978), Meyer suggests that adept readers use a "structure strategy" to identify the main topics of a text and the related content, and that they use that structural representation to guide their recall (Meyer, 1975; Meyer, Brandt, & Bluth, 1980; Meyer & Rice, 1982, 1989). According to this strategy, readers' ability to recall a text depends on how well they create a representation of the text's topic structure. One method of investigating how readers create and use this representation is by manipulating the signals or cues that authors add to a text and measuring how they influence recall of the text (e.g., Lorch & Lorch, 1995; Lorch, Lorch, & Inman, 1993). Although the literature consistently shows that signals have beneficial effects on certain kinds of recall, such as recall of main topics, other types of recall, such as recall of subordinate content, do not always benefit from signals' presence. Further, this research has raised questions regarding exactly how signals exert their influence. The present study addresses how the contextual and physical relationships between signals and content influence readers' recall. We begin by outlining a framework for understanding how readers create a text representation and then consider competing hypotheses as to how signals might influence the recall of that representation.

1.1. Representing and recalling text

Meyer's structure strategy suggests that readers can create a complete and coherent text representation by identifying the text's overall topic structure, or the rhetorical relationship between the main ideas in the text. These rhetorical relations can present problems and solutions, descriptions, sequences of events, causation of events, or comparisons (Meyer & Poon, 2001). Meyer and others also propose that identifying this rhetorical structure allows readers to understand the author's purpose for writing the text and his or her main message. Based on this structure strategy, if readers can identify the rhetorical relation at the top-most structure of the text, they should produce better recall of the main topics of the text, which should in turn produce better recall of subordinate content relating to those topics (Meyer, 1975, 1984). Indeed, several studies demonstrate readers' improved recall when they identify the top-level of the text, regardless of age (Meyer, 1983; Meyer & Poon, 2001) or topic matter (Bartlett, 1978; Meyer et al., 1980; Swanson, 1979).

While only the most skilled readers use the structure strategy automatically, providing signals can increase all readers' use of it (Lorch & Lorch, 1995; Meyer & Poon, 2001). Although Meyer uses the term 'signals' to include text phrases that cue the reader to the text's rhetorical structure (for example, a text with a causation structure might include phrases such as "as a result" or "because"), here we use Lorch's (1989) definition of signals as writing devices that can be deleted from a text without requiring writing revisions to maintain textual coherence. Using this definition, signals can be categorized into two types: typographical signals, including markings such as boldface and underlining, which tend to emphasize individual words or sections of a text, and organizational signals, including overviews, outlines, and headings, which direct readers' attention to the overall organization, or hierarchical structure, of the text. In general, studies on signals' effects show that their presence in a text improves memory for topics in comparison to the same text without signals (Kardash & Noel, 2000; Lorch & Lorch, 1996; Lorch et al., 1993). This improved memory for the text's main topics and overall structure may strengthen memory for the content related to those topics (Lorch & Lorch, 1995, 1996; Lorch