Public Abstract

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Title:The Effects of Text Complexity and Complex Graphical Elements On Readers' Text Comprehension of Online Science Articles

Science literacy (SL) allows an individual to be knowledgeable on the latest science research and to be able to draw conclusions. Unfortunately, only a small portion of the U.S. public is scientifically literate. Thus, this study investigated how a science communicator could increase SL. The researcher performed a Webpage-based experiment about how two structural facets of a science article influence the text comprehension of a reader. After examining text complexity and the presence of complex graphic elements (CGE), text complexity by itself showed significant influence. Hence, text complexity does influence the text comprehension of readers, particularly for low prior knowledge (PK) readers. When these readers have difficulty reading the text, they use more cognitive resources for the interpretation of it instead of retrieving information. The low PK readers then are less likely to comprehend the message of the science article.

The presence of CGE interacted with text complexity for the perceived ability of an article to explain the topic. Participants understood the topic best when it was low text complexity and no CGE were present. For actual text comprehension, the results were not significant but suggested that low PK readers found CGE influential with high text complexity science articles for problem-solving questions and all text complexities for recognition questions. Therefore, low PK readers reading science articles need either more casual and referential connections in the text or CGE with it. The study found no definite results for high PK readers.