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**The Effect of Independent Causal Questioning on Children
with Different Levels of Reading Comprehension Skills**

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Abstract

The field of reading comprehension has been examined frequently in various intervention studies, in order to understand by which methods it is possible to improve comprehension among students, and especially among poor comprehenders. Previous research findings have indicated that inferences about the causal relations between text ideas while reading have an extremely significant function in creating coherency and text comprehension (Black & Bower, 1980; Greasser & Clark, 1985; Trabasso & Van Den Broek). Inferences contribute to construction of a mental network of connections that represents the conceptual links between portions of the text (Trabasso & Van Den Broek, 1985). One of the effects that the representation network has on the reader is the capacity to identify, understand and recreate the central ideas of the story (Brown, Oaken, Worthen, Campione, & Smiley, 1977; Keenan & Brown, 1984). The more central the idea is in the text, i.e., connected with more of the other ideas in the text, the greater the chance it will be remembered (Brown et al., 1977; Curran, Kintsch & Hedberg, 1996; Espin, Cevasco, Van Den Broek, Baker & Gersten, 2007; Keenan & Brown, 1984; Miller & Keenan, 2009). However, for readers with reading comprehension difficulties and for young readers, there is difficulty in creating the causal relations between parts of the text, and as a result they find it harder to identify and recall central ideas (Curran et al., 1996; Espin et al., 2007; Winograd, 1984). It has been found that one of the ways to improve reading comprehension for these readers is to help them to construct a coherent representation of the text by answering questions about the causal relations existing between different parts of the text (McKeown, Beck, & Blake, 2009; Van Den Broek, Helder, & Van Leijenhorst, 2013; Van Den Broek, Tzeng, Ridsen, Trabasso, & Basche, 2001). In the past, it was found that this causal questioning while reading is the most efficient for recreating the central text ideas (McMaster et al., 2012, 2014). The use of questions during reading can aid readers to maintain understanding and to support construction of a coherent representation of the text. However, despite the overall agreement in research literature regarding the importance of causal questioning in the reading comprehension process, the capacity for self-learning among young readers and poor comprehenders has not been examined.

In the present study, the effect of causal questioning on recall of central ideas was tested among young readers at different levels of reading comprehension by using narrative texts, in order to examine whether good and poor comprehenders could develop independent, active learning capacities and to be less dependent on outside intervention during questioning. In addition, we examined whether causal questioning contributes to understanding the full chain of causes in the story, and to remembering the central ideas about which the students were not asked. Finally, the study examined the connections between accuracy of answers to questions

and recall of central text ideas. To that end, participants in the study were asked to read two narrative texts: one text containing questions within the text which they were asked to answer while reading, and a second text without questions within the text. Afterwards, they were asked to write a summary about each text, including its central ideas.

The study results showed that causal self-questioning did not generally lead to an increase in recreation of the central ideas as compared to recreation of the text without causal questioning. In addition, it was found that causal questioning did in fact contribute to recall of central ideas, but only for those that were directly relevant to the questioning. Finally, it was found that reader's skills in reading comprehension predict directly the accuracy of answers to the questions, and indirectly predict recall of central ideas about which they had been asked. This study suggests that causal questioning during reading is important and helpful in creating connections and recall of central ideas. However, responding to the questioning independently, without feedback, is not adequate to improve identification and recall of central text ideas. While reading, young readers employ many basic reading and cognitive processes. The questions that appeared while they read required many cognitive resources, creating a burden among the students and thus interfering with recall of main ideas without questioning. Furthermore, students in the present study answered the questions without the possibility of receiving feedback regarding the accuracy or inaccuracy of their answers. Therefore, inability to improve their answers brought about failure in their ability to recreate central ideas. These findings have important implications for development of intervention programs, which would enable students to practice and to repeat use of causal questioning during reading comprehension. Furthermore, providing feedback after reading the text, after answering the questions, is likely to positively influence the capacity for comprehension and recall, while maintaining self-learning during reading.