Learning by Drawing: drawing construction interacts with instructional support in fostering higher-order reasoning

Margaret Chan
Teachers College, Columbia University

Abstract: Learning by drawing involves learners construct an integrated verbal and nonverbal representation of the content to-be-learned. Despite considerable studies have investigated the effectiveness of drawing to support students' comprehension of expository text, much remains unknown about drawing as a generative learning strategy. Specifically, successes of learning-by-drawing might be correlated with the complexity of the information to-be-learned. When content is challenging, learners may find it difficult to identify the main themes and select relevant elements to depict in their drawing. Prompts can thus be used as an instructional support to emphasize content that requires intentional processing. In this study, 86 fifth graders read a science text and were randomly assigned into three experimental conditions: drawing, drawing-with-prompts, and no-drawing. Participants' retention and problem solving performance were measured. Participants in drawing-with-prompts condition outperformed their counterparts in retention and problem solving. Implications of the results on drawing and mental model construction were discussed.