The Effects of LEGO Robotics and Embodiment in Elementary Science Learning

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Abstract: Elementary school students often find science a complex subject to learn (Johnstone, 1991; Millar, 1991). Robotics have been used in previous studies to promote science learning as they provide students an environment to observe abstract concepts through the use of tangible, hands-on objects (Nagchaudhuri et al., 2002; Barker & Ansorge, 2007; Druin & Hendler, 2000). However, few studies have investigated the effects of integrating embodiment and LEGO Robotics to encourage students to physically experience abstract science concepts using their own bodies to enhance their conceptual understanding. This study aimed to examine the importance and role of embodiment in elementary science learning through the use of LEGO Robotics. Participants were fifth graders attending a semester-long after-school program for two hours each week. The results revealed that the children in the embodiment intervention group had a better understanding of and a more positive attitude toward science than those without the embodiment intervention.