Cleland, F. E. (1994). Young Children's Divergent Movement Ability: Study II. Journal of Teaching in Physical Education, 13(3), 228-241. Retrieved Jan 23, 2026, from https://doi.org/10.1123/jtpe.13.3.228

Abstract

Young children's (*N* = 50) divergent movement ability (DMA), which is one aspect of critical thinking in physical education, was examined in this study. Treatment Group A received 20 physical education lessons based on skill themes using indirect teaching styles (*n* = 16). Twenty lessons based on low-organized games content using direct teaching styles were provided to Treatment Group B (*n* = 17). No treatment was provided to the control subjects in Group C (*n* = 17). No significant DMA pretest differences were determined, and the independent variables (i.e., gender, intelligence, creativity, and background of movement experience) examined were not significantly related to subjects' pretest DMA. A two-way ANOVA and post hoc Scheffe test revealed that Group A's posttest DMA scores were significantly higher than those for either Group B or Group C, $F(2, 47) = 11.7$, $p < .0001$. Young children's ability to generate different movement patterns (i.e., DMA), therefore, was significantly improved in response to employing critical thinking strategies in physical education.

Author Notes:
*Frances E. Cleland is with the Department of Physical Education at the University of New Hampshire, Durham, NH 03824.