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Developing 4- to 6-year-old children's figural creativity using a doodle-book program

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ABSTRACT

This study investigates the effects of a doodle-book program intervention on creative imagination and divergent thinking on figural material of 4- to 6-year-old children. A total of 67 children participated in the intervention, using a program entitled *Creative Doodle: The Adventures of Dragonfly Grazka*, and 61 children formed the control group. Figural creativity tests (Franck Drawing Completion Test and Torrance Tests of Creative Thinking) were used in pretest and posttest measurement. The intervention was found to be effective in developing participants' imagination and their fluency and originality of thinking.

Results are discussed in the context of possibilities and limitations of the stimulation of creative abilities, especially in early childhood, as well as the advantages of doodle-books as creativity-enhancing methods among children.

1. Introduction

Analysis of children's special abilities – something that has been the focus of a long-standing research tradition (e.g., Feldman, 1986) – has relatively recently been complemented by studies of their little-"c" creativity (Craft, 2001). As children have a smaller repertoire of knowledge and experience than adults, they are usually unable to fulfill the criterion of "Big-C creativity," i.e., creating products which are both original and useful. On the other hand, creative products may be perceived more widely, as not only those which revolutionize the domain and are socially valued (Csikszentmihalyi, 1999), but also as those which introduce an element of surprise and stimulate viewer interest (Glaveanu, 2011). The way children present the world – their courage in breaking free from realism, and the ease with which they ignore social conventions – make their activity a source of surprise for adults. Hence, creativity during childhood should mainly be considered developmentally (Runco & Charles, 1997), using the criterion of originality and value with regard to every individual child rather than the objective norms used in assessing adult creativity (Kaufman & Baer, 2006).

Through this article, a child's creativity would be understood as both: an expression and a potential (Runco, 2003). Child's creativity may be seen as an activity which takes the form of "creativity without creations" (Craft, 2001), on the basis of which lies natural willingness to discover, learn, experiment, and play (Glaveanu, 2011). Creativity thus defined is an expression of a child's general development on the one hand, and a factor which stimulates this development on the other. Its level changes dynamically and it undergoes stimulating interactions, just like every other aspect of development.

This understanding of creativity in early childhood is predominantly associated with artistic activity which engages a child's imagination and divergent thinking. The purpose of this paper is to attempt to assess whether, and to what extent, it is possible to stimulate creative potential by means of intervention based on artistic activity aimed at children aged 4–6.

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1.1. Developing children's creativity

In child development, mimic and motive expressions appear first, and verbal expression comes along with speech acquisition (Coates & Coates, 2006). More complex forms of expression appear in the pre-school period. These are artistic, musical, and constructive expressions.

Drawing creativity is therefore an early and basic form of a child's artistic activity. During its development, the child perfects the techniques of drawing and with time, when the child begins to control hand movement, doodles turn into a scheme which is then enriched by additional elements (Kellogg, 1969). Children's drawings begin to reveal affective conversions. In this way, through the use of size, position, or proportion, children express their emotional attitude to, and the subjectively sensed value and significance of, what they present. Along with awareness, emotions and imagination are the main source of artistic activity (Coates & Coates, 2006). A child frequently presents individual objects in other-than-typical uses and introduces unreal elements, creating his or her own vision of the theme, and so his or her drawing becomes the product of a creative process (Lowenfeld, 1957). This is why on the basis of analysis of children's drawings, many researchers assess not just the perception level, but also the child's thinking, imagination, and knowledge of the world and of his or her self. While examining children's creative artistic expression, Karmiloff-Smith (1990) demonstrated that representational flexibility increases along with age, although it has also been suggested that a child might experience the first artistic creativity crises around the age of five (Kellogg, 1969). Bruner (1973) noted the special role of imagination in children's artistic creativity, emphasizing that imagination enables a child to break through schematism in interpreting functions and meanings and renders it possible to make distant associations with and juxtapositions of colors, meanings, and symbols.

Child creativity engages various processes and operations. This paper focuses on two of those: divergent thinking (Guilford, 1967) and imagination (Khatena & Khatena, 1990).

Divergent thinking manifests itself in the ease of producing multiple ideas (fluency), readiness to change thinking direction (flexibility) and originality of thinking, but also in sensitivity to problems and elaboration. Many arguments have also been given in favor of the suggestion that divergent thinking abilities are domain-specific (Baer, 1993), although reports have appeared indicating that general creative dispositions also exist (Chen et al., 2006).

Creative imagination is the ability to transform available and remembered data into new and original mental images (Linqvist, 2003). It is of both cognitive and affective character (Eckoff & Urbach, 2008). Reichling (1990) assumes the existence of a three-stage imagination development: from (1) *fantasy or magical imagination*, via (2) *reproductive or literal imagination*, to (3) *metaphorical and paradoxical imagination.* In the first stage, products of imagination reflect the world that a child discovers; they are imitations of what the child has experienced. Those representations are of a predominantly imitative character. Animistic thinking and personification (Piaget, 1998) are some of the earliest indications of creative imagination in this period. Moving on to the second stage is associated with the transformation of involuntary imagination into arbitrary imagination. Imagination separates itself to a greater extent from perceptive activities, yet it is still limited by concrete and imaginative thinking (Piaget, 1998). Creative representations which appear in the third stage are a result of perception, thinking, and emotions. This combination constitutes directed imagination, used with a particular purpose in mind.

Divergent thinking and imaginativeness are characteristics of creative people (e.g., Montgomery, Bull, & Baloche, 1993). They correlate significantly but not very strongly with each other (LeBoutillier & Marks, 2003). Although imagination and divergent thinking are key to a child's creativity, they engage partially different cognitive processes and refer to different material. This is why, when examining children's creativity, it is worth accounting for both of these ability groups in further analyses.

1.2. Effectiveness of programs supporting child creativity

Research into the effectiveness of programs and methods directed at developing creativity most frequently takes the form of interventions conducted on adults (Karakelle, 2009; Karwowski & Soszyński, 2008; Karwowski, Gralewski, Lebuda, & Wiśniewska, 2007; Robbins & Kegley, 2010). Programs stimulating child creativity are based on creative activity in language (Vass, 2007), music (Koutsoupidou & Hargreaves, 2009), movement (Cheung, 2010; Cleland & Gallahue, 1993), and drama (Hui & Lau, 2006; Karakelle, 2009). Some of these programs refer to polysensory stimulation, with a strong focus on creative artistic activity (e.g. Garaigordobil, 2006). Such activities mainly include group work and are less frequently realized individually (Robbins & Kegley, 2010) or in pairs (Vass, 2007).

Metaanalyses of creativity enhancement methods (Ma, 2006; Scott, Leritz, & Mumford, 2004a, 2004b) have confirmed the effectiveness of various types of creativity training. In these metaanalyses, age is usually considered to be a moderator. Scott et al. (2004a) compared the effectiveness of training sessions among people aged 14 and above, as well as those aged 14 and below. The effectiveness was similar except in the training sessions based on performance, which were significantly more effective among younger participants than among older participants (Δs were at .56 and .18, respectively). This last finding is coherent with data showing that aerobic exercises improve children's creative thinking (Tuckman & Hinkle, 1986) and that stimulating executive functions may form a step toward inspiring creative thinking (Diamond & Lee, 2011; Memmert, 2007).