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Motor Creativity and Self-Concept

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Creative children often have difficulty in forming their self-concept because parents may suppress their creative ideas. The purpose of this study was to investigate the relationship between motor creativity and self-concept. Wyrick's Motor Creativity Test and the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children were administered to a sample of 414 children aged from 6 ± 0.3 years to 7 ± 0.3 years. Factor analysis for the self-concept measures revealed a 4-factor solution. The amount of variance explained by all 4 factors was 30.28% with the first factor explaining most of the variance (18.2%). Correlation analysis related motor creativity with the self-concept factors, and specifically with the first factor. It seems that perceived maternal acceptance has a significant role in explaining children's motor creativity.

Creativity is a complex human characteristic composed of a constellation of general abilities, personality variables, and problem-solving traits (Sen & Haltvet, 1993). Creative individuals tend to be open to experience, tolerant to uncertain situations, impulsive, individualistic, nonconformist, progressive, and free-spirited (Saracho, 2002; Zachopoulou & Makri, 2005; Zachopoulou, Makri, & Pollatou, 2007).

Fleith, Renzulli, and Westberl (2002) and MacKinnon (1962) demonstrated that highly creative individuals had stronger self-concept than less creative individuals. Some researchers have also supported the view that people with unusual abilities maintain a strong positive image of certain aspects of the self, including body image and self-concept (Smith & Tegano, 1992; Lewis & Scannel, 1995). However, Torrance (Dowd, 1989; Torrance, 1981) argued that creative children often have difficulty in evolving a self-concept because parents may suppress their new, and often unusual and "deviant," ideas. Being creative tends to be nonconforming and doing things out of line (Lau, Li, & Chu, 2004) but maturity and, culture, as well as significant others usually put pressure on conformity.

It is obvious that children seldom decide for themselves what, where, when, how, and with whom they will play. Instead, many of these decisions are usually made for the children by parents, teachers, and various other adults (Bishop & Chace, 1971).

Creative children may have many new ideas but they may not be confident of themselves and their new ideas in social situations (Lau et al., 2004). Nelson, Rubin, and Fox (2005) supported that children's self-perceptions are influenced by their direct experiences of acceptance and rejection during peer interactions. According to Saracho (2002), acceptance of the children's ideas motivates them to generate more ideas.

Parents' personality, as well as parental conceptual systems, has been found to affect potential creativity in children. Runco and Albert (2005) noted that, all else being equal, family variables can make the difference between a fulfilled promise and dismal failure. Bishop

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and Chace (1971) found that children of abstract mothers (characterized by open-mindedness, adaptability, and the ability to entertain multiple viewpoints) showed evidence of greater creative potential than children of concrete mothers (characterized by concreteness, closed-ness of beliefs, and high absolutism).

Garailordobil and Berrueco (2007) analyzed the relationship among self-concept, empathy, intelligence, and creativity in a sample of 86 five-year-old children. Positive relationships were found between self-concept and creativity, suggesting that children with positive self-concept had many creative personality and behavioral traits. Miligram and Miligram (1976) examined the relationship of creativity and intelligence to self-concept in 159 children of superior intelligence across a wide age range (grades 4–8), using the Wallach and Kogan Creativity battery, a group intelligence test, and the Tennessee Self-Concept Scale. They concluded that high creativity in lifted children may generate problem-solving so imaginative and novel in many realms as to maximize social reinforcement and contribute to the development of a more favorable self-concept.

Sen and Hagtvet (1993) examined the relationships among creativity, intelligence, personality, and academic achievement. Analysis showed significant positive correlations of creativity with extraversion and scholastic achievement. Feldhusen, Treffinger, and Elias (1970) found that convergent and divergent thinking abilities, and selected personality and self-concept measures are all valuable predictors of academic achievement in high school students.

In respect to physical competence, Valentini and Rudisill (2004) examined the effects of motivational climate on motor-skill development and perceived physical competence in kindergarten children with developmental deficits. Results showed that a mastery-climate group demonstrated significantly better locomotor performance and higher perceived physical competence post intervention than did a low-autonomy group.

Theodorakou and Zervas (2003) investigated the influence of the creative teaching method and the traditional teaching method on self-esteem of 107 fifth- and sixth-grade children using *The Self-Perception Profile for Children*. Results showed that the teaching method of creative movement was most effective in improving the pupils' general self-esteem and also specific areas of self-esteem such as the cognitive, social, and physical ones.

Harter and Pike (1984) assumed that children do not view themselves as equally adequate in all domains, and that they are capable of making meaningful distinctions between different domains such as: scholastic competence, athletic competence, peer acceptance, physical appearance, and conduct or behavior. They developed the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children, which consists of two factors: general competence (which is defined by cognitive and physical competence) and social acceptance (defined by peer and maternal acceptance).

Torrance (1981) supported the idea that it is more likely for early young children to express their creativity kinaesthetically because they are developmentally in the sensorimotor state, and movement is the most appropriate way for them to express their ideas and thoughts. Creativity in thinking involves the cognitive aspects of fluency, flexibility, and originality. Likewise, creativity in action involves the motor aspects of motor fluency, motor flexibility, and motor originality (Cleland & Gallahue, 1993; Zachopoulou & Makri, 2005). Motor creativity has been defined as the combination of perceptions into new and fresh patterns that could be either a solution to a pre-established problem or the expression of an idea or an emotion by the means of the human body (Bournelli, 2006; Bournelli & Mountakis, 2008; Wyrick, 1968).

Previous studies have studied creativity and its relationship to personality, academic achievement, intelligence, parental acceptance, self-concept, and physical competence (Barron & Harrington, 1981; Feldhusen et al., 1970; Fleith et al., 2002; Garailordobil & Berrueco, 2007; Lau et al., 2004; Miligram & Miligram, 1976). Recent studies (Fleith et al., 2002; Garailordobil & Berrueco, 2007; Lau et al., 2004) have highlighted the necessity of researching further the relationship between self-concept and creativity. Additionally, creative movement has been researched in relation to play (Lloyd & Howe, 2003), self-esteem (Kalliopuska, 1989; Smith & Telano, 1992), and other variables. There are hardly any researches dealing with the relationship of other areas of creativity—such as motor creativity—with self-concept.

The importance of exploring the relationship of self-concept with creativity is higher in early young children (Garailordobil & Berrueco, 2007). It is also important to examine the relationship between children's motor creativity and self-concept because children can express themselves more easily through movement (Torrance, 1981). This study was designed to provide data about the relationship of motor creativity and self-concept. The purpose of the present study was to investigate the relationship between motor creativity and the two factors of self-concept: perceived general competence and social acceptance. It was expected that motor creativity would be correlated with perceived social acceptance—especially with maternal acceptance—and with perceived general competence. It was also hypothesized that perceived social acceptance would

TABLE 2
Intercorrelations Among Motor Creativity Tasks and Among Self-Concept Factors and Also Between the Two Sets of Measures

	MCI	*PSA*	*PSC*	*PPC*	*MCP*	*MCBW*	*MCH*
MCI	1.00						
PSA	**.37**	1.00					
PSC	**.30**	.24	1.00				
PPC	**.43**	**.35**	**.26**	1.00			
MCP	**.37**	.28	.21	.28	1.00		
MCBW	**.37**	**.33**	.21	**.35**	**.55**	1.00	
MCH	**.32**	.20	.18	.22	**.56**	**.49**	1.00

Note. The shaded area denotes correlations among Motor creativity tasks and self-concept factors. Boldface indexes exceed |.30| and all correlations are significant at the .01 level; Nmin 4 2. MCI = Mother-Child Interaction. PSA = Peer Social Acceptance. PSC = Perceived Scholastic Competence. PPC = Perceived Physical Competence. MCP = Motor Creativity—Parallel Line Task. MCBW = Motor creativity—Ball–Wall Task. MCH = Motor Creativity—Hoop Task.

$p < .001$, $\eta^2 = .25$). Finally, the a priori deviation contrast, testing for the null hypothesis that the first factor's score is not different from the remaining factors' scores resulted into ($F_{1,410} = 321.72$, $p < .001$, $\eta^2 = .44$). The very large eta-squared values show that even though the arithmetic difference is not so impressive ($\Delta_{average} = .49$), the children in our sample strongly differentiate their interaction with their mother with all other self-concept dimensions, for which they clearly score higher. For this repeated measures analysis, the planned contrasts were data driven, with no imposed adjustment (e.g., Bonferroni) for multiple main effects testing, because we did not test for between-subjects factors. The next step was to compute correlation indexes among all measures in the study, as the cross-correlations of motor creativity tasks and self-concept factors, as computed through the factor analysis solution adopted were of special interest. The correlation indexes are presented in Table 2.

A very interesting first observation in Table 2 is that the mother–child interaction factor was moderately correlated with all three motor creativity tasks, but none of these tasks is correlated with perceived scholastic competence. Then, only the ball–wall motor creativity task was moderately correlated with the peer social acceptance and the perceived physical competence factors, even though some indications of lower, but existent, correlations are found for the parallel line motor creativity task with the same self-concept factors. The only motor creativity task that was not correlated with three of the four self-concept factors is the hoop task. Strong or average correlations were present—as expected—among the self-concept aggregate scores and the motor creativity scores, separately. One-way analysis of variance designs were used to test for possible sex differences for all three motor creativity tasks and all four self-concept factors. The only significant difference was found for the ball–wall task, ($F_{1,430} = 8.15$, $p < .01$) with boys scoring a little higher than girls (7.48 vs. 6.88), but η^2 for this relationship was extremely small (only .019) rendering this outcome of no importance.

A canonical correlation analysis followed in order to compute as many canonical variates necessary to explain relationships in our data. The first set of variables in the analysis was the three motor creativity task scores (MCPL, MCBW, MCH), and the second set of variables was the four self-concept factors (MCI, PSA, PSC, PPC). Three canonical correlations were extracted. The first was .50 (25% of overlapping variance); the second was .11 (1.2% of overlapping variance) and the third canonical correlation was effectively zero; with all three canonical correlations included, $\chi^2(12) = 123.98$, $p < .001$, $\lambda' = .74$). When the first canonical correlation was removed from the model, the chi-square criterion did not reach statistical significance and the third chi-square criteria was naturally not statistically significant. This result showed that there is one pair of canonical variates that explains the relationship between the two sets and this pair was pursued further. The results for the first canonical variate are summarized in Table 3.

With a cutoff correlation of .30 (Tabachnick & Fidell, 2001), the variable forming the canonical variate are the ball–wall and the parallel line motor creativity tasks in

TABLE 3
Canonical Analysis Results: Canonical Variate Indexes, Variance Extracted and Redundancies Between the Motor Creativity Set of Variables and the Self-Concept Set of Variables

Variable (Motor Creativity Tasks)	*r'*	*R'*	*Variable (Self-Concept)*	*r'*	*R'*
MCPL (Parallel Line task)	.41	.83	MCI (Mother-Child Interaction)	.54	.86
MCBW (Ball-Wall task)	.60	.90	PSA (Peer Social Acceptance)	.33	.69
MCH (Hoop task)	.15	.68	PSC (Perceived Scholastic Competence)	.13	.47
Variance extracted	.66		PPC (Perceived Physical Competence)	.33	.72
Redundancy	.17		Variance extracted	.49	
			Redundancy	.12	

Note. r' denotes the Correlation of the variables with the first canonical variate and R' the respective standardized coefficient. Canonical correlation = .50 (variance overlapping = .25%).