

**RESEARCH PAPER****Creativity and Self-esteem in Adolescence: A Study of their Domain-Specific, Multivariate Relationships****Baishnab Charan Swain**

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Email: [drkbswain71@gmail.com](mailto:drkbswain71@gmail.com)Received: 9<sup>th</sup> September 2017, Revised: 27<sup>th</sup> October 2017, Accepted: 13<sup>th</sup> November 2017**ABSTRACT**

Although empirical investigations on the Creative Self have historically started with a focus on self-esteem, the literature on its relationship with creative performance remains thin and inconsistent, with estimated relationships ranging from moderate and negative, to strongly positive. Discrepancies may be explained by the domain-specificity of both creativity and self-esteem that have been widely overlooked in this line of work. Therefore, this study explores the multivariate relationships between creativity in three domains (Music, Literary-Verbal, Graphic) and self-esteem in seven domains (e.g., Academic, Emotional) among 170 adolescents. Creative productions were scored by four ratters, and latent consensus in each domain captured using a multi-informant latent-consensus model in SEM. This model was further extended in a structural model revealing that (a) creativity is mainly domain-specific, and (b) the contribution of domain-specific self-esteem on domain-specific creativity greatly varies according to both the domains of creativity and self-esteem. Up to 30% of the variance in creative performance was explained by "domain relevant" self-esteem facets and a moderate contribution of creative self-esteem across creativity domains. Results are discussed in light of several important methodological directions for this line of work, as well as its implications for creativity-based interventions designed to support positive self-esteem development in adolescence.

**Key words:** creativity, adolescence, multidimensional self-esteem, domain-specific

**INTRODUCTION**

"The greater the artist, the greater the doubt. Perfect confidence is granted to the less talented as a consolation prize." (Hughes, 1996). Despite numerous examples of suicidal and self-injuring "Big-C" creators (i.e., people recognized for their eminent creative contribution; Kaufman & Beghetto, 2009) such as Vincent van Gogh, the academic literature on the relationship between creativity and self-esteem appears far more optimistic. A review of scholarly work on the topic (Lebuda & Csikszentmihalyi, 2017) concluded that eminent "Big-C" creators may be distinguished from "Pro-c" creators (i.e., professional creators who have not reached eminent achievements), notably by their higher self-esteem and related "core self-evaluation" (e.g., Judge, Erez, Bono, & Thoresen, 2002). By extension, it is generally believed that a high self-esteem is a natural characteristic of creative individuals in general ("little-c" level), or in other words, that self-esteem contributes positively to creativity.

However, to date, this view relies on a very thin and inconsistent body of scientific evidence with only a shy dozen published empirical studies that have included both measures of creativity and self-esteem (Deng & Zhang, 2011). Such studies have often turned a blind eye on the very nature of the creativity tasks at hand, and more importantly, to the domain of creative activity considered. Is self-esteem an equally useful "ingredient" of creativity when children or adolescents are asked to generate original uses for a brick, or when prompted to improvise a dance? This simple question points to the more general question of whether the relationship between self-esteem and task performance varies according to situational circumstances. As noted by Wang and Wang (2016), self-esteem could be even more engaged in creativity tasks that elicit heightened evaluation stress, which would otherwise impede creative performance (Silvia & Phillips, 2004). On this ground, it is likely that distinct task-specific demands differentially engage distinct person-level resources such as self-esteem. This is consistent with the well-established domain-specific view of creativity (Baer & Kaufman, 2005; Barbot & Tinio, 2015). Further, much as creativity is understood as partly

domain specific, self-concept and esteem are also acknowledged as domain-specific entities (Marsh, Craven, & Debus, 1998). This domain-specificity however, has rarely been accounted for in creativity studies. Conceptually, physical self-esteem may be domain-relevant when improvising a dance whereas academic self-esteem may not be.

Together, the literature on the relationship between creativity and self-esteem is inconclusive perhaps due to the differential contribution of (domain-specific) self-esteem to (domain-specific) creativity. Yet, this hypothesis has never been investigated. Therefore, in the work presented here, the domain-specificity of both creativity (in three production-based domains) and self-esteem (across seven domains of self-evaluation) is accounted for with the underlying hypothesis that relationships between both constructs are demand-relevant. Clarifying these relationships is not trivial: this line of work could help understand far more than the characteristics of eminent creators, or the person-level resources contributing to successful creative outputs. It may, in turn, inform how to tailor creativity-based interventions to help people build or sustain a positive self-esteem or, reciprocally, how to build self-esteem to facilitate engagement in creative activities. The former may be particularly relevant for populations with vulnerable self-esteem, specifically adolescents. A brief overview of adolescents' developmental context illuminates how creativity and self-esteem relationships may reasonably be interpreted as more differentiated and domain-specific than previously conceptualized.

#### **GENERALITY-SPECIFICITY OF CREATIVITY AND SELF-ESTEEM**

Adolescence is a critical period for both the development of identity and creativity (Barbot & Heuser, 2017; Dollinger, Clancy Dollinger, & Centeno, 2005; Rothenberg, 1990). With the onset of puberty, cognitive development, and new external demands, adolescents engage in the formation of their identities, which is often associated with confusion regarding the self. It results in typical loss of self-esteem, with the lowest levels of the whole life-span attained during that period (e.g., Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002). Further, if self-esteem is a rather unified construct in childhood with almost undistinguishable facets (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002), there is a diversification of self-esteem into domain-specific facets as individuals invest or disinvest specific areas of experience (Harter, 1990; Marsh *et al.*, 1998). Among the commonly identified "non-academic" domains of the self, social, emotional, and physical self-esteem are the most salient (Shavelson, Hubner, & Stanton, 1976). Often focused on the study of self-concept, some have argued for the broader consideration of specialized areas of experience including academic domains (Marsh, Byrne, & Shavelson, 1988) and artistic or creative domains (Kaufman, 2012; Vispoel, 1995). The latter makes solid conceptual sense given that adolescence is a period of identification and crystallization of creative pursuits (Barbot, Lubart, & Besancon, 2016; Beghetto & Dilley, 2016). By extension (creative) task-oriented commitment is seen as an organizing principle of both creative self-perceptions and actual creative ability (Barbot & Tinio, 2015; Plucker & Beghetto, 2004): By concentrating their efforts in creative tasks that interest them, adolescents' will progressively "specialize" their creative potential, making it a more domain-specific ability. This specialization, in turn, leads to the apparent domain-specificity of creativity and limited support for a "c-factor" (unidimensional and monolithic) of the creativity entity (Barbot, Besancon, & Lubart, 2016; Barbot & Tinio, 2015).

#### **RELATION BETWEEN CREATIVITY AND SELF-ESTEEM**

Although there is resurfacing interest in the relationship between dimensions of the self and creativity, the evaluative component of the self, namely self-esteem, has received limited attention (Barbot & Heuser, 2017). Indeed, the homological network of the "creative self" has boomed these past few years, with the introduction of myriads of related concepts investigated as predictors of creative performance, including creative identity (e.g., Petkus, 1996), creative self-beliefs and self-concepts (e.g., Karwowski, 2016; Karwowski & Lebeda, 2015), or one of its most enthusiastically embraced variation, creative self-efficacy (e.g., Beghetto, 2006; Royston & Reiter-Palmon, 2017). However, self-efficacy remains an inaccurate proxy for self-esteem (Bandura, 1997). One's conviction regarding their ability to perform specific tasks (self-efficacy), may not lead to pride or feeling of self-worth (self-esteem) from these convictions (e.g., Karwowski & Barbot, 2016). For

example, an adolescent may have a rather high creative self-efficacy in music, but that perception of competence may be unrelated to his or her otherwise low creative self-esteem, or even his or her global self-esteem in general. Although the investigation of the relationship between creativity and the Self was historically initiated by a focus on self-esteem (e.g., Cooper smith, 1967), empirical support for the creativity-self-esteem relationship remains limited since then. Adding to the scarcity of such investigations, published studies have all relied on a broad range of creativity measures, including divergent thinking tasks, production based tasks, self-reported creativity, or creative achievements, which all tap into distinct aspects of the construct of creativity.

In a tentative meta-analysis of 17 studies (Deng & Zhang, 2011), 3 the authors acknowledged that observed effects may not be fairly comparable due to the range of methods used. This supports more recent meta-analytical efforts urging creativity researchers to be more conscious of the type of creativity assessment used when considering the relationship between creativity and personality-related constructs (Puryear, Kettler, & Rinn, 2017). Consistently, Deng and Zhang (2011) observed that self-esteem in relation to product based assessments of creativity lead to heterogeneous findings (i.e., unreliable estimates of effect size), whereas it leads to correlations of about .29 with measures of creative-personality. As outlined above, divergences with respect to the age-groups studied may also account for some of the inconsistencies observed, as both creativity and self-esteem may progressively become more domain-specific entities throughout adolescence.

### PRESENT STUDY

The research presented here was designed to address the main inconsistencies of the creativity and self esteem literature by considering creativity in multiple domains, as it relates to self-esteem in multiple domains as well (e.g., Emotional, Academic or Creative self-esteem). Adolescence was chosen as a relevant developmental context that assumes the diversification of creative pursuits and the differentiation of both sub-domains of self-esteem and creativity. A general theory-driven hypothesis underlying this work was that the association between creative performance and self-esteem varies by domain, notably based on the specific demands of each creative endeavor. For example, due to the engagement of the body and gestures in musical creative expression, physical self-esteem may be more clearly relevant to musical creativity (e.g., Barbot & Webster, 2018) than to other creative outlets such as drawing or writing. Finally, because most creativity studies have often limited their focus on one to two domains of creative manifestations (Kaufman & Baer, 2012; Kaufman, Baer, Cropley, Reiter-Palmon, & Sinnett, 2013), a secondary, yet, non-trivial objective was to further examine the issue of generality-specificity of creativity in the investigated domains, representing one of the rare attempts to integrate more than two performance domains in the same study.

### METHOD PARTICIPANTS

The data presented in this study were assembled from two related studies (see procedure) and involved 170 adolescents (46.5% female, 53.5% male) sampled from two middle-school and two high-schools in a large metropole in kolkatta (both urban and suburban settings, as well as a range of socio-demographic backgrounds were represented). Participants were schooled in 9th to 12th grade with a large proportion (60.6%) in 10th grade. Their age ranged 13-19 (Mage = 16.39, SDage = 1.15) with females and males not differing statistically with respect to age. Some of which including measures of self-efficacy rather than self-esteem, and all studies using different indicators of creativity. This instrument has demonstrated strong internal consistency, test-retest reliability, and evidence of criterion validity with other multidimensional measure of self-esteem. Global self-esteem was measured with the Rosenberg Self-Esteem Scale that is well established for its strong psychometric properties across cultural contexts (Gnambs, Scharl, & Schroeders, 2018). Creativity measures three production-based tasks were employed to assess creative performance in Music, Literary-Verbal, and Graphic domains. All tasks focused on “convergent-integrative” thinking requiring participants to combine imposed elements in a creative way, culminating into a unique, elaborated creative production (Barbot, Besancon, & Lubart, 2015). For the Music domain, the Musical Expression Test (MET; Barbot & Lubart, 2012) was used. After two activities introducing the sound-production set and use of the sequencer in a standardized manner, the

composition task (30 min) allows participants to record 30-s musical segments which, once played simultaneously, overlay to form an integrated piece.

## PROCEDURE

Data used for this work were sampled from two related studies involving partly common measures (n-study A = 46, and n-study B = 124), assembled in a way that resembles classic planned amusingness design (Graham, 2009). This type of design has recently shown great promise for the field of creativity research with respect to administration time and scoring procedure (Furst, 2018). For the present work, all participants who completed the music task across both studies were included (n = 99; 58% of the total sample), some of whom also completed the drawing task, while others completed both the drawing and the story writing task. To ensure sufficient covariance coverage across creativity measures, an additional subsample (n = 71; 42% of the total sample, sampled from study B) was randomly selected from a larger pool of participants who completed both the drawing and the story-writing task. This additional subsample size was determined based on prior power analysis in such a way that the total sample size would allow for detection. For the needs of the main study program, the time allotted for this task was extended to 50 min, but the original time set in the original version of the task is 15 min. Creativity and Self-Esteem of effect of at least medium size ( $r = .30$ ) with sufficient power (.80) at risk  $\alpha = .05$ . In all, participants completed either one (27%), two (50%), or the three domain-specific creativity tasks (23%). According to the study source, 74% of the sample was administered the global self-esteem measure, whereas all participants (100%) completed the EMES. Measure administration Both studies were approved by the head of institution of the metropolitan district used for data collection, and all appropriate consents were secured. They both followed the same procedure with respect to the administration of measures: one main data collection session (conducted in classroom settings, within 50 min' sections), included all self-report measures, as well as the drawing task. Separately, the story-writing task was administered in up to 50-min collective sessions to volunteer participants within 2 weeks prior to, or following, the main data collection. The music task was administered in one-hour individual sessions scheduled within 6 weeks prior to, or following, the main data collection. All assessment sessions typically occurred during class or work-study time. Creative productions ratings Four raters (two males and two females) including qualified experts (two faculty with over 10 years of expertise in psychology of creativity), and two quasi-experts independently rated all creative productions gathered for the present study. Within each rating session, productions were rated for creativity on 7-point Likert-type scales, and the raters had the possibility to review their scoring (sorting the productions by rating) to refine their judgments prior to validating their work.

## ANALYSIS

After a set of preliminary missing values analyses, internal consistency and inter-rater reliability checks, two distinct sets of analyses were conducted. The measurement set focused on examining the relationship between domains of creativity, using the Multi-Informant (Barbot, Bick, *et al.*, 2016). This approach uses structural equation modelling to partition-out scores gathered by multiple informants on the same objects, in terms of shared variance (i.e., latent consensus), and residual variance. Residual covariance within each raters' variables is freely estimated to account for raters' cross-domains biases. This approach was used to test alternative measurement models in line with domain-general, domain-specific, and hybrid views of performance-based creativity measurement. In the structural set, the model was extended into a structural regression model, using the three domain-specific variables as endogenous latent variable and the indicators of self-esteem, used as exogenous manifest variables. This approach estimates the unique contribution of each predictor to each dependent variable over and above the contribution of all other predictors. All model parameters were estimated using Full Information Maximum Likelihood, which makes full use of the available data to estimate parameters. Assessment of model fit relied on established indexes and cut-offs in the literature, including the non-significance of the Chi-square tests of fit, a ratio Chi-square to degree of freedom (DF) .95, and the root mean square error of approximation  $< .001$ ,  $\chi^2$  (df) = 6.174, CFI = .664, RMSEA (CI-90%) = .175 (.155-.196) and was deemed unacceptable

for further analyses. In contrast, the domain-specific correlated model showed a nearly perfect fit to the data ( $\chi^2$  (df) = 28.4 (39),  $p = .90$ ,  $\chi^2 / (df) = .728$ , CFI = 1.00, RMSEA (CI-90%) = .000 (.000-.025), so was its hierarchical extension ( $\chi^2$  (df) = 29.4 (41),  $p = .91$ ,  $\chi^2 / (df) = .717$ , CFI = 1.00, RMSEA (CI-90%) = .000 (.000-.021), although not significantly better than the domain-specific, correlated model ( $\chi^2$  (df) = 1.01(2),  $p = .60$ ). Using the domain-specific correlated MILC model as baseline, factor loadings were sizable across domains with an average standardized  $k = .67$  (ranging from  $k = .43$ ,  $p = .002$ , to  $k = .85$ , all other  $p$ s < .001), and no relationships between music and drawing MILC variables (latent  $r = .10$ ,  $p = .57$ ), nor music and story MILC variables (latent  $r = .05$ ,  $p = .81$ ). Correspondingly, loadings obtained with the hierarchical model showed that the domain-general factor loaded substantially into both the drawing and the story MILC factors (standardized  $k = .67$  and  $.63$ ,  $p < .001$ , respectively), but was unrelated to the music MILC factor (standardized  $k = .10$ ,  $p = .68$ ). In other words, the domain-general factor did not explain the music MILC factor ( $R^2 = .01$ ), whereas it explained about 40% of the variance in the drawing and the story MILC factors ( $R^2 = .45$  and  $.39$ , respectively).

### MULTIDIMENSIONAL SELF-ESTEEM AND CREATIVITY

The domain-specific MILC model was extended into a structural regression model, whereby all the self-esteem indicators were used as predictors of the domain-specific creativity MILC variables. This model, returned an excellent fit to the data ( $\chi^2$  (df) = 119.5 (102),  $p = .11$ ,  $\chi^2 / (df) = 1.171$ , CFI = .974, RMSEA (CI-90%) = .032 (.000-.053) allowing for a valid interpretation of model parameter estimates. As shown, the contribution of domain-specific self-esteem on domain-specific creativity greatly varies according to both the domain of creativity and the domain of self-esteem under consideration. Musical creativity was strongly predicted by global self-esteem (standardized  $c = .54$ ,  $p < .05$ ) and creative self-esteem (standardized  $c = .35$ ,  $p < .01$ ); Story-writing was predicted by a combination of three domain specific self-esteem with effects of medium size, including future self-esteem (standardized  $c = .23$ ,  $p < .05$ ), academic self-esteem (standardized  $c = .27$ ,  $p < .05$ ), and creative self-esteem (standardized  $c = .23$ ,  $p < .01$ ). Finally, graphic creativity was only significantly predicted by creative self-esteem. Together, the combined effect of all self-esteem variables on the MILC creativity variables was sizable, explaining 30.7% of the variance in musical creativity, 21.3% of story writing creativity, and 10.1% of creativity in drawing.

Noteworthy in this analytical set was the rather equivalent contribution of creative self-esteem across all three creativity domains which suggested that this domain of self-esteem might have a somewhat more "domain-general" contribution on creative performance. To evaluate this hypothesis, the hierarchical MILC creativity model was used in a structural regression extension analog to the described model, in which all self-esteem variables predicted the general creativity factor. This model showed an acceptable fit to 5 In order to identify the Hierarchical MILC model, a constraint of equality of variance of the first order latent variables (i.e., domain-specific MILC)'s residual terms was set, and the variance of the higher order variable (i.e., "C") was set to 1. 6 Creativity and Self-Esteem the data ( $\chi^2$  (df) = 146.4 (118),  $p = .04$ ,  $\chi^2 / (df) = 1.241$ , CFI = .958, RMSEA (CI-90%) = .038 (.009-.056), despite a substantial degradation compared to the previous model. Estimates obtained in this last analytical set revealed that creative self-esteem was the only significant contributor to the "general creativity" factor with the combined effect of all self-esteem variables explaining 31.8% of its variance.

### DISCUSSION

Despite the extensive acknowledgement of the dimensionality and domain-specificity of both creativity (Baer & Kaufman, 2005; Barbot & Tinio, 2015) and self-esteem (Harter, 1990), the present study was the first to investigate their relationship in a multivariate, domain-specific fashion, including three domains of creative activity and seven domains of self-evaluation. Results confirmed that (a) creativity remains a mainly domain-specific phenomenon, although the contribution of common factors is not to be excluded for some sub-domains of creative activity (here literary-verbal, and graphic) and (b) that the contribution of domain specific self-esteem on domain-specific creativity greatly varies according to both the domain of creativity and the domain of self-esteem under consideration. In spite of several limitations, this study has also contributed to

(c) several important methodological directions for this line of research and for the product-based assessment of creativity in general.

### DOMAIN GENERALITY-SPECIFICITY OF CREATIVITY IN THREE DOMAINS

This study is one of the rare attempts to integrate more than two domains of creative production in the same study including a musical composition task, a story. Structural regression model of domain-specific self-esteem to domain-specific creativity. For clarity, within-rater correlated residuals are not represented; non-significant structural paths are dashed; the size of the significant structural paths is proportional to their corresponding standardized estimate. Creativity and Self-Esteem writing task, and a drawing composition task. The highest association observed between domains was for the story-writing and the graphic task, whereas performance in music composition was independent from performance in the other domains (latent  $r < |.10|$ ). Correspondingly, a “c-factor” of creativity was only meaningful for the story-writing and graphic domains, explaining a sizable share of the variance in these domains’ latent performance, whereas this factor appeared unrelated to the performance in music composition. First, it is important to note that the Multi-Informant Latent-Consensus (MILC) approach used to capture latent performance in each creativity domain, yields disattenuated relationships between performance domains. As a result, the correlation between the story-writing and the graphic tasks used here is larger than what is usually reported in the literature with these tasks (Barbot, Besancon, *et al.*, 2016; Lau, Cheung, Lubart, Tong, & Chu, 2013; Lubart *et al.*, 2011), typically in the .30 range. Second, although limited to three domains, this pattern of associations resembles the distinction between different subtypes of creative activities as outlined in the Kaufman Domains of Creativity Scale (KDOC; Kaufman, 2012). In this model, common perceptions of fifty creative activities were empirically categorized in five broad domains in which both fiction writing and musical composition loaded in a common “performance” factor, whereas drawing-related activities loaded into an “artistic” common factor (Kaufman, 2012).

**Table 1:** Parameters Estimates for the Multivariate Structural Regression Model

Domain	creativity domain	Self esteem domain	(SE) estimate	(St ) estimate	P*
	Music	Emotional	-.121	-.110	.614
		Physical	-.124	-.174	.217
		Social	.165	.102	.434
		Future	-.189	-.078	.456
		Academic	-.223	-.211	.225
		Creative	.678	.435	.008*
		global	.567	.343	.032*
	Library -Verbal	Emotional	-.221	-.145	.233
		Physical	-.321	-.163	.154
		Social	-.324	-.154	.167
		Future	.654	.433	.032*
		Academic	.643	.265	.012*
		Creative	.542	.234	.011
		global	.078	.035	.987
	Graphic	Emotional	-.064	-.034	.789
		Physical	-.076	-.076	.567
		Social	.213	.089	.437
		Future	.341	.234	.223
		Academic	-.432	-.007	.969
		Creative	.653	.323	.002*
		global	-.046	-.023	.873

Note. a Unstandardized structural regression estimate (Standard Error of estimate); b Standardized structural regression estimate; \* $p < .05$  (N = 170).

Although the present study suggests that actual performance in story-writing relates more to the drawing composition activity than the musical composition activity, the findings are in line with a possible contribution of distinct common factors of creativity according to broader content

domains. However, it is important to keep in mind that the estimated contribution of such “c-factors” of creativity would dramatically decrease if tasks of a different nature (e.g., engaging mainly divergent thinking) were also included across the domains investigated in this study. Indeed, the relationship between distinct domains of creative activity may not only be explained by domain-specificity, but also by the nature of the thinking processes mainly involved in each task (Barbot, Besancon, *et al.*, 2016). By construction, both the drawing and the story-writing tasks primarily engage convergent-integrative thinking processes (Lubart *et al.*, 2011). Journal of Creative Behavior which accounts for some of their commonality (Barbot, Besancon, *et al.*, 2016). While the music composition task (MET) was also designed to mainly capture this convergent-integrative thinking process cluster (Barbot & Lubart, 2012), it is possible that its more “open” format-(students are free to compose each musical segments) representing a less restrictive and structured task than the two other tasks (stronger constraints on the basic material to compose a production),-increased the observed domain-specificity of performance in that task.

### **SELF-ESTEEM AND CREATIVITY**

Results regarding the relationship between creativity and self-esteem stand apart from most studies within this line of investigation (e.g., Deng & Zhang, 2011; Wang & Wang, 2016). One of the main reasons for such a difference is the unique design of the present study which incorporated multiple domains of creativity and self-esteem. Specifically, this study revealed a rather large contribution of domains of self-esteem for musical creativity as measured with the MET (over 30% of the variance explained). The largest contributor was the global self-esteem dimension, which was uniquely related to musical creativity with sizable effect (standardized  $c = .54$ ,  $p < .05$ ). Consistent with theoretical expectations on the relationship between musical creativity and self-esteem (VanderArk, 1989) and based on the general hypothesis guiding this work, global self-esteem would thus be considered more “domain-relevant” for musical composition than it is for the other domains accounted for. Considering the various demands of the tasks, the musical composition task surely stands apart from the others not only by its more open format outlined above, but also by the condition of task administration. In other words, the contribution of general self-esteem in creative performance in music may have been somewhat overemphasized by the situational context of production. While pointing to important directions for future research, such as the need of more standardized assessment contexts across domains, this result confirms that domain-specific “demands” in a creativity task, including the situational context of production, may account for the differential contribution of self-esteem to creative performance. As suggested by Wang and Wang (2016), self-esteem could indeed be even more engaged in tasks associated with high evaluation stress, which has shown to inhibit creative performance (e.g., Silvia & Phillips, 2004). In the present study, it is very possible that the musical composition task induced high evaluation stress, which could only be overcome with high self-esteem, while impeding performance in the case of low self-esteem. In the story-writing task, two domains of self-esteem were distinctly and uniquely related to creative performance: academic and future self-esteem. Finally, none of the domain-specific self-esteem was uniquely related to creativity in the drawing task, which remains in line with the domain-relevance idea. However, graphic creativity was predicted by creative self-esteem with a magnitude comparable to what was observed for the other creativity domains (i.e., on the .30 range). This result suggests a possible “domain-general” contribution of creative self-esteem across domains, confirmed in further analysis focusing on the “c-factor” of creativity. This later analysis evidenced a moderate contribution (standardized  $c = .43$ ,  $p < .01$ ) of creative self-esteem to the domain-general aspects of creativity.

### **LIMITATIONS AND FUTURE DIRECTIONS**

Despite a limited sample size inherent to this type of investigation the design of this study inspired from the classic 3-forms planned missingness design (Graham, 2009) has proved efficient to obtain unbiased inter-variable relationship estimates, while limiting participants and judges burden (with only a fraction of the total participant sample completing all three creativity tasks). Further, the Multi-Informant latent-Consensus approach to CAT data employed here was particularly well suited to accommodate missing data while controlling for raters’ subjectivity and

unreliability. Hence, future studies involving more than two domains of activity, which are much needed in the field, could be facilitated by such planned missingness designs of both tasks administered and production rated, coupled with the MILC approach. However, more research on the use of the MILC approach is warranted: the decision to partition-out the variance related to raters "subjectivity" to isolate the latent consensus only has important conceptual bearing with respect to CAT-based assessment of creativity. Further, the differences in inter-rater agreement observed according to the domain of creativity activity Decisions in that respect have important bearings on the kind of relationships observed between creative productions across domains (Barbot, Tan, Randi, Santa-Donato, & Grigorenko, 2012). The structure of this study has great potential for further explorations of the contribution of raters' domain-specific expertise in relation to the domain generality-specificity of creativity issue. Extensions of this work could, for example, evaluate the reproducibility of these results, when involving groups of domain-relevant experts, such as music composers, story-writers, and visual artists. Finally, although the larger contribution of general self-esteem for musical creativity seems to be consistent with theoretical expectations (VanderArk, 1989) and supports the importance of domain-specific "demands" (Wang & Wang, 2016), future studies should attempt to measure creativity in multiple domains using administration conditions and task structure as parallel as possible. Alternatively, this line of investigation could benefit from studies of domain-specific self- in relation to domain-specific achievements in creative endeavors.

## CONCLUSION

This article was introduced by outlining the common beliefs surrounding the relationship between creativity and the self in both popular culture and academia. Both lines have, to date, relied on thin and inconsistent empirical support, notably because they have greatly ignored the domain-specificity of both creativity and self-esteem. The study presented here suggests that while (general) creative self-esteem is mostly related to domain-general aspects of creativity, the relationship between other domains of self-esteem and creativity is largely "domain-relevant". That is, relationships exist according to the unique demands of a given creative outlet, including both situational demands, and the nature of the creative work itself. Several directions have been suggested to pursue this important line of work for both theory and practice. Considering practical implications, an additional important line of work for future investigations is to decipher the directionality of the relationship between domain-specific self-esteem and creativity. While model specification and general results interpretation in this study have emphasized the extent to which self-esteem "accounts for" individual differences in domain-specific creativity, it is important to keep in mind that reciprocal relationships exist. Indeed, understanding the extent to which creativity contributes to self-esteem has important implications for the development of creativity-based interventions designed to bolster adolescent's self-esteem in targeted domains.

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