



A closer look at the creativity gap and why students are less creative at school than outside of school



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ABSTRACT

Previous research has reported that there is a discrepancy between the creativity students display when they are in school and that which they display when they are not in school. The present investigation explored this *creativity gap*. A measure that captures creative activity and achievement in various domains (art, science and technology, everyday creativity) was administered to 254 Turkish undergraduates. This investigation also used statistical techniques that allowed the explanatory power of personality, creative attitudes and values, students' perceptions of supports and barriers at school, and various background variables, such as parental education to be determined. Results confirmed that there was a discrepancy between the in school and outside of school creative activities and achievements. Significantly more creativity was reportedly displayed outside rather than in school. Students' social preferences, creative attitudes and values, and creative personality traits explained much of the discrepancy. Various interpretations of these results are examined, one being that students have creative potential, as evidenced by their creative activities and achievements outside of school, but these potentials are not displayed when they are in school, perhaps because usually there is more structure and more restrictions in school, and creativity entails autonomy and independence. Limitations and future research are discussed.

The primary purpose of education is to fulfill potentials such that students are prepared to succeed in the natural environment (i.e., any time they are not in school, including after graduation) (Wagner, 2008). Success in the natural environment depends on various things, but certainly creative thinking is important (Metzl, 2009; Schmidt, 2006; Sternberg, 2002). Given the speed at which changes are now occurring and the number and variety of demands placed on individuals, the importance of creativity has never been greater (Puccio, Mance, & Murdock, 2011). In addition, creative skills are increasingly valued by employers, in part because creativity is required for the innovation that provides a competitive advantage, and in part because the economy in general depends more and more on jobs that require creativity (Florida, 2012; IBM, 2010; Secretary's Commission on Achieving Necessary Skills, 1991).

Several lines of research imply that schools are not fulfilling the creative potentials of students. The 4th grade slump in creativity (Torrance, 1968) was originally explained in terms of a lack of support at school, and although there are alternative explanations for the slump (e.g., brain maturation leading to conventional tendencies), recent research continues to lament educational support for the creative potentials of students (Kim, 2011). Building on previous work on creative potential (Davis, 1989; Rank, 1945; Torrance, 1963; MacKinnon, 1965; Runco, 2003, 2004), we define creative potential as the hypothetical level at which an individual could demonstrate maximal creative productivity or behavior. Rank (1945) described realization of creative potential as "feeling of division

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in the personality, through the disunity of will and counter-will, which means a struggle against the compulsion of the outer world as well as an inner conflict between the two wills” (p. 264). The creativity gap is, then, the discrepancy between unfulfilled creative potential and actually expressed creative activity and achievement. The smaller the creativity gap, the more the individual is fulfilling potential and expressing creativity at his or her maximal level (MacKinnon, 1965).

The fact that academic and creative achievement are not significantly correlated with one another (Holland & Richards, 1965; Wallach & Wing, 1969) and recent findings that students are more creative when they are outside of school than when they are in school (Runco, Acar, Campbell, McCain, & Gentile, 2016a) both imply that students do indeed have creative potentials which are not displayed when they are on campus. The present research was designed to further investigate this troubling creativity gap. There were several reasons to do so. First, Holland (1961), Holland and Richards (1965), and the others investigating the creativity gap focused on particular domains of creative performance (e.g., art, science, mathematics, drama) but research has suggested that students may now express the creativity in technology (An & Runco, 2016) and in what is often called the domain of *everyday creativity* (Nicholls, 1972; Runco & Richards, 1997). The present research investigated both of these new domains, in addition to those studied earlier. Further, previous investigations of the creativity gap have focused on the quantity of creative activity, but the quality of creative performance among students can also be reliably assessed (Milgram & Hong, 1999; Paek, Park, Runco, & Choe, 2016; Runco, 1986).

Most importantly, statistical methods can now test the relevance of parental background, attitudes and values, personality, and perceptions of the classroom environment as possible explanations for the creativity gap. Two of the person-related factors are creative personality and attitudes and values toward creativity. Creative personality could explain creative activity outside the school because of its link to creative performance as largely stable set of traits (Barron & Harrington, 1981; Feist, 1998; MacKinnon, 1965). Attitudes and values toward creativity are another key factors for creative behavior and achievement (Barron, 1997; Helson, 1990). Ruth Noller’s definition of creativity centered on attitudes (Campos, 2000; Parnes & Noller, 1997). The impact of positive attitudes and values toward creativity on divergent thinking and ideational productivity (Acar & Runco, 2014; Basadur, & Hausdorf, 1996; Kraut, 1976) and creative performance (Dollinger, Burke, & Gump, 2007; Kasof, Chen, Himsel, & Greenberger, 2007; Zhou & Oldham, 2001) is well documented. Plucker and Dow (2010) pointed to attitudes as the initial step to creativity enhancement.

Creativity is highly contextual and environment factors should also be considered in an explanation of the creativity gap. Environment is multifaceted and multi-layered. Previous investigations (e.g., Holland, 1961; Sears, 1968) found associations between creative achievement and parental background, for example, as well as family socio-economic status (Forman, 1979). The presence of others is another facet of the environment, especially when examining creativity outside of school. There is an interesting debate about the presence of others because although Mahon, Yarcheski, and Yarcheski (1996) reported a negative relationship between creativity and loneliness among adolescents, solitary activity could provide a judgment-free environment for creativity (Tick, 1988). Above all of that, general climate characteristics, such as whether and the degree to which creativity is supported or hindered, also matters quite a bit (Amabile, 1996; Hunter, Bedell, & Mumford, 2007). There were, then, several reasons to include measure of perceptions of the environment as possible moderator.

Each of these was examined in the present investigation. It examined (a) technological and everyday creativity, along with the previously studied domains of creative activity; and (b) both the quality and quantity of creative activity; and (c) the explanatory power of a set of variables that were hypothesized to explain the creativity gap.

1. Method

1.1. Participants

254 Turkish undergraduate students (207 females and 47 males) took part in the study. GPA was available for half of the students ($n = 132$), the average of which was 2.86 ($SD = 0.59$). Participants represented a wide range of socio-economic status in terms of income (Mdn = 4000 new Turkish Lira). Students’ family background was also diverse. Parents’ education was coded as illiterate (0), literate (1), elementary (2), middle school (3) high school (4), undergraduate (5), and masters/doctoral (6). When the education levels of married parents were combined, mean education level was 6.59 ($SD = 2.22$). It was quite normally distributed (skew = -0.25 ; kurtosis = -0.38).

1.2. Measures

The primary measure was the *Creative Activity and Accomplishment Checklist* (CAAC). The first version of the CAAC seems to have been Holland’s (1961) but as noted above, it has been updated and extended a number of times (e.g., An & Runco, 2016; Hocevar, 1980; Dollinger, 2003; Milgram & Hong, 1999; Paek et al., 2016; Runco, 1986; Runco et al., 2016a). The present version had 50 items. There were an equal number of Quality items (each of which asks about a socially recognized award or achievement) and Quantity of activity items. The former each asked about socially recognized awards or achievements. The latter just asked students how many times they had been involved in creative activities; no social recognition was required. Early versions of the CAAC only asked about Quantity. The Quality items and scales are recent innovations. One total score can be calculated from all 50 items, or separate Quality and Quantity scores can be used. Often specific domain CAAC scores are used (e.g., Runco, 1986), but to keep the number of variables used in analyses down, here only three general subscale scores were calculated, one for Art, one for Science and Technology, and one for Everyday Creativity. The five level Likert scale used here had been tested in Runco et al. (2016a). It asked respondents how many times they had been involved in each activity or been awarded the creative achievement, with options

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