



Creativity and school grades: A case from Poland

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ABSTRACT

The goal of this study was to describe the relationship between the creative abilities and the school grades of high school students in Poland. Almost six hundred ($N = 589$) students from 34 high schools from all over Poland participated in the study. Their creative abilities were measured by using the Test of Creative Thinking-Drawing Production (TCT-DP), and the school results were measured by GPA. Students' intelligence level (as measured by the Raven's Progressive Matrices) and their gender were controlled. The analyses were based on OLS regressions as well as on multilevel models controlling for grouping students into classes. It was shown that creative abilities are not correlated with students' GPA, yet the multilevel control of grouping students into classes demonstrated interesting and potentially important differences. In some schools, the relations were positive, strong and statistically significant, while in others they were non-existent or negative. The role of creative abilities for GPA was greater in larger schools and in schools located in big cities. We discuss the possible reasons for and consequences of our findings.

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The purpose of this article is to analyse the associations between students' creative abilities and their school grades. We understand creative abilities broadly in accordance with the componential model by Urban (2004; Urban & Jellen, 1996), in terms of fluency, flexibility and originality of thinking as well as bearing in mind the personality traits important for creativity such as tolerance of ambiguity and independence. Operationalisation of the model in the form of Test of Creative Thinking-Drawing Production (Urban, 2004) allows the measurement of such creative abilities, and the results are presented later in this article.

The relationship between creative abilities and school grades is one of the classic research problems in the psychology of creativity (Cicirelli, 1965; Getzels & Jackson, 1962; Wallach & Kogan, 1965), yet numerous empirical studies have still produced ambiguous or even contradictory results. This is not surprising, though, for at least five reasons. Firstly, it may be that creativity is differently operationalized in various studies (DT tests, questionnaires, peer and teacher nominations, product rating, etc. – see Kaufman, Plucker, & Baer, 2008). Depending on what is measured and how, the results may be different. Secondly, what attracts attention is the different measurement of school grades (standardized achievement tests versus GPA, grading individual courses, or self-description). Thirdly, what is important is the fact of statistical control (or lack thereof) and of the influence of general intelligence (g), which plays an important role in school achievement (Hunt, 2011), and is correlated with creativity (Batey, Chamorro-Premuzic, & Furnham, 2009; Kim, 2005; Silvia, 2008a). Fourthly, different results may be obtained from different methods of analysis. Most research applies regular though not always accurate regression analyses and less frequently multilevel analyses which control grouping students into classes. Fifthly, place and time may be important mediating factors. Place is understood widely, through macro-, exo-, meso-, and micro-systems (Bronfenbrenner, 1979), dimensions as individualism-collectivism (Ng & Smith, 2004), climate for creativity in

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school and in class (Karwowski, 2011a), though teachers' attitudes and behaviour (Beghetto, 2007, 2010) as well as their former experiences (Beghetto, 2006). The results obtained from individualistic cultures (Freund & Holling, 2008) do not have to correspond with those in collectivist ones (Habibollah, Rohani, Tengku Aizan, Jamaluddin, & Kumar, 2009) – and the different profile of results may be treated as a proof of the existence of different valuations of creativity in society. The factor of time is important, because the popularity of creativity in education has increased significantly in recent years, and this is why it is possible that the previously observed relations have changed. If indeed we are dealing with an increasing appreciation of creativity (Karwowski, 2009), we may expect that it will be more valued in schools today than 20 or 30 years ago, as scholars of creativity assume (Sawyer, 2006). The fact of more frequent postulates to include creativity in assessing college aptitude alone renders this speculation credible (Kaufman, 2010).

Despite teachers' declarations of attachment to creativity, creative students often become be left out or even punished for creative behaviour (Westby & Dawson, 1995). In collectivist culture, novice teachers clearly prefer non-creative students to creative ones (Ng & Smith, 2004). According to some teachers, creative students can make it more difficult to teach classes and maintain order and discipline (Scott, 1999). All this causes much creative potential to be not applied and developed at school, but, rather, to be associated by teachers with unacceptable classroom behaviour (Cropley, 2010; Karwowski, 2007), and, consequently, inhibited. Contemporary analyses show a number of difficulties associated with the development of creativity in school, including those stemming from some identifiable tensions and dilemmas (Banaji & Burn, 2006). In her analyses (Craft, 2003, 2005), notes that many of the tensions are caused by doubts about how much creativity represents individual versus group characteristics, which can mean that teachers often find stimulating it difficult. Doubts can also be raised about the question of domain specificity and generality of creativity (Baer, 1998; Plucker, 1998), which can be translated into questioning the extent to which schools provide stimulation of field-dependent creative abilities. Some tensions are more cultural in nature (Craft, 2005), such as the rationale underpinning how creativity is marketed in Western societies, and this can be expressed as culture-blindness.

No meta-analysis of the relationship between students' creative abilities and their school achievements has yet been undertaken. The need to do this, however, is becoming more and more acute. Of all the available studies, those which reveal a positive, but weak relationship between students' creative abilities and their school grades are the most abundant (Ai, 1999; Cicirelli, 1965; Freund & Holling, 2008; Freund, Holling, & Prezel, 2007; Habibollah et al., 2009; Niaz, de Nunez, & de Pineda, 2000; Silvia, 2008a). In the above studies, the size of the correlation coefficient usually falls between $r = .15$ and $.35$. Less often, and usually in older studies, a stronger relationship between students' creative abilities and their school grades can be identified (Cline, Richards, & Needham, 1963; Getzels & Jackson, 1962; Marjoribanks, 1976). These fall between $r = .4$ and $.5$. A different body of research shows the lack of any clear positive relationships between these constructs (Edwards & Tyler, 1965; Grigorenko et al., 2009), or even negative relationships (Habibollah, Rohani, Tengku Aizan, Jamaluddin, & Kumar, 2010). Some scholars (Kim, 2008) go as far as hypothesizing that creativity may be the cause of the underachievement of gifted students, though the examples provided to confirm this thesis often refer to single eminent creators, such as Albert Einstein. The comparison of the creative abilities of students with bad and good grades shows that those with good grades have an advantage. In a Taiwanese study, the correlations between creative abilities and school achievement were high ($r = .60-.71$: depending on how the creative abilities were measured) (Yeah, 2004). However, because of the nature of the sample selection, only students with good grades were compared with those with bad grades, so those results may have been overestimated. Another study demonstrated that underachievers (people characterized by high intelligence level and poor grades) are more creative than students who do well at school, despite their low intelligence levels (Karwowski & Wloch, *in press*). There are also some convincing results that teachers use creativity to improve student grades in reading, language, and mathematics (Schacter, Thum, & Zifkin, 2006).

1. Possible moderators of the creativity-GPA relations

When exploring the various patterns of the relationship between creativity and school achievement, many factors should be taken into consideration. The strength of the relationship between creativity and school grades differs in every examined aspect of creative abilities. Elaboration strongly correlates with school grades, whereas fluency, flexibility and originality moderately correlate with school grades, and the strength of these relations changes in the case of different types of school subjects (Niaz et al., 2000). Classic research (Cicirelli, 1965) shows that verbal creative abilities correlate more strongly with school grades than figural creative abilities do; though the influence of intelligence, which is rarely controlled in research, may be important here. Thus we can focus on gender, school subjects, the role of intelligence, the role of the different measures of school achievement, and the role of analytical control or lack of it in grouping students into classes.

1.1. The role of students' gender

Habibollah et al. (2010) found that the relationship between creativity and school grades differs for women and men. In case of women, statistically significant, negative relationships between initiative, self-strength, artistry, and inquisitiveness, and school grades were found, whereas no such relationships were observed in the case of men. In the case of women, positive relations between acceptance of authority, self-confidence, awareness of others, and school grades were observed, whereas no such relations were noted in case of men. In light of Ai's (1999) study, when student creativity is assessed by teachers, in the case of boys only flexibility and elaboration clearly relate to school grades. In the case of women, traits such as

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