



## Assessment of creativity evaluation skills: A psychometric investigation in prospective teachers



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### ABSTRACT

An accurate judgement of the creativity of ideas is seen as an important component underlying creative performance, and also seems relevant to effectively support the creativity of others. In this article we describe the development of a novel test for the assessment of creativity evaluation skills, which was designed to be part of an admission test for teacher education. The final test presents 72 ideas that have to be judged as being common, inappropriate, or creative. Two studies examined the psychometric quality of the test, and explored relationships of creativity evaluation skills with cognitive ability and personality. In the first study, we observed that creativity evaluation skills are positively correlated with divergent thinking creativity and creative achievement, which suggests that evaluation skills are relevant for creative ideation as well as creative accomplishment. Across both studies, people tended to underestimate the creativity of ideas. Openness, intelligence and language competence predicted higher creativity evaluation skills, and this effect was partly mediated by a less negative evaluation bias. These findings contribute to our understanding of why people sometimes fail to recognize the creativity in others.

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## 1. Introduction

How well can people evaluate the creativity of ideas? On the one hand, people show reasonable agreement when evaluating the creativity of ideas, which indicates creativity is a quantifiable aspect of ideas. On the other hand, there is also a substantial amount of variability in judgements, suggesting that people differ in how discerning they are. An accurate evaluation of creativity is thought to be conducive to one's own creative performance (Cropley, 2006; Finke, Ward, & Smith, 1992), and should be similarly important for providing a selective feedback and fostering creativity in others. In this article, we describe the development of creativity evaluation test, designed to be part of an admission test for teacher education. We analyzed data from two studies that examined the psychometric quality of the test, and explored relationship of creativity evaluation skills with cognitive ability and personality.

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### 1.1. Evaluating creativity

A central challenge in creativity research is the criterion problem (Amabile, 1982; Brown, 1989; Shapiro, 1970): There is no easy way to objectively assess the creativity of an idea or product. Moreover, creativity is not an invariant feature of a product, but depends on the time and socio-cultural environment it is born into (e.g., Glăveanu, 2014; Simonton, 1998). Still, within a certain time and group, people tend to agree on whether an idea can be considered more or less creative. Creativity research capitalizes on this agreement by using a consensual definition of creativity, which defines the creativity of a product as the averaged evaluation across a set of judges (Amabile, 1982). Subjective ratings of creativity show good inter-rater-reliability for different kinds of creative products including drawings (e.g., Dollinger & Shafran, 2005), stories (e.g., Baer, Kaufman, & Gentile, 2004), or ideas in divergent thinking tasks (Benedek, Mühlmann, Jauk, & Neubauer, 2013; Silvia et al., 2008). The agreement across judges indicates that creativity is generally an identifiable and quantifiable characteristic of new ideas and products (Benedek & Jauk, 2014).

Creativity scholars have tried to further define the characteristics that lead to the perception of creativity. While many relevant characteristics have been proposed, there is strong agreement that a creative product above all needs to be novel. If it is not novel, it cannot be creative “no matter what other positive qualities it might possess” (Jackson & Messick, 1967). However, mere novelty is usually not enough, but a product is additionally required to meet a criterion of meaningfulness or appropriateness to be considered creative (Barron, 1955; Stein, 1953; see also Runco & Jaeger, 2012). This notion has been confirmed by research showing that creativity evaluations strongly depend on the perceived novelty, and, to a lesser degree, also on their perceived appropriateness (Caroff & Besancon, 2008; Diedrich, Benedek, Jauk, & Neubauer, 2015; Runco & Charles, 1993). It is important to note that novelty and appropriateness are generally inversely related, because highly common ideas are usually also highly appropriate. But within novel ideas, appropriateness predicts perceived creativity, thereby moderating the effect of novelty on creativity (Diedrich et al., 2015).

### 1.2. Assessment of creativity evaluation skills

Different ways have been proposed to measure discernment of creativity evaluations (cf. Silvia, 2008). One approach is to measure evaluation accuracy in terms of hit rates, which is the percentage of correctly identified creative or uncreative ideas (Runco & Dow, 2004; Runco & Smith, 1992). Runco and Smith asked participants to rate lists of ideas from others as well as own ideas for creativity on a 1–7 scale. A judgement was defined as correct when an idea was unique (i.e., statistically infrequent) and given a rating of 6 or 7, or when the idea was common (i.e., given by more than 10%) and rated as 1 or 2. Accuracy rates were generally moderate (20–50%). Interestingly, divergent thinking ability predicted higher evaluation accuracy for own ideas but not for the evaluation of others' ideas. A potential problem with this way of scoring is that it uses different criteria for individual judgements and criterion values. Moreover, it separately scores the evaluation accuracy related to creative and common ideas, which can be differently affected by response biases: judging most ideas as creative will lead to high hit rates for creative ideas, but low hit rates for common ideas, thus reflecting high sensitivity but low specificity in separate scores. Finally, low intercorrelations of scores across tasks indicate low reliability of this scoring.

Another approach to assess accuracy is to compute the discrepancy of evaluations with criterion scores measured on the same scale. Grohman, Wodniecka, and Kłusak (2006) employed this approach and separately measured accuracy for rated originality and uniqueness when judging own ideas and ideas from others. Criterion values were based on the ratings of three trained raters and the relative frequency of ideas within the sample. They found that people generally overestimate the originality of ideas, which was more pronounced for own ideas than for the ideas from others. Divergent thinking ability, however, was not consistently related to better evaluation accuracy. While this approach aims at a more differentiated measurement of discernment compared to hit rates, its actual precision seems to strongly depend on the reliability of the established criterion scores.

Finally, discernment can also be measured in terms of the covariation of evaluations with criterion values. This method does not require the presumption that criterion values reflect the true, absolute level of creativity and hence reflects accuracy in terms of relative rather than absolute agreement. For example, Silvia (2008) asked people to select their two most creative ideas and analyzed to what extent top-2 choices predict the ratings of judges by means of a multi-level approach. He found that people are generally discerning when evaluating their own ideas, but people high in openness were more discerning than others. Since this method is based on covariation, it reflects whether people are able to recognize relative differences in creativity, but is not affected by judgement biases such as general leniency or strictness. However, this method does not necessarily indicate whether people agree on whether a particular idea is creative or not, because this requires a judgement of the absolute level of creativity. Accuracy in the absolute level of creativity is not needed when people are asked to select the best from a set of given ideas, but it should be relevant in contexts that require the judgement of individual ideas, which is common in many applied settings such as those of teachers, curators, or investors (Cropley, 2001; Sternberg & Lubart, 1992).

### 1.3. The present research

The main goal of this project was the development and psychometric examination of a creativity evaluation test (CET). The CET was designed to be included in an admission test for teacher education in Austria, because creativity evaluation

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