Chapter 3
Scientific Creativity in Psychology:
A Cognitive–Conative Approach

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ABSTRACT

The present research investigates the cognitive and conative profile underlying scientific creativity in psychology. An innovative creativity test including both divergent and convergent thinking was used. Intelligence and personality were also measured. The sample consisted of 121 social science students. Intelligence played a major role for scientific creativity in psychology. With regard to personality, openness and negative agreeableness favored additionally scientific creativity in psychology. In future research, the profile of scientific creativity could be compared with profiles of artistic creativity and everyday creativity.

INTRODUCTION

Batey and Furnham (2006) distinguish between three major domains of creative expression: artistic, scientific and everyday creativity. Although for a long period of time creativity was considered in a domain-general way, presently, creativity is progressively considered to be specific to the respective domain. Both approaches are not necessarily mutually exclusive. According to Lubart, Mouchiroud, Tordjman, and Zenasni (2003), the differential approach to creativity reconciles the domain-general and the domain-specific approach; it assumes that there are both domain-general and domain-specific features for creativity. Whereas according to Batey and Furnham (2006) some cognitive and personality characteristics (e.g. fluid and crystallized intelligence, openness) are supposed to have a domain general importance for creativity, according to Lubart and Sternberg (1995) other features (e.g., knowledge, risk taking) are thought to be more domain-specific. The present chapter aims to investigate the differential

approach of creativity, with a specific focus on scientific creativity in psychology. The cognitive attributes and the personality characteristics that make up the profile of the scientific creator in the domain of psychology are explored.

BACKGROUND

Scientific Creativity

Although creativity intervenes in many life domains, according to Kaufman and Baer (2006), it is particularly relevant to the arts and sciences. What makes the science discipline so interesting to explore is that it uses a universal language that transcends the different sub-disciplines. Hence, according to them the role of acquired knowledge is secondary for scientific creation.

For Feist (1998), the definition of a scientist includes science students, natural scientists, social scientists, biologists, engineers, inventors and mathematicians. In the 1950s the first serious investigation of the personality profile of eminent scientists in comparison to non-scientists or their less creative peers was conducted (Roe, 1953; Cattell & Drevdahl, 1955; Terman, 1955). However, according to Feist (1993), it is only in the late 1970s and early 1980s that the psychology of science emerged. Feist and Gorman (1998) consider that the importance of this research discipline lies in a fruitful establishment of selection criteria for science students and young researchers. Presently, the personality of scientists is an already well-established area of investigation, using both psychometric tests and biographical analyses (Piirto, 1998).

Gardner (1983) was also interested in the nature of scientific creativity. According to Gardner (1983, p. 138), mathematical creativity refers to the ability to be "absolutely rigorous and perennially skeptical: no fact can be accepted unless it has proven rigorously by steps that are derived from universally accepted principles". In contrast to this approach, Einstein highlights the intuitive nature of scientific inquiry "to these elementary laws there leads no logical path, but only intuition" (as cited in Holton, 1971-1972, p. 97). In both the scientific and the artistic domains, according to Simonton (2004), chance dominates over logic in the creative process.

Creativity in Psychologists

For Simonton (2013), four different perspectives can be adopted in the analysis of creativity in psychologists. First, creative psychologists can be considered as simply showing one form of expression of high achievement in general, of people who managed to "make history" (Simonton, 1994). Second, creative psychologists can be analyzed together with eminent achievers of various disciplines (Gardner, 1993; Simonton, 1999). Third, creative psychologists can be perceived as belonging to a subgroup of scientific achievers, like physicists, biologists or social scientists (Simonton, 1988). Fourth and last, creative psychologists can be perceived as a category on their own, distinguishing themselves from all other kinds of scientists, creators and achievers (Simonton, 2002). In the present research the third perspective is taken, according to which psychologists and more generally social scientists are perceived as a subgroup of scientists.

According to Auguste Comte (1855), scientific disciplines can be hierarchically organized from more objective and rational to more subjective and intuitive ones. This puts natural sciences on the

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