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Commentary on

The Psychology of Creativity: A Critical Reading

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ABSTRACT

This commentary will take the form of a critical examination into the six research gaps identified by Glăveanu (2014a) in the article *The Psychology of Creativity: A Critical Reading* by examining carefully whether the proposed criticisms are supported by research evidence and will attempt to focus the discussion on accumulating knowledge of theories in the psychology of education. To consolidate theory construction in the psychology of creativity, researchers should give concise operational definitions that can be examined by reliable and valid measurements with identifiable units of analysis in general or specific participants. Given explicit evidence of this kind, educators can be best informed about how to define, assess, and develop human creativity when applying these theories.

Glăveanu (2014a), as a theorist, has argued that there are major loopholes in the way in which theories of creativity are constructed in psychological studies. These loopholes include: a) not asking curious questions that would help to build a strong theory; b) lack of concise conceptual and operational definitions of creativity; c) limitations in current units of analysis; d) bias in samples and inadequate measurement methods; e) diverse discussion to further development of theories; and f) lack of discussion on educational implications.

This commentary will take the form of a critical examination into the six loopholes defined above, in order to see whether the criticisms are supported by research evidence and will attempt to focus the discussion on accumulating knowledge of theories in the psychology of education in response to the open invitation by Karwowski and Uszynska-Jarmoc (2014). First, since Guilford's (1950) seminal article on creativity, have psychologists been asking too many different types of questions? It is too simplistic to state that researchers are too curious and have been working on too many divergent ideas merely as a result of reading through the titles of articles published in leading jour-

nals. The diversity of titles of the articles does not necessarily mean that the scope has been extended too far and thus little effort or interest has been applied to understanding the epistemological nature of creativity (the edifice) by citing only a handful of well-known models from established researchers.

In response to Glăveanu's suggestion (2014a) the author undertook a search of the *PsychInfo* database, the results of which indicated that Amabile's (1982) consensual assessment techniques (CAT) have been cited by 419 authors, Csikszentmihalyi's systemic model of creativity (see Sternberg, 1988) by 137 and Wallas's stages of the creative process published in the *Art of Thought* (Wallas, 1926) by 365 authors. Glăveanu's criticism of "uncoordinated knowledge construction" (p.12) might be supported if these authors had not contributed to further developing the consensual assessment techniques by evaluating a creative product, outlining stages of the creative process, and proposing a systemic model of creativity by designing, conducting and interpreting experiments (Weick, 1989). Among the three examples mentioned above, CAT and the creative process have attracted intense attention and research effort in order to further theory construction. In view of the multi-level nature of the systemic model of creativity, it is relatively more difficult to design and conduct a single study or multiple studies to examine how different systems work to contribute to human creativity.

Second, an inevitable and essential question that researchers have to ask with regard to creativity concerns the conceptual and operational definition of creativity. Runco and Jaeger (2012) noted that the standard definition of creativity includes originality and effectiveness as two essential criteria. Originality may be synonymous with novelty, surprise and unusualness, while effectiveness with appropriateness, usefulness and practicality. For the purposes of a standard definition, the criteria should be generic enough to be applied in specific instances of creativity, e.g., across various domains of knowledge, different sociocultural contexts and in a given temporal situation. A useful definition needs to be both nomothetic and idiographic of its essence. In a recent meta-analysis of 15 creativity studies on creativity and intrinsic motivation published between 1990 and 2010, Jesus, Rus, Lens and Imaginario (2013) chose the perspective of "a product-based approach" and used "original" and "appropriate/useful in a given situation" as one of the inclusion criteria. Researchers have added new qualifying specifications to the definition as an evident endeavor towards theory construction.

Many meaningful and significant works have been published in an attempt to contribute to the assessment of creativity in a product or in a person. *The Essentials of Creativity Measurement* by Kaufman, Plucker and Baer (2008) provided extensive references

to various types of methods available to assess creativity. Kaufman and Baer (2012) and Hass (2013) have extended the CAT by asking whether there is a difference between expert and novice judges in assessing creativity. Their efforts should be applauded as they have consolidated the measurement of creativity, in addition to strengthening the psychometric tradition. The criticism alleging that the definition of creativity is vague, can be addressed by providing explicit details clarifying the definition and how it is to be operationalised in the particular situation(s) or within the specific knowledge domain, within a given time-frame in which the empirical study is designed to take place or the review is to focus on. Glăveanu (2014a) should also provide an operational definition of creativity in this critical reading, in addition to his stated awareness that operational definitions "involve not only product and cognition but also emotions, subjectivity, and the social environment" (p. 16). However, he does provide a concise and operational definition of creativity from a cultural perspective:

"a complex sociocultural-psychological process that, by working with "culturally impregnated" materials with an intersubjective space, leads to the generation of artifacts that are evaluated as new and significant by one or more persons or communities at a given time" (Glăveanu, 2014b, p. 30)

As a cultural psychologist and theorist, Glăveanu (2014b) has also chosen "new" and "significant" as essential criteria and examined the theory of creativity in cultural psychology with an illustration of a case study of craftwork using the multiple feedback method which includes both experts and laypeople in the evaluation process. This theory may require more empirical support beyond a case study in a single culture. Leong's (2011) review on creativity and the arts in Chinese societies may be another good example that provides convergent data to replicate the assessment method in the cultural psychology of creativity.

Third, the unit of analysis is defined as "the smallest/simplest or most appropriate instances of a phenomenon" (Glăveanu, 2014a, p. 17) and it is largely determined by the conceptual and operational definition of creativity. Glăveanu (2014a) suggested that the 4P's approaches – person, process, product and press can also be a unit of analysis for creativity researchers. This suggestion still requires further elaboration in how to design, conduct, operate and interpret these units in empirical studies. The existing breadth and depth of knowledge in creativity studies has focused more on the individual unit, e.g., the personality traits of a creative person or a prominent creative genius, the operations in creative cognition, or two or more of these units, e.g., how individual personality traits affect the creative process to obtain a creative product in a given situation.

The new heuristic models of creativity assessment proposed by Batey (2012) may provide answer to this criticism. Batey put forward a taxonomic framework in the form of a 3-dimensional matrix, including level, facet and measurement method. The level dimension consists of four units: the individual, the team, the organization and the culture. The facet dimension comprises trait, process, press and product and the measurement method contains objective, self-rated and other-rated. Research evidence of objectively assessed creativity within the individual level is most widely used and well established, e.g., the relationships among cognition, personality, motivation and standardized measurement of creativity of individuals (Batey, Chamorro-Premuzic & Furnham, 2009 & 2010). With regard to the individual level, studies on self-rated creativity and personality traits (e.g., Goncalo, Flynn & Kim, 2010; Kaufman et al., 2009), or self-perceived creativity and self-perception of environmental support in the work setting (e.g., Egan, 2005; Zhou, Shin & Cannella, 2008) are also prevalent. Research on multilevel analysis of self-rated and others-rated employee creativity within individuals, across teams and organizations has emerged in industries, e.g., banking (Liu, Chen & Yao, 2011), hotel services (Hon, 2013) and manufacturing (Černe, Jaklič & Škerlavaj, 2013). The heuristic model tends to offer another testable framework for psychological studies of creativity by introducing multiple levels, from those of individual, team, organization to culture, as identifiable units of analysis.

Fourth, questions concerning samples and methods also call for researchers' attention. Human creativity is a complex phenomenon. Individuals of various levels of creativity, whether at an individually self-perceived level of everyday creativity or internationally renowned level of eminent creativity, have been participants in creativity studies. The Four C model of creativity by Kaufman and Beghetto (2009) and Cohen's (1989) continuum of adaptive creative behaviors describe a wide range of creative behaviors in individuals. Which group of participants may be more appropriate and provide more valuable knowledge in understanding human creativity may depend largely on the interests of the researchers and more importantly on the interests of research funding bodies and the availability of financial resources, as reported by Runco and Abdullah (2014). The amount of research money spent on creativity studies was only 2.1% and 1.3% of the total in government funding provided by the Department of Education and National Science Foundation in the United States of America when compared with studies on academic achievement, self-concept, memory, critical thinking, motivation, and intelligence. The press for creativity should take the funders into account.

In addition to the psychometric tradition, various measurement methods have been studied. Quantitative methods include bibliometrics (Long, Plucker, Yu, Ding & Kaufman, 2014), expanded guidelines for CAT (Kaufman, & Baer, 2012), and historiometry (Simonton, 1999). New qualitative methods have also been used, for instance, the multiple feedback method (Glăveanu, 2014) in case studies of creativity in a specific culture. These new endeavors will strengthen the concurrent validity of creativity studies if convergent findings become evident in these divergent methods.

Fifth, with reference to the criticisms about diverse discussions to further the development of theories and inadequate discussion on the educational implications, a sophisticated alternative is examining meta-analytic reviews related to creativity studies. Long et al. (2014) adopted a bibliometric approach to analyze the 1,891 articles published between 1967 and 2012 by four leading journals, including *Journal of Creative Behavior (JCB), Gifted Child Quarterly, Creativity Research Journal (CRJ), and Psychology of Aesthetics, Creativity, and the Arts (PACA)*. Only 7% (n = 125) had been cited over 20 times and 30.6% (n = 578) had never been cited. A small number of researchers produced the majority of the work in most fields, a phenomenon described as Lotka's law by Runco and Pagnani (2011).These figures seem to lend support to the view that only a small number of findings and theories of creativity have caught the imagination of creativity researchers leading them to either replicate the reliability of the findings or examine the construct validity of the assessments and the fidelity of the operational definitions used in these studies.

Weick (1989) described theorizing as "disciplined imagination", "disciplined" through trial-and-error thinking and continuous application of selection criteria to rule out misinterpretation and "imagination" through deliberately introducing diversity into the three components of a theory, i.e. the problem statement, thought trials and selection criteria in the process. Williams (1999) recommends that the construct of creativity can be maximally useful to educators, if psychologists can transform creativity into specific operational definitions that list reliable and valid criteria in assessment. These criteria should be discriminating enough to minimize any overlap in the definitions and assessments of other concepts, so as to contribute to a well-ordered consolidation of knowledge about creativity.

In conclusion, the critical reading by Glăveanu (2014a) has successfully highlighted significant issues relating to the consolidation of theory construction in the psychology of creativity by suggesting concise operational definitions that can be examined by reliable and valid measurements with identifiable units of analysis in general or specific partic-

ipants. Given this explicit evidence, educators can be best informed about how to define, assess, and develop human creativity.

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