Ontological, epistemological and methodological taxonomy of creativity phenomenon research
– call for path forward

Abstract

The aim of the paper is to contribute to call for, on one hand, systematizing the research on creativity in terms of linking ontological, epistemological, and methodological issues specifically, for a heuristic framework combining individual, team, and organizational level, creativity facets at every level as well as, on the other hand, for more focus on both unifying methodology and qualitative research methods in that field The aim has been realized through extensive literature studies and in the part concerning creativity methodology review – systematic literature review. Consequently, as the overarching findings, particular postulates concerning the creativity construct research have been formulated.

Keywords: creativity, multi-level research.

JEL Classification: L10, L26.

Introduction

While some aspects of creativity like facets (i.e. 4P – person (traits), process, product, and press (context)) are recalled in the studies as well as there is intensive research in that field conducted from various perspectives and approaches, there is still a lack of consensual conceptualization of creativity what
leads to various and not unified measurement approaches and hinders the findings synthesis in that field [Batey 2012].

Hence, the aim of the paper is to contribute to call for, on one hand, systematizing the research on creativity in terms of linking ontological, epistemological, and methodological issues – specifically, for a heuristic framework combining individual, team, and organizational level, creativity facets at every level, and the antecedents of those facets at every level of analysis, as well as, on the other hand, for more focus on unifying methodology and on qualitative research methods in that field since it seems that dominant quantitative research methodology does not help investigate on one hand contextual factors influencing creativity processes and, on the other hand, the aggregation that occur amongst creativity levels. The aim has been realized through extensive literature studies and in the part concerning creativity methodology review – systematic literature review in the field of selected journals specialized in examining creativity phenomenon.

The paper is organized three-fold. The first section presents a brief description of the creativity phenomenon as a multi-dimensional and multi-faceted construct in terms of ontological and epistemological layers – traits, processes, and outcomes occurring at multiple levels of analysis. The second section involves a general review of creativity research methodology that has revealed the methodology gap – too little scholars’ attention paid to qualitative methodology. Finally, as a result, some propositions and recommendations in terms of ontological, epistemological, and especially methodological issues have been alluded.

1. Disentangling creativity – a multi-dimensional and multi-faceted construct

Intensive research has been conducted in psychology [e.g. Amabile 1996; Hennessey & Amabile 2010] and management [e.g. Shalley, Zhou & Oldham 2004; George 2007] to better explain and understand creativity phenomenon as well as it has been explored from various realms, e.g. cognitive, neurological, personal, or organizational as well as in terms of different theoretical approaches such as:

- confluence approach in which creativity requires interaction of individual, domain, and field [Csikszentmihalyi 1988; 1996, pp. 107-126 plus Notes] including an investment theory as for which creative people buy low and sell high in the world of ideas – it encompasses confluence of six resources: knowledge, intellect, thinking styles, personality, motivation, and environment [Sternberg & Lubart 1999],
• systems theory [Csikszentmihalyi 1988] that involves the following interrelated elements: a field (community of practice, gatekeepers) including a social system, a person (an individual practitioner) with genetic makeup, talents, experience, and a domain (knowledge, tools, values, practices) embedded in a cultural system,
• contextual methodology [Mayer 1999] detecting social, cultural and evolutionary influences on creativity,
• social psychology and componential model emphasizing the impact on the creative process of external social – environmental factors and illustrating creativity as a process consisting of five stages: problem or task identification, preparation, response generation, response validation and communication, and outcome [Amabile 1996],
• Social Cognitive Theory & socio-constructivist approaches in which creativity is invoked in a complex socio-cultural process enhancing convergent and divergent brain capacities [Edwards-Schachter et al. 2015],
• psychological trait theory [Hennessey and Amabile 2010] positing that the individual psychological traits determine individual level creativity degree,
• a psychodynamic approach due to intrusion of unmodulated thoughts into consciousness [Kris 1952],
• behavioral theories & functionalist approaches in which a creative individual is perceived due to cognitive characteristics, personality and motivational features with contextual factors [e.g. Bird 2002; Edwards-Schachter et al. 2015].

The most frequent conceptualizations of creativity focus on producing/generating novel and useful ideas by an individual or a small group of individuals working together [West & Farr 1990; Oldham & Cummings 1996; Amabile 1997; Zhou & George 2001; Dewett 2004; Dyduch & Bratnicki 2012; Anderson, Potočnik & Zhou 2014; Bratnicka 2015] or, in other words, on the interplay between ability and process by which an individual or group produces an outcome or product that is both novel and useful within some social context [Plucker & Beghetto 2004].

Hence, the creativity construct involves multiple ontological, epistemological, and methodological associations [e.g. Bouchard & Bos 2006; Batey 2012; Fischer, Oget & Cavallucci 2015]. Ontologically, it might cover at least individual traits, processes, and outcomes. Those elements of creativity occur at multiple levels of analysis (at least individual, team and organizational) [Anderson, Potočnik & Zhou 2014] since epistemologically, the creativity concerns at least individuals, teams, organizations as well as all of them are embedded in the particular context. Consequently, Hennessey and Amabile [2010] call for a systems view of creativity that involves a variety of interrelated interdisciplinary condi-
tions that ought to be recognized at multiple levels. Hence, the figure 1 illustrates, on the basis of the literature review [e.g. Anderson, Potočnik & Zhou 2014; Batey 2012; Bouchard & Bos 2006; Fischer, Oget & Cavallucci 2015; Hennessey & Amabile 2010; Zhou & George 2001], a heuristic framework in terms of ontological and epistemological taxonomy of the creativity construct proving its complexity – multi-dimensionality (multiple facets) and multi-level phenomenon. In addition, the creativity facets at every level of analysis are determined by particular conditions specific and relevant to the given level. Moreover, what makes creativity construct investigation more demanding, the cumulative learning processes might occur amongst levels what results in data aggregation—admittedly not just simple one.

Figure 1. A heuristic framework due to ontological and epistemological taxonomy of the creativity construct

All of those aspects aforementioned require the methodology of examining the creativity construct to be above all considered and even revisited.

2. Creativity research methodology – review

With regard to the methodology incorporated in the research on creativity, both quantitative and qualitative approaches and measures are alluded, however, the overwhelming majority of studies is still based on quantitative methodology [Wehner, Csikszentmihalyi & Magyari-Beck 1991; Kahl, da Fonseca & Witte 2009; Long 2014] involving at most self-report questionnaires. According to the Long’s study [2014] examining creativity research in the period 2003-2012, creativity research was predominantly quantitative as well as psychometrics and experiment were the most frequently used quantitative methods, and correlational techniques were utilized most widely to analyze quantitative data. A case study (mainly a multi-case educational case study, instrumental case study, de-
scriptive case study, and collaborative one) was the most frequently used qualitative methodology – especially by biographical methodologists and scholars representing contextual methodology. Other marginally used qualitative methods were phenomenological studies, critical visual methodology, and a self-study approach. Regarding mixed-methods studies, most of them were rooted in quantitative methodology.

The research methodology of creativity research involves either the perception of a particular issue (object, process) evaluated or the creativity product/output features as well as it is proposed to order it in terms of (a) the levels of analysis (individual, team, and organizational), (b) the facets investigated, and (c) measurement approach (quantitative vs. qualitative) (compare Batey 2012). The endeavor of such a systemic perspective is presented in Table 1. It constitutes the result of studying creativity phenomenon at most in the following journals: “Creativity Research Journal”, “The Journal of Creative Behavior”, “Journal of Organization Behavior”, “Thinking Skills and Creativity”, “Journal of Managerial Psychology”, “Journal of Management”, “Journal of Personality and Social Psychology”, “Academy of Management Annals”, “Annual Review of Psychology”, “Journal of Applied Psychology”, “Academy of Management Review”, “Academy of Management Journal” in the period 2010-20161.

Table 1. Methodological taxonomy of creativity research – review

<table>
<thead>
<tr>
<th>Exemplary facets</th>
<th>Measurement approach</th>
<th>Selected exemplary authors</th>
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<tbody>
<tr>
<td><strong>Individual level</strong></td>
<td></td>
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<tr>
<td>Creative self-efficacy</td>
<td>Quantitative (scale)</td>
<td>Tierney &amp; Farmer [2002]</td>
</tr>
<tr>
<td>Self-perception on creativity</td>
<td>Quantitative (scale)</td>
<td>Edwards-Schachter et al. [2016]</td>
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<tr>
<td>Creativity domain</td>
<td>Quantitative (scale, self-concepts)</td>
<td>Kaufman [2006], Kaufman et al. [2009]</td>
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<tr>
<td>Divergent and convergent thinking, linear/non-linear thinking</td>
<td>Quantitative (scale)</td>
<td>Groves &amp; Vance [2014], Soroa et al. [2015], Torrance [1974], Vance et al. [2007]</td>
</tr>
<tr>
<td>Creative thinking in resilience</td>
<td>Qualitative and quantitative (mixed-methods research)</td>
<td>Metzl [2009] – interviews and questionnaires</td>
</tr>
<tr>
<td>Creative expression</td>
<td>Qualitative – critical visual methodology</td>
<td>Hall &amp; Mitchell [2008]</td>
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<tr>
<td>Emotions</td>
<td>Quantitative (scale)</td>
<td>Soroa et al. [2015]</td>
</tr>
<tr>
<td>Imagination</td>
<td>Qualitative – phenomenological studies</td>
<td>Trotman [2008]</td>
</tr>
<tr>
<td>Imaginative capability – reproductive and creative</td>
<td>Quantitative (scale)</td>
<td>Liang et al. [2012], Liang, Chang &amp; Hsu [2013]</td>
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1 As a result, 840 papers dealing with creativity construct have been analyzed, however, the Table 1 presents only brief results and selected (mostly recurring in papers) exemplary facets and authors due to editorial requirements (page limitation – 25 000 characters).
Table 1 cont.

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<tr>
<td>Traits (e.g. personality, motivation)</td>
<td>Quantitative (scale)</td>
<td>Gough [1979]; Eysenck [1996]; Carson, Peterson and Higgins [2005]; Reuter et al. [2005]; Batey &amp; Furnham [2006]; Batey, Chamorro-Premuzic &amp; Furnham [2010]; Horng, Tsai &amp; Chung [2016]</td>
<td></td>
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<tr>
<td>Individuals and individual creativity outcomes: scoring for e.g. originality and fluency</td>
<td>Quantitative and qualitative (subjective judgments)</td>
<td>Cox [1926]; Amabile [1982]; Amabile [1996]; Basadur &amp; Hausdorf [1996]; Besemer and Quin [1999]; Hu and Adey [2002]; Reiter-Palmon et al. [2009]; Cropley, Kaufman and Cropley [2011]; Simonton [2009]</td>
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<tr>
<td>Creative problem-solving</td>
<td>Qualitative and quantitative (mixed-methods research)</td>
<td>Barak &amp; Mesika [2007] – pre- and post-course quizzes, interviews and observations</td>
<td></td>
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<tr>
<td>Creativity learning</td>
<td>Qualitative and quantitative (mixed-methods research)</td>
<td>Cheng [2011] – self-evaluation questionnaires and semi-structured, focus group interviews</td>
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### Team level

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<tr>
<th></th>
<th>Quantitative (scale)</th>
<th>Lewis [2003]</th>
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<tr>
<td>Transactive memory systems</td>
<td></td>
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<tr>
<td>Team heterogeneity</td>
<td>Quantitative (scale)</td>
<td>Shin &amp; Zhou [2007], Somech [2006], van der Vegt &amp; Janssen [2003]</td>
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<tr>
<td>Team tasks routinization</td>
<td>Quantitative (scale)</td>
<td>Becker &amp; Knudsen [2001]</td>
</tr>
<tr>
<td>Task interdependence</td>
<td>Quantitative (scale)</td>
<td>Kiegand [1983], van der Vegt &amp; Janssen [2003]</td>
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### Organizational level

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<tr>
<th></th>
<th>Quantitative (scale)</th>
<th>Nayak [2008]</th>
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<td>At most the aggregate of individual creativity scores</td>
<td></td>
<td></td>
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<tr>
<td>Context (e.g. organizational climate; network configurations)</td>
<td>Quantitative (scale)</td>
<td>Amabile [1996], Ekvall [1996], Perry-Smith [2006]</td>
</tr>
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</table>

## Conclusion and discussion

This study addresses the review of ontological, epistemological, and methodological issues of researching creativity. Consequently, the following propositions have been formulated:

1. It is proposed to examine as the whole a heuristic framework of creativity research encompassing (a) individual, team, and organizational level, (b) creativity facets at every level (traits/characteristics, processes, outcomes, context), and (c) the antecedents of those facets at every level of analysis (Figure 1).
2. It is proposed to select a particular methodology approach at every level and due to particular facets and their determinants – it entails the consequences for setting particular research methods.
3. It is suggested setting unified methods for evaluating creativity facets at every level.
4. It is proposed to establish unified antecedents of creativity at every level as well as unified methods corresponding to them.
5. It is proffered to envisage the cumulative character of creativity phenomenon in terms of epistemological levels and unifying the method for aggregating individual and team creativity traits encompassing at least learning processes (not simply linear aggregation). It justifies an increasing salience of multi-level methodology in organization science.

Moreover, Piffer [2012] evokes the limitations of standard quantitative methods arguing that creativity construct ought to be encompassed in the process of understanding the context – moreover, creativity needs social validation [Fischer, Oget & Cavallucci 2016, p. 127]. Consequently,

6. It is recommended to consider more attention to incorporate qualitative methodology to explore elusive creativity phenomenon, especially in terms of the antecedents, facilitators, inhibitors, and context of creativity as the trait, process, and outcome (what is relevant to the general methodological debate in social sciences). Hence,

7. Since the major focus is on the individual level creativity, it is suggested investigating that construct in-depth not only at the individual level of analysis, yet also at the collective one (team and organizational) since they are deeply embedded in the context. The complex and multidimensional character of creativity requires a more comprehensive approach [Park, Chun & Lee 2016] and special attention in advancing research in theoretical relationships amongst constructs [Venkatraman & Grant 1986].

8. It is also proposed to make endeavor to make the results of the research on creativity in different fields (e.g. psychology, management, business, and economics) convergent what assumes to conduct interdisciplinary studies.

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References


