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Variables that influence creativity in perception of professionals: A case study in innovative Brazilian companies

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ABSTRACT

Literature is abundant in analyze how individual-related variables, group relations, and organizational influences creativity. There are studies on the variables that affect creativity, but their measures are not standardized. To fill this gap is the objective of this study, analyzing the variables that explain the creativity from the perception of professionals who work in innovative Brazilian companies. The instrument includes 54 factors distributed in three levels: individual, group, and organization. Methodological procedures include descriptive analysis of data and Principal Component Analysis. A variance analysis was also performed in order to understand if the companies and sectors involved present significant differences in their perceptions. Based on the preliminary results, it was possible to reduce the dimensionality of the data collection instrument from 54 factors to 17, keeping in the questionnaire those factors who's contributed most at the three levels. The analysis of data by main components also allowed verifying the existence of difference between companies of the public and private sector. In future studies, we intend analyze dependencies between the variables and validate the data collection instrument that is under construction.

1. Introduction

Creativity is the generation of new and useful ideas (Zhou, 1998; Zhou & Shalley, 2003; Sözbilir, 2018) and is one of the main contributors to organizational innovation and competitive advantage in dynamic environments (Amabile, 1988; Jiang, Zhang, & Zhou, 2016). Chang, Jia, Takeuchi, and Cai (2014) believe that creativity is a component that directly influences innovation. The creativity of individuals and groups favors innovation (Woodman, Sawyer, & Griffin, 1993; Damanpour & Aravind, 2012). Proof of this are the high rates of innovation in creative industries, where the focus of innovation revolves around products, services and processes (Müller & Ulrich, 2013; Valgeirsdottir & Onarheim, 2017). For Hennessey and Amabile (2010), the study of creativity is a fundamental need for companies that seek to innovate or to remain innovative.

The literature shows that managers are facing challenges regarding how to create the necessary conditions to increase creativity within companies and to achieve concrete results (Mumford, Scott, Gaddis, & Strange, 2002; Chang & Chiang, 2008; Cirella, 2016). Among these challenges, Basadur and Basadur (2011) highlights the difficulty of identifying cultural dimensions within the company that support creativity, as well as the dimensions that may inhibit creativity. Diliello, Houghton, and Dawley, 2011) point to a gap in creative work environments regarding how to develop people's potential for creative behaviors and how to measure the actual

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amount of creativity they have. Mathisen, Einarsen, and Mykletun (2012) discuss leadership, reporting the difficulty of identifying the limits of creative leaders who promote creativity in their companies, and what leadership characteristics and qualities are needed for developing creativity.

With respect to creativity in work groups, the authors report needs faced by the teams when developing innovative tasks that comprise creativity in companies (Amabile, 1996; Ford, 1996; Woodman et al., 1993; Taggar, Sulsky, & Macdonald, 2008; Hoegl & Parboteeah, 2007). We proposed a structure based in vast and consistent literature to variables that influence creativity (VIC) in which the variables were divided into three levels: individual, group and organizational.

At the individual level, the author establishes three dimensions: "expertise, creative thinking and motivation", stating that the greater the importance of the variables within the dimensions of analysis, the greater the creativity. We define that the expertise variable comprises the technical proficiency of the individual, his/her research knowledge in the area and skills to perform their professional practice; the concept of creative thinking includes cognitive skills and cognitive style, work style, ability to use techniques to explore new cognitive paths, and personality features; and the term motivation is divided into intrinsic and extrinsic motivation (Amabile, 1996; Castiglione, 2008; Dew, 2009; Amabile & Kramer, 2011; Burroughs, Dahl, Moreau, Chattopadhyay, & Gorn, 2011; Bose, Folse, & Burton, 2013; Benedek, Jauk, Sommer, Arendasy, & Neubauer, 2014; Zhang, Zhang, & Song, 2015).

At the group level, we define two dimensions: group formation and leadership. Group formation includes the following variables: group composition, group social processes, group cognitive processes. Leadership, in turn, relies on the following variables: leadership characteristic, leadership ability, team work leadership ability, and leader interaction with strategic levels of the company (Mumford & Simonton, 1997; Mumford, 2000; Shani, Sena, & Stebbins, 2000; Mumford et al., 2002; Mumford & Licuanan, 2004; Reiter-Palmon, Wigert, & Vreede, 2012; Mumford, Hester, & Robledo, 2012).

Based on different authors, we divide the organizational level into five dimensions: organizational culture; organizational climate; organizational structure; organizational strategy; and, top leadership. All these dimensions unfold into variables identified in the literature (Amabile, 1996; Tesluk, Farr, & Klein, 1997; Mauzy, Harriman, & Creativity Inc., 2003; Chang & Chiang, 2008; Diliello et al., 2011; Dul & Ceylan, 2011; Gruys, Munshi, & Dewett, 2011; Gupta, 2011; Isaksen & Akkermans, 2011; Lin & Liu, 2012; Hon, 2013; Foss, Woll, & Moilanen, 2013; Karakaya & Demirkan, 2015). While there are many studies that identify and analyze the influence of variables on creativity, it becomes increasingly relevant to understand the influence of these variables in the specific context of companies, under the effect of their own organizational culture and climate. However, the development of instruments for data collection is not a trivial task. On the one hand, the literature is abundant in variables that affect creativity, on the other hand, there are many measures that can be used for analyzing creativity (Sung & Choi, 2012; Zhang & Zhang, 2015; Birdi, Leach, & Magadley, 2016; Dong and Mounarath, 2016).

There is also a need for studies that identify the relationships and dependencies between the variables that influence creativity. Despite this, this research focuses on the variables that influence creativity in the context of Brazilian companies and some questions arise:

RQ1: Given the broad set of variables that influence creativity, are they all necessary for conducting analyses in companies?

RQ2: Can the perception of importance given to the variables by professional's aid in selecting the most relevant variables to be used in the analyzed context?

Thus, the objective of this article is to analyze the variables that explain creativity from the perception of professionals who work in innovative Brazilian companies. The data collection instrument developed by a survey with 62 questionnaires was answered for the basis for data collection.

We suggest reducing the number of variables, to facilitate the implementation and analysis of the proposed instrument. Filling this gap is part of the purposes of this paper. The practical contribution is to obtain clues regarding the perception of value of the variables that influence creativity in practice by professionals working in innovative Brazilian companies, which can guide the activities of innovation management. Two theoretical contributions can be perceived. On the one hand, an expected result is the improvement of a data collection instrument for analysis of variables that influence creativity in companies, whether Brazilian or not. On the other hand, it offers elements for future comparative analyses between the perception of Brazilian professionals and companies around the world, to understand the implications of these perceptions on the actual creative result.

2. Methods and procedures

The database was collected by sending electronic questionnaires to employees of innovative companies, the variable structure used for data collection was developed from a vast literature review, as described in the introduction of this research, and that may be seen in Appendix I available on electronic link (https://goo.gl/CpQEcH). The database was obtained from the analysis of the importance attributed by professionals of companies, following the field study design described below. Firstly, companies considered to be innovative by the Best Innovator (2012) ranking were identified. Companies were contacted, and technical visits and preliminary interviews were conducted. Table 1 shows the companies and their participation in the data collection procedure.

Table 1 shows the companies according to the data collection procedures. Technical visits were made to four companies, located in the regions, South, Southwest and Center-West Brazil. These organizations were named Alfa, Epson, Phi, Lambda, respectively. The preliminary interview with the professionals involved with the innovation and the information received in these visits focused on the themes: organizational climate, leadership and people, guided the elaboration of the qualitative and quantitative tools used in the later phases of this research. In the same way, the technical visits revealed that the role of the Human Resources (HR) sector was worth investigating, such as those professionals who are in charge of creativity, in an active and deliberate way or sometimes passive and not deliberate.