

Chapter 2

Creativity at Work: Trends and Perspectives

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2.1 Introduction

In this turbulent business world, organizations increasingly seek to have creative, thought-provoking employees in their workforce. Creativity favors the innovation process and puts organizations in a prominent position with their competitors. To answer the questions that involve creativity at work, there has been a profusion of studies developed in the last decades (Runco et al., 2016). Although creativity is not a recent theme in psychology, the field of organization and work studies was developed on this area and was enhanced with the famous work of Amabile (1996), who conceives creativity as a multidetermined phenomenon and inserts the role of context in the proposed theoretical model. In this way, several researches are developed with the purpose of understanding the concept of creativity and its antecedents and consequents.

The focus of this chapter is creativity in the organizational and work context. The definition of creativity most used in this field of knowledge specifies this to be a phenomenon related to the generation of new and useful ideas about the products, procedures, and work processes (Amabile, 1983; Oldham & Cummings, 1996; Shalley, Zhou, & Oldham, 2004). The main focus of this line of thinking is based on the notion that the work context can affect the creative performance of workers. The fundamental assumptions of the social psychology of creativity include (1) creativity exists in everyday life, as well as in the fields of science, literature, and the arts. Therefore, individuals with normal cognitive abilities can, in some way, produce

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creative work; (2) there are levels of creativity within a given individual work; and (3) it is possible to increase creativity.

The international literature has widely investigated the organizational and individual factors that promote or create obstacles to the creative performance of employees, with studies that mainly investigate the stimuli to the detriment of those who analyze the barriers. In addition, there is a range of papers that are prescriptive (Bruno-Faria, Veiga, & Macêdo, 2008). In general, the research is not conclusive and cannot cover the complexity of the phenomenon.

Considering the lack of consensus on the antecedents and consequences of creativity and the fact that this is a priority area for the economic development of a country, this chapter aims to present a literature review on this topic. It will be emphasizing the relevance of researches on the development of creativity and will be discussing the strategies and techniques that foster the creative process at work. In addition, in the search to encompass the complexity of the construct, different investigative models were analyzed. These models evolve from a perspective focused on the individual as a creative genius for the socio-organizational perspective, in which the context emerges as a source of stimulus for creativity. The models, in general, present integrative structures at different levels of analysis.

2.2 Definition of Creativity

The theme of creativity has been approached in different areas of knowledge where it is a multidetermined phenomenon and has wide influence in the different domains of life. Although people usually think of the arts when it comes to creative functions, it is known that creative ideas are important in the business world. Creativity is essential in the production of new ideas, products, and services. In this sense, managers are eager to have a contingent of employees whose creative ideas flourish in abundance to solve problems and face new challenges.

The amplexity of this phenomenon in the field of work and organizational psychology (WOP) requires deepening the understanding of what creativity is, how and where it occurs and manifests itself, as well as what are its multiple determinants. Thus, studies focusing not only on the individual aspects of creativity but those of a contextual approach have gained prominence. In this field of knowledge, the definition of the phenomenon has not yet acquired a state of maturity and calls for studies that can cover the complexity of the phenomenon.

The notion of creativity stems from the Latin *creare*, which means to raise and to produce, related to *creocere*, which has the sense to increase and to grow. The word also originates in the Indo-European “Ker,” which also means to grow. Therefore, the very origin of the word refers to the emergence of something that uplifts, grows, and develops. In the vernacular, creativity is defined as “quality or state of being creative” and “ability to create.” The origin of the word leads us to the conception of movement, of creation, and of growth and development.

Specialized studies on creativity show that this construct evolved from an individual perspective, from biological roots, to an ecological approach, also focused on the context (Gomes, Rodrigues, & Veloso, 2016). The perspective of creativity as an individual aspect made the creative individual as a rare species among humans and made these “rare” humans linked to restricted groups who were always in search of great achievements and inspirations, such as artists and poets. The approach focused on the creative person that seeks to identify the general and specific skills, motives, and traits that lead a person to develop a creative product.

For researchers from a humanistic approach, creativity must be understood in a perspective of individual motivation (Batey & Furnham, 2006). The understanding of creativity centered on the “solitary genius” with the studies of Guilford (1956) and Stein (1953) being precursors. Further studies focus not only on the individual achievements of the creative genius but begin to take in consideration people’s daily lives (Gomes et al., 2016). This does not mean that studies on the individual aspects of creativity have ceased but that a new paradigm emerges.

Researches on social psychology and personality define creativity in terms of innovation, which refers to ideas not yet presented; flow, which refers to the number of ideas conceived; flexibility, understood as the wideness and flexibility of reach of these ideas; and originality, which refers to ideas not previously known (Zhou & Hoever, 2014). In the field of organizational behavior, the concept that reaches greater consensus among scholars establishes creativity as defined by result. This result is generally comprehended by actions that bring something new and useful to work or to the company as products, services, business and management models, as well as work methods (Amabile, 1996; Zhou & Hoever, 2014). While creativity has as its characteristic the production of ideas, innovation includes production as also the implementation of ideas. In this sense, creativity crucially precedes innovation.

The concept of creativity has undergone revisions. This is how Glaveanu (2013) rewrites it from the four pillars established by Rhodes (1961, cited by Glaveanu, 2013), namely, the individual, the processes, the outcomes, and the environmental pressure.

From this perspective, the concept of creativity evolves to a structure called by it as the five As of creativity. In this model, the author includes the actors, the actions, the artifact, the audience, and affordance (Glaveanu, 2013). The author states that the theory of the four Ps focuses on individual’s internal disorders, in their cognitive mechanisms, in future goods, and on the social context that condition the creativity. The theory of Glaveanu (2013) advances to a perspective that considers personal attributes in relation to the social context. Taking into account coordinated actions between psychological and behavioral manifestations, it considers the cultural context of the production of artifacts, as well as their evaluation, and, finally, considers the interdependence between creators and the material and social world. In synthesis, in the interrelationship between these variables is where creativity finds space to thrive.

International and national recent studies show that the focus is on the integrated perspective on creativity concept (Alencar & Fleith, 2003; Amabile, 1996; Gomes et al., 2016; Zhou, Hirst, & Shipton, 2012; Zhou & Shalley, 2003). In general, creativity has been defined by its results, such as creative ideas (e.g., Gomes et al., 2016; Zhou et al., 2012).

The standard definitions of creativity have been classified in a bipartite perspective. For Runco and Jaeger (2012), there are two criteria to be considered in the definition of creativity, which are originality and effectiveness. Therefore, for an action to be considered as creative, it is necessary that there be originality, once those that occur in the field of common sense, conventional and mundane, cannot be considered creative. The creativity is in the field of the new, original, unique, and exclusive. Although originality is important in the creative process, it is not enough. It is necessary that the action also be effective to be considered creative. The value of an idea, a product, or an action is in its effectiveness and not exclusively in originality (Zhou & George, 2001).

In other words, by definition, ideas will be considered creative when they fulfill the conditions of originality or uniqueness and effectiveness or usefulness. In the field of workplace, it is desired that creative ideas can also be applied to solve organizational problems. Nevertheless, these ideas need to be useful so managers can apply them effectively to develop new products, improve work processes, and solve labor problems. Willing to minimize the complaints about definition of creativity, Batey (2012) proposes a taxonomy that considers the following dimensions: (a) analysis level (individual, group, organizational, and cultural); (b) facet which refers to the aspect to be considered, more specifically, the four “Ps” (person, process, product, and place); and (c) measure level, which must be checked with the definition within the way the construct is measured, being possible to have objective measures, self-reporting, and others, such as expert assessment. Thus, the author proposes a matrix of $4 \times 4 \times 3$ to investigate creativity, which sums at least 48 different ways of measuring this variable.

Taken jointly, the different studies that seek to conceptualize this phenomenon allow us to assume that organizational creativity is a construct of greater complexity, since it integrates from the personal characteristics of employees (e.g., personality, intrinsic motivation, skills, technical knowledge, self-effectiveness) to relevant aspects of the organizational structure, social environment, job specifications, and interpersonal relationships established in the work environment, which encompass the dyad between managements and employees as well as peer relations.

2.3 Creativity: Approaches Focused on the Individual and Context

Early proposals on creativity suggest that this is a phenomenon of biological nature, focusing the creative potential on the individual (Piirto, 2004). In the field of individual dimensions, studies on the influence of personality, motivation, and affections on human creativity are highlighted.

Specifically regarding the relationship between creativity and personality, there is a long tradition of research (Barron & Harrington, 1981). Although the results are not conclusive, they show that some personality traits contribute more than others to

the expression of creativity, such as risk taking, tolerance to ambiguity, perseverance when facing of obstacles (Alencar & Fleith, 2003), and openness to change (Ma, 2009). The existence of robust and tested measures in different cultures makes easier the comparison of the investigations that include Big Five in their designs, although the measures of creativity are scarce (Batey & Furnham, 2006).

In part, divergences regarding the relationships between personality and creativity can be attributed to the way in which such variable is conceived. In general terms, assignments adopt one of two approaches: in the first, divergent thinking test is used as verbal fluency, for example. Another possibility is to ask a specialist to evaluate a given product. In this case, the findings present a positive relation of creativity with extroversion. As an explanatory hypothesis, this result can occur because the extroverts are risk takers and seek more stimulation allowing creativity to emerge. In the second approach, there is a positive relationship with openness to change; however, the findings are less robust and inconclusive (Batey & Furnham, 2006).

In spite of the findings, it is important to emphasize that the relationship between personality and creativity is complex. For example, extroversion presents itself as a predictor of performance in tests of creativity; however, on the other hand, introversion is a precursor of creativity among artists, and this probably occurs because artists spend much of their time with themselves (Batey & Furnham, 2006). The studies allow to state that personality can explain “one-fourth to one-third of the variation in creativity in the work environment” (Batey & Furnham, 2006, p. 400). However, for a person to reach his creative potential, other cognitive and situational requirements must be present.

Another important variable in the study of creativity is motivation, which has been considered as a strong predictor of creative performance. Although there is no consensus among authors about the relationship between intrinsic motivation and creativity, some consider motivation to be one of the main antecedents of creativity (Amabile, 1985; Kreitler & Casaki, 2009), while others state that relationships are less consistent from what have been hypothesized in the literature (Grant & Berry, 2011). Intrinsic motivation occurs when the person engages in some activity because it has an interest, satisfaction, or pleasure, taking the activity itself as a reward (Amabile, 1983).

Nevertheless, what seems to be consensual in the studies on the relations between personality and creativity is the existence of moderators and mediators in this relationship (Zhou & Hoever, 2014). In this way, intrinsic motivation has been configured as a mediator of the relationship between openness to change and creativity (Prabhu, Sutton, & Sausser, 2008). In later studies, intrinsic motivation was associated with high levels of creativity when workers were pro-socially motivated, that is, when employees were also motivated to consider their peers’ perspectives (Grant & Berry, 2011). In addition, intrinsic motivation has had an indirect effect on creative performance, being moderated by the search for help (e.g., Mueller & Kamdar, 2011). The authors found this to be a complex relationship, since the search for help can either increase creativity or, depending on the help received, suppress the creative process.

Still in terms of individual aspects and their relation to creativity, the studies point to a confluence of positive associations between affection and creativity (Baas,

De Dreu, & Nijstad, 2008; De Dreu, Baas, & Nijstad, 2008). Experimental research shows that tenderness induces positively creativity, intrinsic motivation, and the capacity of problem solving, especially complex matters (Hennessey & Amabile, 2010). A longitudinal research that adopted different strategies of data collection (daily activity diaries, self-report, peer evaluation, and specialists) showed positive relationships between positive affection and creativity and none with negative affections (Amabile, Barsade, Mueller, & Staw, 2005).

In turn, in inspecting the associations between creativity and negative affects, the results are not consensual. Researchers found that negative affect was a predictor of creativity (assessed by the supervisor) when they noticed that they would be recognized and rewarded for their performance (George & Zhou, 2002). However, if the other variables are kept constant, positive affect is more beneficial to creativity than negative affect (Hennessey & Amabile, 2010). Negative affects, on the other hand, can increase creativity when they are triggers (*negative activating moods*, e.g., anger and guilt) and do not relate to creativity when they are the opposite (*deactivating moods*, e.g., depression and discouragement) (De Dreu et al., 2008). Negative activating affects lead to creative performance as it increases perseverance and persistence. Because of this, both positive and negative affects can foster creativity.

Following the same line, studies show that the benefits of individual creativity of the team members to the group creativity were contingent to the engagement of members in the so-called relevant process of creative team (Taggar, 2002). Moreover, team diversity and the team members' perspective interact to affect the team creativity, so that different perspectives among the team members promoted creativity in fact of the members' high perspective (Hoever, Van Knippenberg, Van Ginkel, & Barkema, 2012). Altogether, these studies evidence that at individual, dyad, or team levels, positive affects impact creativity.

Studies focusing on the influence of emotions on creativity have investigated characteristics of the dyads or teams as creative actors. The center of attention of these studies is on the composition and behavior of team members, collective affective states, as well as task performance experiences. In this line of analysis, studies have shown that the benefits of gathering together the individual creativity of team members into group creativity were contingent upon the engagement of members in the so-called relevant process of the creative team (Taggar, 2002). In addition, the diversity of the team and the perspective of team members' interaction affect the team's creativity in a way that plural perspectives among team members could foster creativity up the high perspective of the members (Hoever et al., 2012). These studies combined demonstrate that at the individual, dyad, or team level, positive affects impact creativity.

It was possible to realize, with the development of the area, that the context has an important role in the development of creativity, expanding the scope of studies and decentralizing the influence of the individual in the creative expression taking in consideration the context (Shalley et al., 2004).

The realignment from individual to the organizational perspective did not mean abandoning one perspective over another, as can be seen in Chávez-Eakle, Eakle, and Cruz-Fuentes's (2012) studies. Nevertheless, it has altered the field of study to inves-

tigate the influences of context for the phenomenon to flourish so that creativity may be the result of individual action and social interaction (Aggarwal & Bhatia, 2011).

Csikszentmihalyi (1997) suggests that the relationship between these two levels of analysis is due to the interaction of three elements: (1) culture, based on its shared rules and values; (2) the individual, who contributes with a new idea in the context; and (3) peers that validate the process. However, the environment can also be a source of obstacles for creativity (Amabile, 2012).

To make clear what we are presenting as context, we reread Rodrigues and Veloso (2013) that problematize the multi-perspectives that define what the context is and the variables that represent it. The result of this effort suggests an important role of human resource sector, as the creator of environments that stimulate the emergence of creativity.

The management of human resources presents itself as a key piece to stimulate creativity. The phenomenon has been presented as a result of the interaction of numerous factors that moderate the relationship between the individual and organizational level. In this way, worker-oriented practices fail to produce creative results if they are not aligned with personnel management policies, such as the presence of supportive communications channels, performance evaluation, and encouragement of teamwork (Rodrigues & Veloso, 2013).

When investigating the history of creativity, Shalley, Gilson, and Blum (2000) confirmed that higher levels of creativity are associated with greater autonomy and higher level of complexity and challenge in the tasks taken, causing an effect on the worker's own satisfaction. This may lead us to think that only positive environments allow the expression of creativity. However, the study by Zhou and George (2002) reveals that even if dissatisfied, if there is a scenario of committed and assertive workers, they can develop expressions of creativity to solve problems arising from the very situation of discomfort.

The studies developed by Hammond, Neff, Farr, Schwall, and Zhao (2011) synthesize the tradition of studies on creativity from the individual perspective, through the focus on teams and dyads to the analysis of organizational context. For the authors, early traditional studies from the subject seek to know the predictors of the creative process and its impacts on the worker (individual level). These predictors are categorized into three directions, the first of which focuses on the aspects of the individual and has three main focuses: (1) personal sources, which we recognize as personality traits, values, and cognitive styles, among others; (2) characteristic of the task and its goals, level of complexity, and routinization; and (3) predictors from context, such as leadership, perception of justice, social networks, and the relationships with clients. The second tradition seeks to characterize the creative teams and the relationship between the dyads. In this set of efforts, the structure and composition of the team, the climate, and the leadership styles that impact on the creative capacity of the teams are highlighted. The third, finally, focuses on the level of the organization, which analyzes human resource practices, organizational structures, forces and pressures on worker behavior, and influences from the external environment. Figure 2.1, developed from Hammond et al. (2011), aims to facilitate the under-

standing of the types of studies produced in recent years based on the levels of individual, group (team), and organizational analysis.

2.4 Model of Analysis and Reference Theories

In addition to the levels of analysis, creativity studies have been developed based on different methodological approaches, ranging from laboratory research to field studies. The research in the organizational context mainly uses self-report measures (e.g., Pretz & McCollum, 2014; Silvia, Wigert, Reiter-Palmon, & Kaufman, 2012) because this is a methodological strategy that, despite its limitations, has been effective in evaluating both the talent to create as also the creative performance (Hocevar & Bachelor, 1989). Further to self-report, creative performance measures operated by peers and supervisors have been used (Zhou & Hoever, 2014). Although new and complex, studies regarding to creativity have emerged in the quest of integrating different domains and levels of analysis. Among the measures, there are still those that evaluate the degree of creativity in a given domain, that is, the perception of the individual about his capacity of creativity in a specific domain (Silvia et al., 2012).

In order to cover the complexity of the creativity phenomenon, different models of analysis were developed. The literature points to a diversity of models and theories used in the evaluation of creativity, which hinders the consensus about the construct (Batey, 2012; Batey & Furnham, 2006). The lack of a consensual definition of creativity has repercussions on how this construct has been operationalized and on the research models used to encompass the phenomenon, which include field research and laboratory studies.

By defining creativity as “the production of ideas or results that are new and appropriate for some purpose,” Amabile (2012, p. 2) targets the analysis of the creative process in the field of the individual. At this level of analysis, creativity can be explained as the ability to solve problems in a satisfactory way. In this same line, Sternberg (2014) describes the steps that make up the cycle for solving problems and presents them as a model that includes problem identification, problem representation, implementation of a resolution strategy, organization of information, resource allocation, monitoring, and evaluation.

Each of these steps represents a set of efforts to solve a problem. However, Sternberg (2014) suggests that this is not a linear process, because we can go back or skip some of the steps and still be efficient in solving a problem.

In a corporate context, a creative worker is seminal for the survival of the organization and the implementation of innovation processes (see Chap. 9). Given the importance of creativity in the contemporary world, theoretical models have emerged in the literature that struggle to explain how creativity is processed at the levels of the individual and in the context of work.

This chapter presents the models and theories used in studies on creativity in the field of organizations and work. Among these models, we highlight the model of individual creative action, the componential model, and the interactionist model.

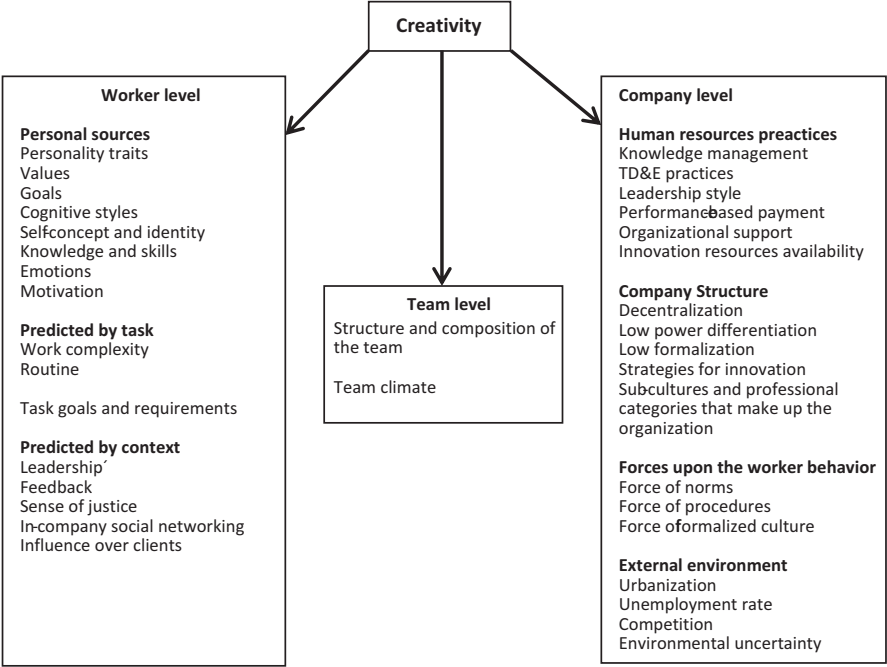


Fig. 2.1 Distribution of creativity studies based on Hammond et al. (2011)

The Individual Creative Action Model (MACI) (Ford, 1996) presents three factors that can stimulate the emergence of creativity. These are (1) the processes of sense construction, (2) motivation, and (3) knowledge and skills. The author takes, as a description of the motivation factor, a set of processes and emotional states (perception that the result will be rewarded, beliefs of receptivity and in their own capacity, anger, anxiety, etc.). Figure 2.2 graphically represents the model of individual creative action.

On the other hand, the *Creative Component Model (MCC)* (Amabile, 1983, 1996, 2012) suggests a structure of three individual components, namely, (1) competence related to the domain of the problem to be solved, (2) processes relevant to creativity (personality traits, cognitive characteristics, among others), and (3) intrinsic motivation for the task. In this model, individual creativity is, to a large extent, subject to the influences of social environment factors, where cognitive, motivational, social, and personality aspects influence the creative process, with a great emphasis given to the role of motivation and social factors. In other words, the componential model highlights three internal elements—*intrinsic motivation, expertise, and creativity*. As shown in Fig. 2.3, Amabile and Mueller (2008) point out that componential theory can be strongly affected by the work environment. In this model, the external and internal components interact and give way to the creative process, allowing creativity to thrive in the work environment.

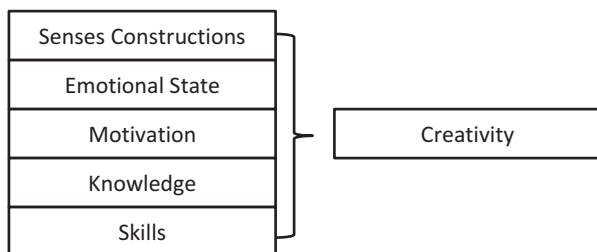


Fig. 2.2 Graphic representation of the Individual Creative Action Model

In order to understand creativity in complex work environments, the *Interactionist Model of Creativity (IMC)* (Oldham & Cummings, 1996), which describes creativity as a phenomenon that cannot be clearly understood outside the social system, chooses aspects of each analysis level as predictors to creativity. In this sense, the combination of personal characteristics (personality and cognitive style), social influences, team characteristics (composition, norms, size, and established culture), and organizational characteristics (organizational culture and human resource policies) may facilitate or not the creative process (Woodman, Sawyer, & Griffin, 1993; Zhou & Shalley, 2003). To illustrate this premise, Oldham and Cummings (1996) have identified that complex and challenging work, when related to the perception of support and noncontrolling supervision, can stimulate creativity.

When we examine the contextual variables, we show that most of them are direct or indirect expressions of the organizational culture, which in turn dialogues with the local culture (Alencar & Bruno-Faria, 1997; Cunha, Clegg, & Kamoche, 2006; Ferreira, Fischer, Porto, Pilati, & Milfont, 2012). Figure 2.4 graphically depicts the interrelationships between personal characteristics, groups, and organization to explain creativity.

In order to respond to the diversity of gaps in the comprehension of creativity in the context of work, Zhou and Hoever (2014) have proposed the Interactionist Model of Creativity (IMC) (Oldham & Cummings, 1996) that addresses a perspective in which different factors can help or interfere, as well as promote or not creativity, depending on their settings when interacting with other factors. The IMC was developed with the perspective of filling a gap in the studies on creativity when proposing that different patterns of interaction may occur in the process of development of creativity. In this sense, a new direction of the future research is pointed on the subject. The authors of the new analysis signalize that the organizational and cultural context in which creativity takes place deserves special attention. The IMC presents a promising route of investigation by highlighting the importance of the interaction effects of the actors with the context in different cultures that may vary according to the pressures of the culture. This model has the same structure as the demand and control model developed by Karasek (1979). In Karasek's model (1979), the demands of work and control of the worker interact in a two-dimensional structure to explain behaviors and attitudes at work. Figure 2.5 graphically represents the new typology proposed by Zhou and Hoever (2014).

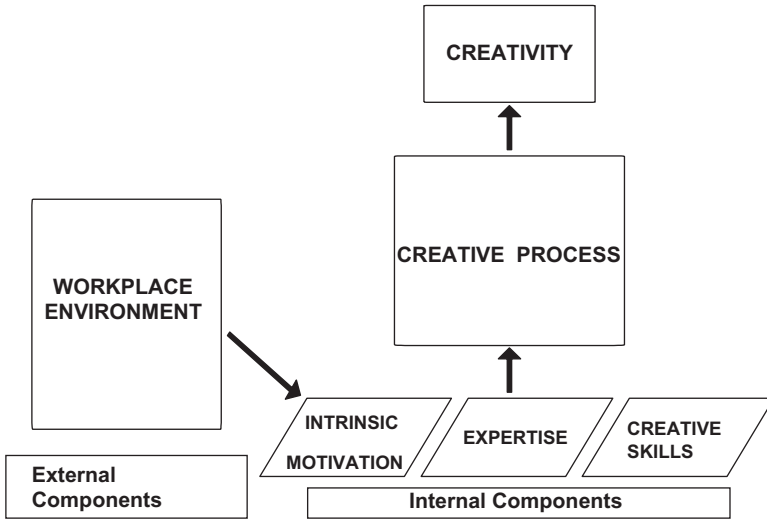


Fig. 2.3 Amabile's componential model of creativity, adapted by Amabile and Mueller (2008, p. 36)

For the authors, the interactionist model may allow the integration of several neutral variables, such as time, which may not have a direct effect on creativity in a given situation but may induce a moderating effect on the relationship between other variables, in a more or less positive way. As an example, the authors mention a study in which the task conflict over team creativity was contingent on the project phase in which the team was operating together. This model brings a new perspective of analysis and certainly will allow an advance in the studies on creativity in the work context.

The model proposed by Zhou and Hoever (2014), despite presenting a breakthrough, is structured in a two-dimensional perspective, which prevents extrapolating the analysis in a wide and diversified manner.

In addition to the complex analytical models used in research on creativity, theories of strong tradition in social psychology have been used to identify the antecedents and consequences of creativity as well as the indirect relationships between social organizational phenomena and creative performance. In this perspective the following theories stand out: theory of value expectation (Vroom, 1964), normative theory of reference group (Kelley, 1952; Merton, 1957), self-regulation theory (Bandura, 1991), and activation theory (Gardner, 1990).

The *theory of value expectation* (Vroom, 1964) suggests that the motivation of employees to perform a given behavior depends on the product of two motivational elements: (a) believe that they can effectively perform this behavior, in this case being creative, and (b) the perceived value/importance associated with creativity.

The *normative theory of the reference group* (Kelley, 1952; Merton, 1957) suggests that individuals use their reference context (i.e., organization, leader, or team) to understand the type of behavior that is expected and, consequently, must be wide-

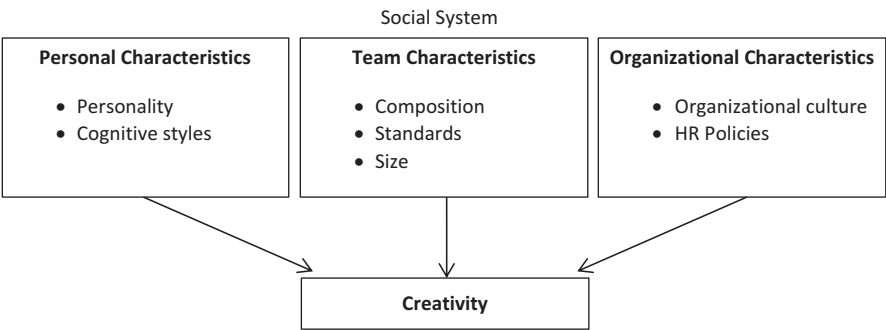
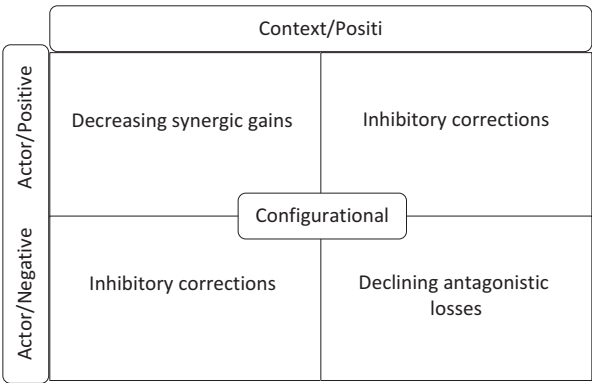


Fig. 2.4 Graphic representation of the Interactionist Model of Creativity

Fig. 2.5 Interactionist Model of Creativity that describes the effects of actor-context interaction on creativity (Zhou & Hoever, 2014, p. 353)



spread at work (i.e., creative performance). According to this theory, employees with high creative self-efficacy may be more likely to present creative behaviors when they realize that their work environment expects them to be effectively creative at work. Context variables that reflect expectations related to creativity can play an important role in the delivery of creative behavior. These relationships can be direct or indirect.

The *theory of self-regulation* must also be considered in the studies on creativity, since the belief that it is capable of obtaining a creative performance in the work is important for the accomplishment of the creative actions and the processes of innovation. For Bandura (1991), people’s beliefs in their own effectiveness influence the choices they make and their aspirations, causing them to mobilize efforts beyond what they are normally accustomed to. In addition, people are more willing to persevere in the face of difficulties and setbacks.

Another theory that has been used in studies on creativity is the *theory of activation* (Gardner, 1990). This theory postulates that behavior is highly influenced by changes in activation or stimulus levels. The author postulates that the level of activation is monotonic and occurs as a function of the total stimulation that affects a person at any time, including the stimulation that arises from the execution of a task.

Stimuli can arise from different sources, namely, external (e.g., reward and promotion) and cerebral (e.g., thoughts and motivation). Studies on creativity using the stimulus-activation approach are concerned with stressors (e.g., assessment) and with psychological conditions that require an adaptive response (Lepine, Podsakoff, & Lepine, 2005). Lepine et al. (2005) found that stressors acting as challenges can have an effect on performance through pressures (negative effect) and motivation (positive effect). This is how creative performance can be stimulated by positive forces such as intrinsic and extrinsic motivation.

Based on the assumption that “all people are creative” (Beneditti, 2015, p. 345), different methodologies and techniques can be used in an organizational environment to encourage creative thinking, leading to new ideas and actions that involve the creation process. The next topic briefly presents some training models that can be applied focusing on the development of creativity by managers, external consultants, and specialized professionals.

2.5 Creativity Training

Creativity training programs are based on the belief that creativity can be learned or developed through education and practice. It is worth noting that although such training may be applicable to different contexts, school, organizational, and social, studies in the educational field prevail (Nakano, 2011).

Creativity is a complex process involving at least eight aspects: (a) problem identification, (b) gathering of information, (c) definition and selection of concept, (d) conceptual combination, (e) generation of ideas, (f) evaluation of ideas, (g) planning and implementation, and (h) monitoring the actions. As can be seen, these are processes that are interrelated and do not necessarily occur in a linear way. In this way, it would be difficult to develop a training that encompassed all of them. For this reason, the focus has been on choosing one process(es) over others (Scott, Leritz, & Mumford, 2004).

Studies carried out over half a century indicate that trainings that deal with aspects related to divergent thinking (ability to propose different solutions to a given problem), scores (number of responses), flexibility (different categories of responses), originality (low statistical frequency), and elaboration (response sophistication) contribute to problem solving and creative performance. Training for creativity contributes to divergent thinking, problem solving, attitudes, and behaviors (Scott et al., 2004; Tsai, 2014). Although most of these studies have been developed in the educational field, it must be considered that organizational learning uses the same tools of formal educational process and that training for creativity can be used in an effective way to stimulate the creative process and also innovative actions.

In order to evaluate the effects of training actions on formal instruction events—classroom—Tsai (2014) performed a meta-analysis in several databases, considering the period from 1980 to 2012. Eleven papers were found, and in all of them, the idea that trainings are effective for the development of adult creativity was ratified,

especially for the generation and flow of ideas and divergent thoughts. Although the results obtained with this survey are promising, the reduced number of papers confirms Hennessey and Amabile's (2010) view that there are scarce works on training for creativity in comparison with those who investigate the relationships between creativity and affections, the humor, and the cognition.

The literature has demonstrated the effectiveness of creativity trainings in the organizational field, for employees in general (Beneditti, 2015) and in managers (Ribeiro, 2015). In order for thinking and creative action to be developed, facilitators and managers can use different strategies, attitude training, brainstorming, and incubation, among others (Ma, 2006), as shown in Table 2.1.

Pursuing to collaborate for the development of programs that increase creativity, O'Keefe and Souder (1979) present 14 techniques that can be used in work context to stimulate creativity. The techniques are:

- (1) Free association. First the problem is presented to the person or group, and then the ideas are written down; it can be a word, a sketch, a drawing, or any contribution to the subject under analysis. Then, each one presents his solution, and the new propositions are incorporated, which will be analyzed at another time—follow-up session.
- (2) Forced choice. It is similar to the previous one; however, here the person should seek to establish forced relations between an idea and forms (possible solutions to the problem).
- (3) Relation of items compared. First presented is a relation with the questions to be analyzed, and then each of the points is analyzed closely until a solution is reached.
- (4) List of attributes, which aim to investigate the components and utilities of a given product at first and after that analyze the idea to propose a new product that considers the limitations of the original.
- (5) Factors of production. This technique developed by General Electric consists of raising a problem (product to be developed and improved) and its inputs, production requirements, and restrictive requirements.
- (6) Sequence-product modification matrix, which is indicated for making improvements in production processes; each step of the process is analyzed in detail and changes and/or phase extinctions are proposed.
- (7) Morphological analysis. The following techniques are termed non-analytical.
- (8) Brainstorming.
- (9) Mental storm, in reverse, is to identify faults and defects in a given object, process, product, or issue being analyzed.
- (10) Gordon method.
- (11) Written mental storm.
- (12) Method of collecting data on the agenda.
- (13) Kinetics.
- (14) Edisonian.

Although the presented techniques can be applied in a working context, there is a lack of clarity in the procedures of each one, and some superimpose; moreover, few

Table 2.1 Classification of training programs for creativity according to Ma's classification (2006, p. 438)

Technique	Description
<i>Simple techniques</i>	
1. Generating ideas	The participant generates as many ideas as he/she can without using other techniques
2. Brainstorming	This technique was developed by Osborn (1963) and includes the proposition of group ideas without previous evaluation. This ability includes warming up, searching for new information and postponing judgment, making use of all the senses, aiming for problems, incorporating into the daily routine, and sharing products created with other people
3. Incubation	This technique consists of not devoting yourself to a given problem after having worked on that without success. The underlying assumption is that the brain may in a relaxed and unconscious way organize the information previously studied and this will produce an unexpected solution
4. Forced relationships	Ideas are developed based on objects in the immediate environment
5. Catalogue	This technique consists of browse through a categorized list of objects to expand the range of ideas
6. Proposing improvements to part of a product	The participant lists important attributes or parts of a product and then considers whether each attribute or part can be changed or improved
7. Morphological synthesis	The participant identifies different dimensions of a problem, lists all possible values for each dimension, and then uses a value from each dimension to produce possible new combinations (e.g., five color possibilities, five shapes, and five sizes would produce 125 possible products)
8. Attitude training	Promote a positive attitude or affect toward creativity such as reducing anxiety, keeping an open and receptive mind to new ideas, and knowing the importance of creativity to society and personal interests and self-development
9. Synectics	It is a term of Greek origin meaning "the joining together of apparently irrelevant and different elements." The idea is to make familiar by looking at the problem from a different point of view, especially from the opposite side
10. Checklist	A list of items are used to form a new perspective by replacing an idea or item previously generated by a new one. It also refers to combining two or more ideas previously created; in short, it is the proposition of something new based on modifications/enlargement/eliminations/adjustments
<i>Composed techniques</i>	
11. Computer-based trainings	This program includes computer graphic technology (allowing a person to manipulate text and graphic images to produce a graphic design) and logo and programming which involves deciding on the nature of a problem and choosing, combining, and selecting information, knowledge, and solutions
12. Creative thinking program	Program composed of 28 assignments to improve fluency, flexibility, originality, and elaboration followed by illustrations and practice (Purdue Creative Thinking Program, Feldhusen et al., 1970)

(continued)

Table 2.1 (continued)

Technique	Description
13. Renzulli program (1973)	A program developed by Renzulli (1973) from Guilford’s (Guilford, 1967) intellect structure model, consisting of five operations: (a) cognition (i.e., discovery or recognition), (b) memory (i.e., retention of what is recognized), (c) divergent thinking (i.e., looking for a variety of answers), (d) evaluation, and (e) convergent thinking (i.e., looking for a right answer to a question)
14. Khatena method (1970)	This program consists of getting out of the usual and looking for something new through restructuring and synthesis
15. Osborn–Parnes CPS Program	Program consisting of four broad stages of a creative process: (a) identifying specific problems, (b) generating solutions (i.e., generating or combining solutions without evaluation in a phase that needs mostly divergent thinking skills), (c) evaluation of solutions, and (d) elaboration of a solution

studies investigate the effective contributions of each one of them (Tsai, 2014). Another point that shall be emphasized is the distinction between training situations and the “real world.” It is necessary to develop research models that allow the influence of training to be evaluated in real situations, as superior performance in a pencil and paper test does not assure creativity in the actual work environment.

In order to consolidate training of creativity in the daily routine of organizations, it is fundamental to develop an organizational culture that encourages creativity, and if it does not occur spontaneously, it is up to the leaders to create the contextual conditions for the emergence of creativity, with actions such as clear communication, effective support to employees, freedom of action and availability of resources, and peer support (Coveney, 2008).

2.6 Conclusion

Creativity occurs by an individual action in a given context; therefore, individual and contextual variables affect its emergence. People tend to be more creative when motivated primarily by their interests, pleasures, satisfaction, and challenges at work, in other words, when there is an intrinsic motivation. However, it is worth emphasizing that although creativity is a phenomenon that emerges from the individual, it is fundamental to consider the influence of the context (Hennessey & Amabile, 2010). It is necessary that interaction between individual and contextual aspects that stimulate creativity in the work environment be observed (Zhou & Hoever, 2014).

For creative thinking to take place in a corporate environment, it is necessary to have a place that encourages the freedom of expression, where workers experience well-being and positive emotions and where they are involved and are stimulated through trainings to exert their ideas. Customer needs must be considered, and

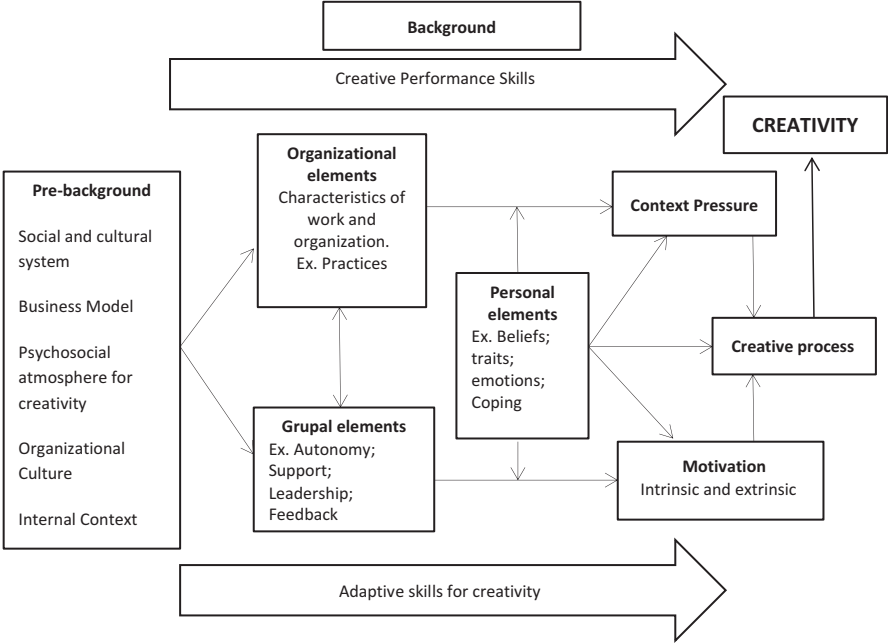


Fig. 2.6 Integrator Model and Potentializer of Work Creativity (MIPC)

networks with suppliers outside the organization must be built. Creative organizations are those that focus on bold goals that are open to their employees and are connected to the outside world.

Empirical evidence supports the interactionist perspective of stimulating organizational creativity (Zhou & Hoever, 2014). In this sense, managers must undertake effective actions that involve reflection, practice, and consolidation of organizational creativity, providing an environment that favors creativity, stimulates the emergence of new ideas, provides healthy environments, instigates brainstorming, and prioritizes values that support a freedom of expression environment and where employees are valued and able to upstand for themselves. In this perspective, we present a model that integrates and enhances creativity at work (MIPC) (see Fig. 2.6) by graphically articulating variables related to the social context, the organizational environment, and the individual characteristics of the workers.

As a whole, MIPC presents the integration of cultural elements (e.g., psychosocial environment, culture, business model), organizational (e.g., organizational goals and task characteristics), group elements (e.g., leadership styles and relationships with the team), and individuals (e.g., beliefs, personality traits, and personal strategies to problem solving). The main purpose of this model is to provide managers with useful information on how the relationships between the social context, organizational environment, and individual characteristics should be articulated to enhance the creativity of its employees.

Taken together, the studies presented in this chapter provide evidence of the impacts of the creative process on the work environment. Understanding the antecedents and consequences of creativity at work has practical implications for the management by bringing direct benefits to the organization and its employees. In organizational terms, the benefits include increased effectiveness and innovative capacity. As far as employees are concerned, the benefits encompass their own creative performance and their personal consequences, such as their well-being.

Therefore, creativity should receive special attention from managers given its positive association with engagement and health at work, as well as its impact on organizational performance. Creative performance can generate competitive advantages because it stimulates innovation and facilitates the process of adapting to change. To this end, managers should create intervention and training programs that support and stimulate the creative actions of workers. The training for creativity mentioned herein illustrates real actions that can be taken to foster creativity.

The present review of the literature has brought fundamental contributions to managers by presenting empirical evidences that demonstrate the benefits of stimulating the creative process, discussing training programs and the development of creativity, and proposing an integrative model that points to the need to consider the whole structure of individual, contextual, and environmental factors that employees can create in their work.

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