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Enhancing Sustainable Development: Examining Factors That Foster Creativity and Productivity in Organizations

Ivana Marić *, Ana Aleksić and Maja Knežević

Faculty of Economics & Business, University of Zagreb, 10000 Zagreb, Croatia; aaleksic@efzg.hr (A.A.); m.knezevic92@gmail.com (M.K.)
* Correspondence: imaric8@net.efzg.hr

Abstract: Innovation and creativity in organizations are becoming imperative to their advancement. These two categories are shaping the new culture of innovation, which managers should take into account when trying to maintain the sustainable development of their organizations. This paper examines the contribution of management practice, organizational motivation and resources as the important factors for fostering creativity and innovation in organizations and their effects on productivity. Empirical research using the KEYS methodology was conducted on a sample of employees from innovation-driven organizations. The research results show a positive and significant effect of creativity on organizational productivity. At the same time, the research reveals that challenging tasks, as an element of management practice, and realistic workload pressure, as a resource, strongly contribute to organizational productivity. The paper extends current knowledge on the contribution of management practice, organizational motivation, and resources as factors important for fostering creativity in organizations. Furthermore, the paper contributes by providing a deeper theoretical insight into the concept of the culture of innovation and creativity in an organizational environment.

Keywords: sustainable development; innovation; creativity; culture of innovation

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1. Introduction

Sustainable development relates to the responsibility of all organizations to ensure that their operations use all forms of capital—human, natural, and financial—in a way that ensures resources for future generations are maintained [1]. In order to overcome global sustainability challenges, innovative approaches and innovative culture are needed [2]. Moreover, in today's hypercompetitive, global environment, organizations need to innovate, so managers must focus on innovation to stay competitive. Today's best managers give up their command-and-control mindset to focus on coaching and providing guidance, creating organizations that are fast, flexible, innovative, and relationship-oriented [3].

Organizations are aware of the importance of novelty and progress in business, particularly when implementing new technology, improving existing processes, developing new skills and competencies, and finally creating new values and ensuring a positive impact on society. The culture of innovation, viewed in the context of an individual, group, or organization, questions managerial opportunities to develop an efficient, reliable, and ethical management system that will ensure the development, quality, and sustainability of the entire organization. Consequently, it is crucial to be able to comprehend the determinants and barriers of innovation and creativity in organizations and their overall impact on organizational productivity. It is essential to understand these elements in order to facilitate future innovation and change in organizations, eventually leading to greater organizational resilience and sustainable development [4]. Sustainability depends on innovation [5]; therefore, the goal of this paper is to analyze, by using the KEYS methodology, different elements that enhance innovation and creativity and eventually lead to an increase in organizational productivity.

2. In Search of Creativity and Innovation

According to [6], innovation presents the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations. The difference between innovation and creativity is in seeing innovation as the process of taking a creative idea and turning it into useful product, service, or work method, while creativity is seen as the ability to combine ideas in a unique way or to make unusual associations [1]. Creativity is the intellectual activity of creating new ideas while innovation is the action taken to transform the new ideas into a result [7].

In its essence, creativity is the generation of novel ideas that may meet perceived needs or respond to opportunities for an organization [3] (p. 719). As such, creativity has many forms and applications, but it significantly varies depending on if it refers to an individual, organization or society. Creative people are often known for their originality, open-mindedness, curiosity, focused approach to problem solving, persistence, relaxed and playful attitude, and receptiveness to new ideas [8–10]. Creative organizations are loosely structured. Managers in creative companies embrace risk and experimentation. They involve employees in a varied range of projects so that people are not stuck in the rhythm of routine jobs, and they drive out the fear of making mistakes that can inhibit creative thinking [8].

Fostering creativity and innovation in organizations has significant effects on different organizational outcomes. The literature assumes a positive connection between creativity, firm productivity, and competitiveness [11], and shows a positive effect of creativity and innovation competencies on performance [12]. Previous studies also indicate that creativity has an indirect effect on organizational productivity through innovation [13]. Creative ideas and consequently innovations based on these ideas help enhance productivity through improved processes, products, or services that help organizations to compete and satisfy internal and external market demands [14]. Moreover, a strong climate for creativity inside organizations can enhance overall firm performance [15].

3. The Culture of Innovation

The pattern of shared values, beliefs, and agreed norms that shape behavior—in other words organizational culture [16]—has been recognized as the element to facilitate or restrict innovation performance [17,18]. Innovation processes and activities occur in cultural context [19] and as such, to foster innovation, a culture of innovation or an innovative culture needs to be nourished. Innovative culture, according to [20] (p. 540), can be defined as "a multidimensional context which includes the intention to be innovative, the infrastructure to support innovation, operational level behaviors necessary to influence a market and value orientation, and the environment to implement innovation."

According to [21], innovative cultures are often very misunderstood. [21] states that innovative culture is about: "The easy-to-like behaviors that get so much attention are only one side of the coin. They must be counterbalanced by some tougher and frankly less fun behaviors. A tolerance for failure requires an intolerance for incompetence. A willingness to experiment requires rigorous discipline. Psychological safety requires comfort with brutal candor. Collaboration must be balanced with individual accountability. And flatness requires strong leadership. Innovative cultures are paradoxical."

Creating ideas into concrete innovations requires a culture characterized with the values of persistence and discipline. Management has the role of building innovative culture in organizations as, in the end, the overall effectiveness depends on their ability to find the right balance between creativity and efficiency in an organization [22].

Some authors e.g., [23] use the terms "healthy innovation culture" and "flourishing innovation community" to expand and increase the significance of innovation and creativity from the domain of organizations to a broader context—society. "A healthy innovation culture is described by a common set of principles and mutually supportive beliefs about the importance of innovation, as well as an integrated pattern of behavior that encourages

research and development. A flourishing innovation community will take advantage of a research and innovation ecosystem's current strengths" [23].

Table 1 sums up the basic elements and characteristics of creativity, innovation, and innovative culture.

Table 1. Characteristics of innovation, creativity and innovative culture.

Element	Explanation
Innovation	Innovation is the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations. Innovation is the process of taking a creative idea and turning it into useful product, service, or work method.
Creativity	The ability to combine ideas in a unique way or to make unusual associations; one of the competencies required in order to successfully meet challenges across the life span.
Differences between innovation and creativity	Creativity is the intellectual activity of creating new ideas while innovation is the action taken to transform the new ideas into a result.
Culture of innovation/Innovative culture	An innovative culture is an organizational culture that really values and supports innovation, so that people can actually make innovation happen. Innovative cultures are paradoxical. Unless the tensions created by this paradox are carefully managed, attempts to create an innovative culture will fail.
KEYS	The instrument for measuring creativity and innovation that includes 3 dimensions: management practices, organizational motivation, and resources

Source: Authors' work based on [1,6,21,24–26].

4. Methodology

4.1. Study Design and Procedure

In order to test the factors needed for creativity and innovative culture, as well as to test their effects on productivity, an empirical study was designed. A quantitative study design was use for the purpose of this research using a self-reported survey questionnaire as the research instrument. Using a snowball sampling technique, our sample included 98 respondents from 3 major organizations in Croatia that are well-known for their innovation and innovative culture and that were willing to participate in the study. Company 1 is a medium-sized company that has been operating on the domestic market for 30 years and has 105 employees. Their primary activity is the creation of innovative IT solutions and related services. They deal with providing web service, application development, automation, IoT, etc. Company 2 is a medium-sized company with 76 employees. Their primary activity is the production of thermal insulation products from polystyrene, and they are a development-oriented company. Company 3 is a large, joint-stock company with almost 3000 employees, with an international character. The primary activity of the company is the delivery of communication products, IT platforms, and digital transformation.

Regarding the sample characteristics, 57.1% of respondents were female participants, aged between 26 and 35 years of age (51%), had a university degree (53.1%) and with 38.8% of them having one to five years of experience.

By using personal contacts, respondents of organizations were contacted and asked to distribute the survey to their employees. An e-mail invitation to participate in the study was sent to employees, and their anonymity was guaranteed. In addition to some general data about the respondent, data were collected on aspects of management practice, organizational motivation, and resources, factors that are considered important for fostering creativity and innovation in organizations. Furthermore, respondents were asked to access creativity and productivity at personal and organizational level.

Different statistical procedures were used in accordance with the set research problems. Initial analysis concerning the psychometric characteristics of the scales, the description of the sample, and the analysis on the relationship between the variables were made in the SPSS program 26.

4.2. Research Instrument

For the purpose of this research, we used the KEYS instrument developed by [26–28]. The instrument KEYS: Assessing the climate for creativity, was developed to assess perception of different stimulants and obstacles for creativity in an organizational work environment. It is the first and most highly used instrument for assessment of creativity in organizations. This specific instrument for measuring creativity assesses the climate for creativity and innovation that exists in a workgroup, division, or organization [28].

The KEYS instrument has several characteristics: (1) it measures specific management practices that impact innovation; (2) it quantifies how productivity and creativity are perceived across an organization; (3) it provides a benchmark for improvement, comparing an organizations innovative climate with other KEYS normative groups; (4) it identifies areas of excellence as well as areas of critical development needs; and (5) it quantifies the most important factors that support or inhibit suggestions for improving the climate for creativity and innovation [28]. According to the KEYS instrument, as it can be seen in Table 2, factors that create a culture of innovation in organizations involve three areas: (1) management practices; (2) organizational motivation and innovation encouragement; and (3) resources [26,28].

Table 2. KEYS instrument basic areas.

Management Practices	Organizational Motivation	Resources
Freedom		
Challenging work	Organizational encouragement	Sufficient resources
Managerial encouragement	Lack of organizational impediments	Realistic workload pressures
Work group support		

Source: Authors' work based on [26,28].

As the research was conducted in Croatian language, and the instrument is originally in English, we used translation back translation method to ensure research instrument reliability and validity.

By using the Likert five-point scale from 1 to 5 (1—completely disagree, 5—completely agree) we asked respondents to assess their perception of 3 main factors fostering or hindering innovative culture. The first factor refers to management practices including freedom (sample item "I have the freedom to decide how I am going to carry out my projects"), challenging work (sample item "I feel challenged by the work I am currently doing"), managerial encouragement (sample item "My boss serves as a good work model"), and work group support (sample item "There is free and open communication within my work group"). The second is organizational motivation including organizational encouragement (sample item "People are encouraged to solve problems creatively in this organization) and lack of organizational impediments (sample item "There are many political problems in this organization"). The third factor refers to resources including sufficient resources (sample item "Generally, I can get the resources I need for my work") and realistic workload pressures (sample item "I have too much work to do in too little time"). Respondents were also asked to assess outcomes including creativity at their work (sample item "My area of this organization is innovative") and productivity at their own and organizational level (sample item "My area of this organization is effective").

As mentioned, the questionnaire for this research was translated into Croatian and therefore the metric characteristics of such translated scales are not known. For that reason, psychometric analysis was performed at the beginning of the analysis, i.e., factor structure and the reliability of the internal consistency of the items were checked as one of the indicators of construct validity.

The analysis of the main components (with varimax rotation) was performed taking into account the Kaiser–Guttman criterion when extracting the factors, and the results were compared with the structure obtained in other studies. After the first rotation, a 12-factor structure was obtained, during which several original constructs were broken down into

several factors. After some items, whose factor saturation was less than 0.3, were removed from the analysis, a second rotation of the factor analysis was performed. In the second rotation, after the ejection of the mentioned items, a structure of 10 factors was obtained.

After the factor analysis, an analysis of the reliability of the constructs was made. The results of the analysis show that all observed constructs are above the level of 0.7, which is considered to be a cutoff point [29], leading to the conclusion that the criterion of validity and reliability of the observed variables was met. Cronbach's alpha together with median and standard deviation for all variables (after factor analysis) are presented in the following Table 3.

Table 3. Reliability statistics (Cronbach's alpha).

Variable	Number of Items	Me	SD	α
Freedom	4	4.29	0.26	0.76
Challenging work	4	3.32	0.64	0.81
Managerial encouragement	3	2.26	0.07	0.87
Work group support	6	3.42	0.22	0.89
Organizational encouragement	6	3.37	0.64	0.73
Lack of organizational impediments	4	2.67	0.07	0.81
Sufficient resources	4	3.26	0.07	0.92
Realistic workload pressures	4	3.82	0.22	0.72
Creativity	5	3.96	0.64	0.80
Productivity	4	2.22	0.07	0.86

Source: Authors' work.

5. Research Results

As presented in the table above, the respondents perceived that they have a high level of freedom in their work (x = 4.29, SD = 0.26) while at the same time they perceived managerial encouragement to be lower (x = 2.26, SD = 0.07). While creativity was assessed higher (x = 3.96, SD = 0.64), productivity was considered lower in general (x = 2.22, SD = 0.07).

In order to examine the characteristics of the sample in more detail and to obtain data on gender differences, a t-test was performed (for all observed variables). The results of the conducted t-test show the existence of statistically significant differences in the segments of challenging work, with male respondents, on average, perceiving more than women that their work is challenging (t = 2.39; $p < 0.05$). Furthermore, statistically significant differences were found in the variable of creativity, with male respondents also, on average, perceiving this element higher than women did (t = 2.3; $p < 0.05$).

To test for other statistically significant differences, a series of F-tests was used to test for statistically significant differences between variables depending on the age, work experience and education level of respondents.

Regarding age, the results of the analysis of the conducted F-test indicate the existence of statistically significant differences in the element of work group support, with the respondents older than 46 perceiving that they had, on average, a lower level of work group support than the other respondents (F = 3.10; $p < 0.05$). This age group also, compared to other respondents, considered that, on average, they had less sufficient resources (F = 2.75; $p < 0.05$). Furthermore, the respondents between 56 and 65 years of age consider their company to be, on average, more creative than the other age groups (F = 2.67; $p < 0.05$). In addition, the youngest population (18–25 years) perceived organizational impediments on average as a higher element than the other age subgroups (F = 2.55; $p < 0.05$).

When taking into consideration the education level of the respondents, based on the results of the analysis, certain statistically significant differences were observed, namely, the respondents with college education, on average, perceived work group support to be higher than the remaining two subgroups (F = 3.37; $p < 0.05$). Organizational encouragement was perceived to be lower within the university level education group than in the other two groups (F = 5.79; $p < 0.05$). In addition, the respondents with high school education

experience perceived realistic workload pressures to be higher compared to the other two groups (F = 3.65; $p < 0.05$).

No statistically significant differences were found between different groups depending on their work experience.

Further on, we used a multiple regression analysis using the least squares method to test for the significance of study variables in predicting productivity. Only regression analysis can provide answers about the relationships and influences (direct and indirect) of one variable on another.

The results of the regression analysis indicate a moderate representativeness of the model, given that there are nine independent variables and one dependent one. Based on the results of the analysis, it can be concluded that the model interpreted 52.1% of the total deviations, while the corrected coefficient of determination was even lower, corrected for degrees of freedom (47.3%) (Table 4).

Table 4. Results of regression analysis.

R	**0.722**
R Square	0.521
Adjusted R Square	0.473
Std. Error of the Estimate	170.946

Source: Authors' work.

Furthermore, we tested the significance of the regression model. Based on the conducted group test on the significance of regression, it can be concluded that the regression model is statistically significant (F = 10.65; $p < 0.05$) (Table 5).

Table 5. Significance of regression model.

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	280.229	9	31.137	10.655	0.000
Residual	257.159	88	2.922		
Total	537.388	97			

Source: Authors' work.

A series of individual tests on the significance of independent variables were conducted to conclude which independent variables had a statistically significant impact on the productivity element in the observed regression model (Table 6).

Table 6. Test of statistically significant differences of independent variables in the regression model.

Variables/Indicators	**Standardized Coefficients**		**t**	***p***
	Beta	**SE**		
Productivity		1.710	3.600	<0.05
Freedom	−0.079	0.101	−0.688	>0.05
Challenging Work	0.426	0.103	3.461	<0.05
Managerial Encouragement	0.073	0.030	0.717	>0.05
Work Group Support	−0.003	0.091	−0.024	>0.05
Organizational Encouragement	0.186	0.072	1.420	>0.05
Lack of Organizational Impediments	−0.051	0.086	−0.508	>0.05
Sufficient Resources	0.004	0.090	0.037	>0.05
Realistic Workload Pressures	0.211	0.079	2.032	<0.05
Creativity	0.305	0.062	2.874	<0.05

Source: Authors' work.

6. Discussion

Based on the research results presented as well as the regression model, it can be observed that there are several statistically significant variables in the model. Challenging

work statistically significantly affected productivity, such that with the increase in work challenges, productivity also increased by 42.6% (t = 3.46; $p < 0.05$). Furthermore, with an increase in realistic workload pressures, productivity increased by 21.1% (t = 2.03; $p < 0.05$). In addition to the previous, the construct of creativity had a statistically significant effect on productivity, in such a way that with the increase in creativity, the element of productivity increased by 30.5% (t = 2.874; $p < 0.05$).

The obtained results also indicate that the factors of freedom, work group support, and lack of organizational impediments have a negative impact on productivity. Guaranteed freedom in deciding the optimal way to perform tasks lead to a decrease in productivity by 7.9% (t = 0.68; $p > 0.05$). The feeling of trust and free communication that employees have during teamwork reduced the productivity of the respondents by 0.3% (t = 0.02; $p > 0.05$). Likewise, the lack of organizational impediments in terms of not hindering creativity reduced productivity by 5.1% (t = 0.51; $p > 5$).

This research confirms the importance of creativity for organizations, being congruent with other studies that prove creativity and innovation impact organizational productivity e.g., [30,31]. This research also emphasizes the importance of challenging work and realistic workload pressures. A work environment needs to be characterized by jobs designed to allow employees to have full task identity and an understanding of how their work affects overall organizational performance and sustainable development. Moreover, it is important to provide time for employees to work on their creative ideas and for management to have realistic expectations regarding employee productivity. Interestingly, this research showed that freedom is negatively connected with productivity, confronting the traditional view that autonomy gives individuals a sense of control over their work and a sense of responsibility for the final product that can lead to higher productivity e.g., [32]. On the contrary, this research confirms some of the recent research showing that increased freedom in work can lead to ambiguity and uncertainty e.g., [33] and have negative effects on productivity. Moreover, it shows that a culture characterized with a lack of internal policies and criticism of new ideas, as well as no risk avoidance, can lead to decrease in productivity. Furthermore, contrary to previous studies e.g., [34], this research showed that work group support negatively affects productivity.

7. Conclusions

The modern business environment is characterized by great turbulence, uncertainty, and risk, and for organizations to survive in such an environment, it is necessary to constantly invest in innovative activities. Organizations strive to combine their existing resources and capabilities and use them in a new, best possible way. Innovation emerges from these activities and innovative organizations are born. Starting with the definitions of innovation and creativity, we see that innovation represents the process of applying new ideas to improve processes, products, or services. On the other hand, creativity is the mental process by which a person creates new ideas or connects existing ones and creates something new from existing knowledge. The role of management is crucial in achieving an innovative culture in organizations. Specifically, management should ensure that the organization is managed efficiently, while at the same time, it is important to build a culture of innovation. As innovation is uncertain and unstable, it is necessary to ensure the preconditions for communication, development, creativity, and constant improvement and learning at all levels for the innovative organization to continuously create new values.

This paper addressed the issues of innovation and creativity, stressing the importance of creating an innovative culture. The paper contributes by providing deeper theoretical insight into the concept of the culture of innovation and creativity in an organization environment. Specific focus was on factors that foster creativity in organizational settings and their overall influence on organizational productivity. By using the KEYS methodology, management practices, organizational motivation, resources, creativity, and productivity were assessed. The research confirmed the expected influence of creativity on productivity. Moreover, the research showed that the specific elements of challenging work and realistic

workload pressures influenced productivity and seemed to be the most important element of an organizational environment that fosters creativity for the organizations included in this research. Interestingly, the results also indicate the negative effects of freedom, work group support and a lack of organizational impediments on productivity.

In general, through the results obtained, this paper deepens the current knowledge on the contribution of management practice, organizational motivation, and resources as factors that can foster or hinder creativity and innovation in organizations. Still, the research results need to be seen in light of certain research limitations. The research had a limited number of respondents who came from organizations that were selected based on personal contacts of the authors. Therefore, to provide a basis for a less subjective research that can provide more generalized results, future research should include additional organizations with more diverse approaches to innovation. In addition, as the effects of innovation and creativity on productivity can be under the influence of other organizational characteristics, such as the type of business activities and industry sector [35], future research should include a deeper analysis of factors that foster innovation.

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