

# Aspects of creativity management in the Romanian industry and doctoral research

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**Abstract.** Creativity management is an extremely vast field, which has preoccupied us for many years. In this paper we present some aspects of the junction between creativity management in academic research and creativity management in industry. Our aim was to compare how creativity management influences the results of the PhD students' researches with the way in which creativity management in industry influences the organizational performances and competitiveness. The research based on questionnaires was carried out in parallel in technical and economic faculties in Romania, as well as in industrial organizations. Even if the variables analysed on the two samples of respondents are different, because they have different aims and interests regarding the use of creativity management, we have made comparisons between the two sets of variables and proved that the impact of creativity management in PhD students' research is high, but the impact of creativity management in Romanian industry is low.

## 1. Introduction

Creativity management is an extremely vast field. Approaching it even at the level of a single country, such extensive research could be carried out that their simple reading would take years. Therefore, this paper is based only on a sequence of our researches in this field.

Specialists who have analysed workplace creativity highlight two of its essential approaches in the literature: approaching creativity as an individual outcome and as a dyadic or team outcome [1]. Regardless of whether it is about individual, group or organizational creativity, it is capitalized only to a small extent in many fields of activity. For example, Europe is a world leader in science, home of some of the most creative and entrepreneurial minds and some of most innovative ideas anywhere in the world [2]. Even so, Europe is experiencing an innovation deficit in many areas [2].

On other hand, it was proved that many social and cognitive factors can inhibit group creativity. Several social inhibitors of group creativity are social anxiety, social loafing, the tendency to match the ideas of the group members and the downward comparisons inside the group [3]. Among the cognitive interferences related to a low group creativity are ideas production blocking, task-irrelevant behaviours, and cognitive load of each group member [3]. All these are factors that lead to the poor capitalization of creativity in an organization. Therefore, in some cases, the creativity of leaders is more closely linked to individual intra-psychological tasks and abilities than to selling this creativity to the outside world [4]. European Commission highlights the need to invest in skills at all levels and empower universities to become more entrepreneurial and interdisciplinary [2]. So, it is important that

academic research be correlated with the skills needs of the industry, and creativity in academia with that in the industrial environment. In this paper we will present some aspects of the junction between creativity management in academic research and creativity management in industry.

**2. Creativity management in academia and industry**

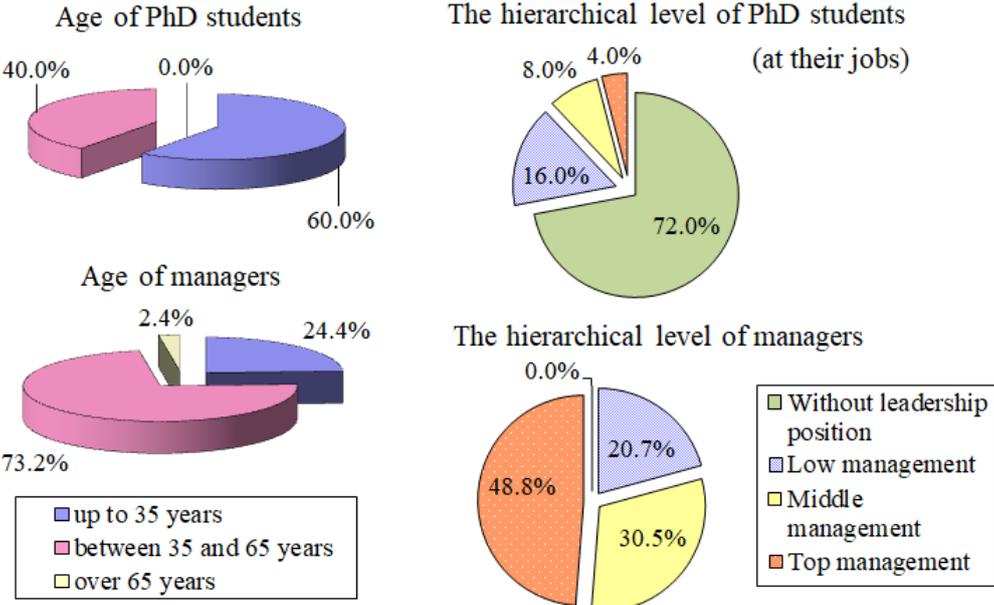
We have conducted the research in parallel in technical and economic faculties in Romania, and in industrial organizations, too. Starting from the premise that a management model based on strategic planning and product championing can explain the positive effects of leadership on creativity in a highly creative population [5], we must not forget that organizations emphasize the balance between being creative and being productive [6]. Therefore, connections between academic and industrial management of creativity are welcome.

The aim of our paper was to compare how creativity management influences the results of the PhD students’ researches with the way in which creativity management in industry influences the organizational performances and competitiveness. Regarding our aim, we must first clarify that “creativity is related to, yet different from, discovery and invention” [7]. This study continues our research work in the field of creativity management started years ago [8]. A premise of the study is our proven belief that group and organizational creativity have enormous potential for development if creativity management uses benchmarking processes [8].

*2.1. Methodology of the research*

A series of questionnaires were completed by 50 PhD students in management or industrial engineering and another series of questionnaires by 82 managers. The two series of questionnaires were different, because PhD students have certain interests related to the use of creativity management in doctoral training, and managers have other interests, related to creativity in their organizations.

The PhD students were 56.0% female and 44.0% male. 40.0% of them graduated a technical faculty, 28.0% an economic one, 20.0% another kind of faculty, and 12.0% graduated two faculties. The managers were 30.5% female and 69.5% male. 11.0% of them graduated a high school, 64.6% an engineering faculty (technical, food, chemistry, textile, etc.), 17.1% an economic one, 2.4% a low faculty, and 4.9% graduated two faculties. Other characteristics of respondents are shown in figure 1.



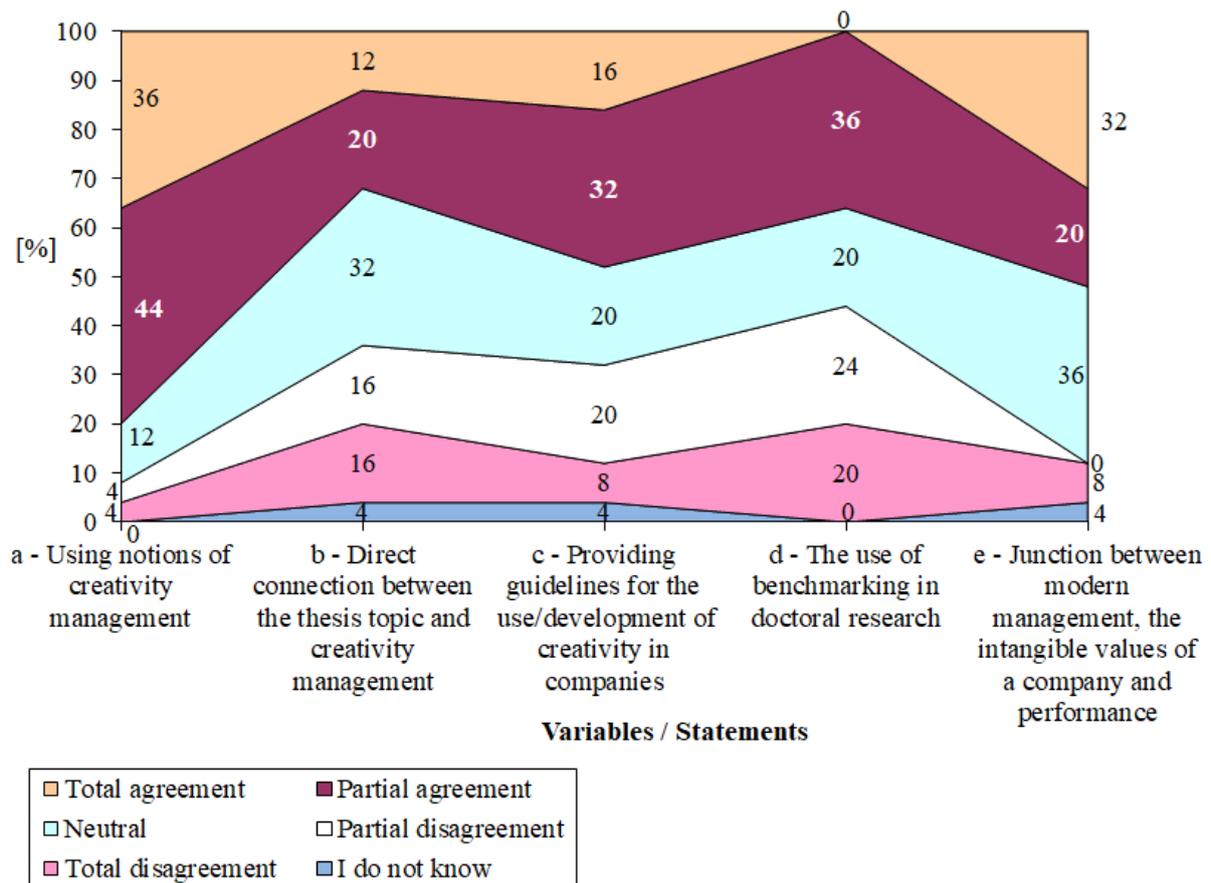
**Figure 1.** Several characteristics of respondents

## 2.2. Main results

The doctoral students were asked a question that tested the degree to which their doctoral training was oriented towards the management of creativity. They were asked to tick the agreement with a series of statements, using the following evaluation scale: 0 points – “I do not know”, 1 point – “total disagreement”, 2 points – “partial disagreement”, 3 points – “neutral”, 4 points – “partial agreement”, and 5 points – “total agreement”. The statements were therefore assimilated to the following variables:

- Variable a: “In my doctoral training I used notions of creativity management, especially when writing reports”;
- Variable b: “The topic of my doctoral thesis is directly related to the management of creativity”;
- Variable c: “Managers will find in the thesis useful guidelines for the use/development of creativity in companies”;
- Variable d: “The PhD research will also be based on the results of a benchmarking process”;
- Variable e: “The PhD thesis will make a junction between modern management, the intangible values of a company and performance”.

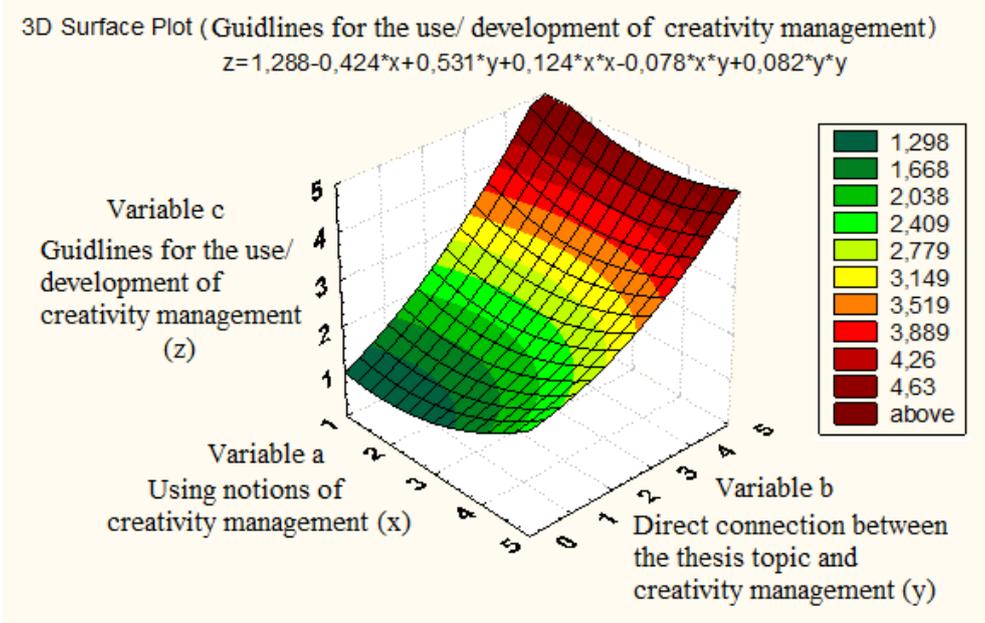
Figure 2 shows the percentages of respondents who expressed their agreement/disagreement with these statements.



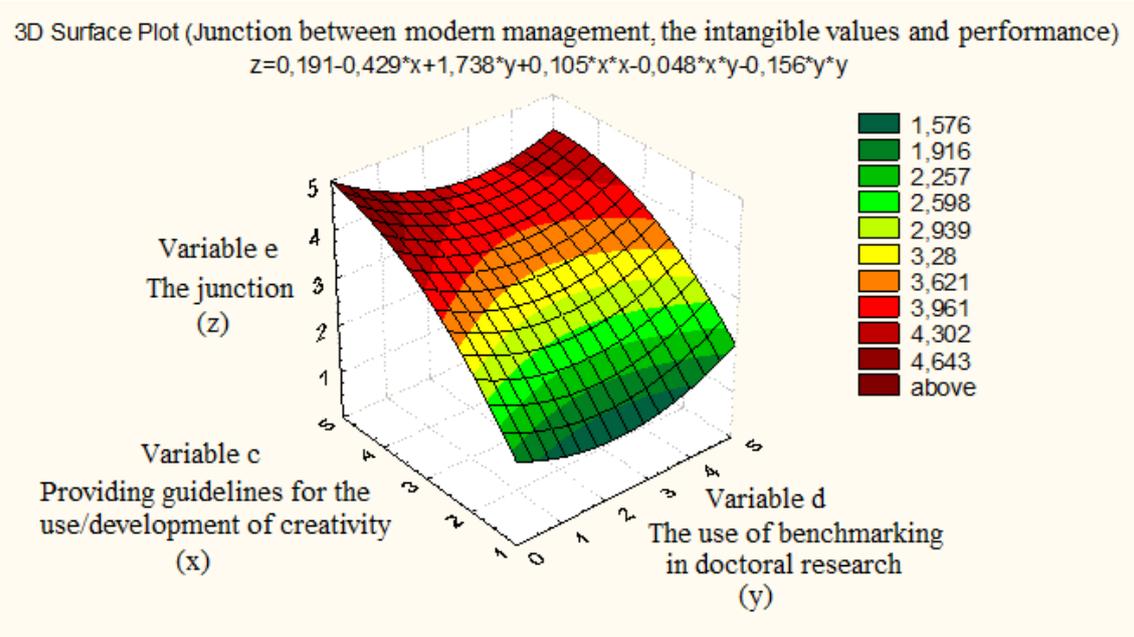
**Figure 2.** PhD students' agreement with the sentences regarding their doctoral training and thesis

Because we suspected that an agreement with the first two variables (a, and b) increases the chances of an agreement with variable c, we developed a three-dimensional graph, using the STATISTICA software, to highlight the connection between the three variables (figure 3). For the sample of PhD students analysed, the use of notions of creativity management in the doctoral training (variable a) seems to have little influence on the issuance of creativity management guidelines

(variable c). On the one hand, it is normal for PhD students to use methods and tools of creativity management in their doctoral training, being focused on solving the main problem of the thesis, not on the development of creativity management guidelines. On the other hand, the connection of this subject with creativity management leads to recommendations for the use/development of creativity in companies. So the variable b greatly influences the variable c (figure 3).



**Figure 3.** The possibility of elaborating some creativity management guidelines in the PhD thesis (the correlation between variables a, b and c)



**Figure 4.** The junction between modern management, the intangible values of the company and performance favoured by two other factors (the correlation between variables c, d and e)

We have also demonstrated that the junction between modern management, the intangible values of the company and performance (variable e) can be favoured, in a doctoral thesis, by issuing guidelines

for the use/development of creativity in companies (variable c) and the fact that the PhD research is also based on the results of a benchmarking process (variable d). Figure 4 shows this correlation.

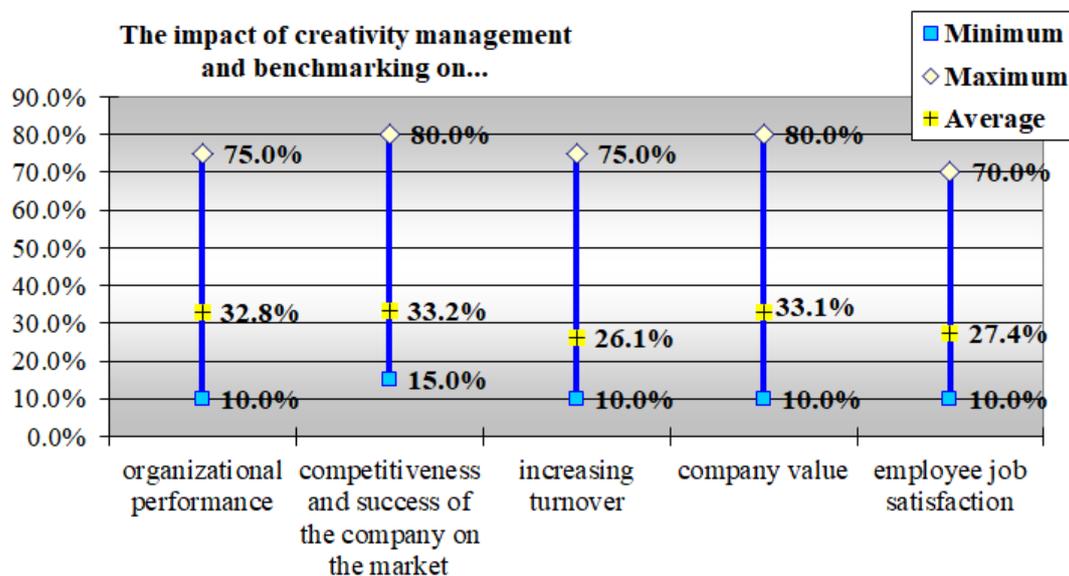
In order to compare the variables analysed in the PhD students' questionnaires (a, b, c, d, and e) with the managers' answers, we have calculated the averages of the variables and translated them on the scale 0 ... 100 (table 1).

**Table 1.** Averages of the variables analysed in the PhD students' questionnaires

| Variable                                  | a     | b     | c     | d     | e     |
|---|-------|-------|-------|-------|-------|
| Average on the scale 0 ... 5              | 4.04  | 2.84  | 3.16  | 2.72  | 3.56  |
| Average translated on the scale 0 ... 100 | 80.80 | 56.80 | 63.20 | 54.40 | 71.20 |

Unfortunately, asked if they hope for a future implementation in the Romanian industry or economy of the discoveries made in the doctoral thesis, only 24.0% of the PhD students gave an affirmative answer.

As we mentioned before, the results of creativity and the use of creativity management in industry are part of a different category from the results pursued in doctoral research. However, both areas are favoured by the tandem use of creativity management with modern benchmarking, which stimulates creativity at all levels: individual, group and organizational [8]. One of the most important questions addressed to Romanian managers was the request they quantify the impact that creativity management and benchmarking have on several factors that define the prosperity of an organization: organizational performance, competitiveness and success of the company on the market, increasing turnover, company value and employee job satisfaction. We mention that the managers' opinions are found only in a proportion of 69.5% in figure 5, because to a previous question only they knew how to give a definition, complete or not, of benchmarking.



**Figure 5.** The impact of creativity management and benchmarking on five factors that define the prosperity of an organization

Comparing averages in figure 5 with those of the variables analysed on the doctoral students' sample, we observe that, on the whole, the effects of creativity management in industry are much weaker than in doctoral research. By example, we can consider that providing guidelines for the use/development of creativity in companies in a doctoral thesis (variable c) is a performance of the

academic research which is quoted at 63.20 on the scale 0 ... 100 (table 1). But the organizational performance is influenced by creativity management in Romanian industry only at an average weight of 32.8%, which is the largest of the averages shown in figure 5. Moreover, let's not forget that only 24.0% of doctoral respondents hope that the results of their own theses will be implemented in practice.

### 3. Conclusions

Coordinating creativity at the societal level requires first awareness of its importance as a resource, and then the application of effective creativity management in all sectors of activity. The efficiency of using creativity is also given by a correlation of its effects in academic research with its effects in industry. We have conducted in this paper only an exploratory research on the junction of these two fields, distributing different questionnaires to a sample of PhD students in engineering or management and, respectively, to a sample of industry managers.

Even if the sets of variables analysed on the two samples of respondents are different, because their aims and interests regarding the use of creativity management are different, we can say that the use and the impact of creativity management in PhD students' research is high (table 1), but the impact of creativity management in Romanian industry is low (figure 5).

In the future, descriptive, explanatory and predictive research is needed, to follow the way in which the results of doctoral theses can be implemented in the Romanian industry, in order to efficiently correlate the creativity in academic research with that in industry. These in-depth studies will need to be conducted on each industry and even on different categories of topics/issues addressed in PhD students' research.

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