THE DEVELOPMENT OF CREATIVE HUMAN RESOURCES AS A CHALLENGE TO THE EDUCATION AND MANAGEMENT

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Abstract. The article discusses the problem of low employee creativity in Polish enterprises. This contributes to low innovativeness of these companies, especially the SMEs. This problem poses a challenge to the education system and also to the management of organizations. There are a lot of reasons for insufficient creativity of employees, and they are linked to the creativity barriers in organizations. They also stem from a low potential of creativity in human resources. This paper aims to identify procedures that can enhance creativity of human resources within the framework of education and the fulfilment of professional duties in the company.

Keywords: creativity, innovation, human resources, education, management

Introduction

The transformation of global economy, the instability of its situation and the dynamics of market changes pose many challenges to contemporary businesses. Creation and implementation of innovations is among them. It is one of the most important factors to determine both the survival and development of a company (Prahalad and Krishnan, 2008; Tidd and Bessant, 2009). New solutions, resulting from the knowledge, skills and qualifications of employees and their creativity are now the source of a long-term competitive advantage and they facilitate success in the era of globalization and knowledge-based economy.

Creativity is considered to be the most important attribute of human capital and the factor affecting the implementation of innovations and the innovation process. Improving innovativeness of enterprises can take place by means of strengthening the creativity of individuals and their teams. This results from the assumption that even though creativity is an individual quality, yet, it depends largely on one's environment. This points to the limitations to the use of creativity in business in the event of unfavourable conditions for its development at the stage of employee training (within various stages of education) and in the company itself at the stage of human resources management and fulfilling of professional duties. There is a challenge to educational processes and to business managers to create such conditions for education, work and human resources management strategies for creative thinking and actions to be used to generate innovations and subsequently to implement them (Szczepańska-Woszczyna, 2014).

Poland is a country with a very low rate of innovation. The research on this phenomenon has revealed numerous causes of innovation gap that exists in Poland when compared to innovation leaders, but also to other post-socialist countries (Łącka, 2011; 2014). These include the small percentage of innovative companies in the SME sector and insufficient spending on innovations and R&D incurred by these companies. The author's research also points to the importance of inadequate creativity of the staff as a barrier to innovation in the SME sector.

The creativity of an individual, which often manifests itself already at the stage of early school education, is not always properly developed during the subsequent educational stages. On the contrary – regardless of changes in the socio-economic system and the significant achievements in the research on the processes of creative thinking and creative problem solving (e.g. Pietrasiński, 1961; Góralski, 1980; Martyniak, 1997; Nęcka, 1994; 1999; Ujwary-Gil, 2004) – in the twenty first century Poland, the support of creative thinking and developing the creativity of school children, and even of university students is still a neglected area of education.

It is only recently that the need to foster creativity and innovation among students has started to be emphasized in Polish curricula. Educational programmes on some of faculties are created to support creative thinking and creative problem solving. However, these actions come much too late, now. The economy has not staff numerous enough to influence innovativeness in businesses or other organizations. Developing such qualities as open-mindedness and curiosity, seeking unconventional solutions, independence, originality and flexibility of thought, vision, imagination, inquisitiveness, sensitivity to the needs of others as well as tenacity and commitment should begin at an early stage of an individual development, and then should be enhanced and supported. This can take place as an element of family upbringing, during the formal and non-formal education processes, and in the case of adults, during vocational training and carrying out work.

These qualities are pointed out by Polish employers who recognize the need to increase creative thinking of future staff. This means that stu-

dents need to be taught to use inventive methods and apply them to solve creative problems and create innovation. Such skills of future employees will provide greater innovative opportunities for Polish companies. This will improve the position of Poland in the ranking Innovation Union Scoreboard.

This paper emphasizes the importance of human resources creativity in Polish economy as well as presents and evaluates the effects of use of inventive methods to increase the capacity for creative thinking and innovativeness among the master's degree students (future managers) at West Pomeranian University of Technology in Szczecin (Faculty of Economics).

Materials and methods

The overview of the subject matter literature were used for the paper. It was used for theoretical analysis of the phenomenon of human creativity and its impact on innovativeness of firms and economy. The article presents the results of research conducted by various authors on desired qualities of university graduates and employees in contemporary economy. In the following part of the paper the conclusions of training skills to use inventive methods to solve creative problems by the master's degree second year students of both full time and extramural studies were described (Faculty of Economics of West Pomeranian University of Technology in Szczecin). These activities were conducted within the subject "Fundamentals of inventive thinking" and were primarily of practical exercises. The method of observation helped gathering information about effective methods of creative thinking among students and their effects.

Results and discussion

In the literature, creativity is understood in several ways. First of all, as a style of psychological functioning. Secondly, as an individual quality which manifests itself in the form of behaviour that might bring about both valuable creative results, as well as results which are an expression of the everyday artistic activity. Thirdly, as an activity which may be potentially creative (e.g. to be used in the market as an innovation), or may not bring about creative results (Drozdowski et al., 2010).

In this context, creativity can be seen as a psychological predisposition, a personality trait that allows to take creative actions. It manifests itself in the ability to create and implement new and useful ideas, services or things. Creative activities can be performed by individuals or groups of people, cooperating with each other more and more frequently. Nowadays, numerous expressions of creativity lead to innovations, or else new creative ideas launched in the market.

The relationship between creativity and innovation (the ability to create new solutions) was first noticed in the developed countries already in the 1960s. (Haefele, 1962). However, the research on the impact of creativity and innovation on the improvement of competitiveness of enterprises has only started to grow in 1970s and it became dynamic in the 1980s. Initially, the research was done primarily in the field of such sciences as psychology and sociology, and later it was economists and organizational management specialists who became interested in the subject. A breakthrough in the psychology of creativity in the 1980s was associated with the approach to the creative process, creative thinking as an everyday and commonplace phenomenon (manifested amongst different people – those considered creative as well as those average), allowed for an extension of creativity and innovativeness from an individual to organizations, institutions, groups and social assemblies (Siegel and Kaemmerer, 1978; Kanter, 1988; Amabile, 1983; Amabile et al., 1986). The research on the importance of leadership, teamwork and individual characteristics of creativity and innovation was also initiated (Scott and Bruce, 1994) as well as on the psychological climate for innovation and innovative attitudes (Isaksen and Kaufman, 1990; Rickards et al., 2001). In the following years, the research has been expanded by the analysis of factors determining the functioning of the "learning" organizations (Montes et al., 2005).

Following the publication of Florida's work "The Rise of the Creativity Class" (2002), the creativity was considered to be the source of changes in the labour market. The processes of socio-economic change in the twenty-first century lead to changes in the employment structure – decreasing prevalence of blue and white collar workers, and growing importance of the so-called creative class. People whose work is based on generating new knowledge and information, product, process, organizational and social innovation belong to this class. They are engaged in the sectors of arts, design and media. This phenomenon is most strongly observable in knowledge-based economies and those recognized as leaders in innovation, but the society remodelling processes also affect post-socialist countries, e.g. Poland.

Polish research on creativity and factors to reinforce the creativity and innovation of enterprises that have been conducted in recent years among SMEs in Poland indicate that about 50% of entrepreneurs in this sector believe that these factors are important for the development, competitiveness and market success of their firms (Drozdowski et al., 2010; Kochmańska, 2008; Moczydłowska, 2012). This is also confirmed by the research conducted among employers and students that have identified desirable competencies of university graduates (potential employees). Creativity and innovation are recognized by 65% of small and 55% of medium-sized businesses' owners surveyed as the most important qualities required from

future workers (Dwa światy ..., 2013). Both employees and managers of enterprises should have these features. These data indicate that due to the hitherto neglect in the teaching of the skills of creative thinking, their development at the level of secondary and higher education, as well as in the workplace shall be supported. This requires reducing barriers to creativity in both environments (education and work) which have different substrates, meaning perceptual, cultural, emotional, strategic and psychological bases. They can also result from lack of knowledge and skills of individuals or their teams, lack of resources for innovation in their enterprise, the reluctance of managers both to use creative techniques of problem solving at work and to motivate employees to demonstrate their creativity.

The development of creative thinking and problem solving by individuals and teams can be supported with the use of various methods and inventive techniques. Inventive thinking is a methodology how to seek solutions to the existing creative problems at the time when the hitherto experience and knowledge do not suggest any specific solutions, and the existing state of knowledge does not meet expectations. This covers specific procedures, ways and methods that allow to solve problems in an unconventional, original manner, which leads to innovation. In its resources, there are 60 methods grouped by the Centre d'Etudes et Recherches en Méthodologie Appliquée in four categories. These are (Martyniak, 1985):

- defining and identifying problems – e.g. definition, voluntary restrictions, residues resetting methods,
- gathering information and modelling problems – e.g. experimental, phenomological, observations, presentation, measurement methods,
- analysis and evaluation of problems – e.g. attorney, location, critical, small changes methods,
- finding solutions – e.g. brainstorming, successive approximations, analogical thinking, discovery matrix.

In the literature (Martyniak, 1985), a different distribution of methods can be found, classifying them into holistic and fragmentary. The first group includes Altszuller's, brainstorming, Delphi, functional innovation, discovery matrix, morphological and synectic methods. In the second group, numbering 23 methods of the group, we can find, among other things: analogical thinking, shortcomings, Gordon's, crushing, overlapping (superposition), situational methods.

Due to the limited scope of this article, all inventive methods cannot be described. The experience of the author, coming from conducting classes with students of intramural and extramural economics studies, training the staff for Polish firms, and preparing them to perform managerial functions, helped to check the effects of acting on creative thinking at the classes of "Fundamentals of inventive thinking". At the level of last-year master degree studies in this field, some inventive methods related to defining and recognizing problems, information gathering and problems modelling and some methods of analysis (e.g. the study on deviations, critical research) were formerly known to students because of their use while drawing up the thesis, and sometimes while working. The students did not realize, however, that what they performed at the recommendation of their promoters or superiors, often intuitively, constituted the use of methods of creative problem solving. A limited number of 15 hours per semester, dedicated to this subject, forced the teacher to choose for the students to study the methods, enabling them to acquire new skills and competencies, and in the most comprehensive manner allowing to develop their creativity and ability to work in a team. These include, for instance, brainstorming, shortcomings, superpositioning, crushing, synectic, Gordon's, situational and analogical thinking methods. During the classes the techniques for inspiring and motivating creativity were also used as proposed by Sloane (2007), i.e. problem reversion, instant making up stories, breaking rules, found objects. In this paper, we will present only two methods used in the classroom: shortcomings and overlap (superposition) methods. During the exercise, students worked in teams of several people (a maximum of 5 to 6), and the results of their work were noted in the form of a report on the implementation of a given method. They also had an opportunity to present the results of their work to other participants in the class. Various methods with their specific needs were discussed by the teacher on a regular basis when preparing students to use the method.

The essence of the shortcomings of the method lies in the non-acceptance of the reality burdened with numerous shortcomings. Its use is based on the discovery of a potentially large number of possible shortcomings in the present system. It requires teamwork to stimulate the process of generating shortcomings and to objectify the negative evaluation (not everyone is able to evaluate certain features in the same way). The application of this method consists of two stages – first, a spontaneous enumeration of shortcomings, and then objectified evaluation of negative grades. This method is a tool to identify and analyse the system and then, to improve the system or replace it with a different, better one featuring fewer shortcomings. When using this method, students were given various problems to solve. They took the form of products (e.g. a laptop bag, a book on economics, leather shoes) or services (operation of a clinic, of a public library, offers of a bus operator). They had to produce details of the tested object, i.e. determine what it is, what are its characteristic treats, what tasks and functions it fulfils, who or what it works with, how it functions etc. They pointed out its shortco-

mings and the chances to remove them, and then, they presented new solutions free of these shortcomings. Work on the task ended was crowned with the preparation of completely new products or services that can meet fully the needs previously realized by the facilities with shortcomings.

The method of overlapping (superpositioning) comes from assuming that all discoveries are the result of the double association, i.e. crossing in the mind of the creator of two different objects (or techniques). In consequence, new objects or techniques are created. This method begins by random enumeration of a series of objects that do not have direct relationships with the subject under study. Then, these items are sequentially juxtaposed to the subject under study. At the same time, the characteristics of the object juxtaposed are determined to be used to improve the object under study. Such procedure by associations generates a lot of ideas for new items (products, services, processes) which is a combination of two juxtaposed objects (Martyniak, 1985).

When applying this method, students, acting as clothing designers were given the task to associate e.g. the word "clothes" with words selected at random from the dictionary: granules, young leaves, map, book, tank, pyramid. Another group of students took on the role of veterinary surgeons who sought a new way of administering drugs to dangerous animals. They were to associate the procedure of "drugs administration to dangerous animals" with words selected from the dictionary: mouse, lock, compass, hammer, hornet, nurse, construction, fence. Tasks for other groups of students were based on similar principles. The application of this method by teams of students allowed to obtain a number of very original ideas for new solutions with a chance to be implemented.

Conclusions

The market success and long-term competitiveness of companies in the modern world depend on the creativity and innovation potential of managers and employees. The creativity is a necessary condition insufficient, however, for the innovation of companies. Unfortunately, not every creative thinking brings new solutions to the market. It also requires a demonstration by the owners and employees of pro-innovative attitudes. It includes a willingness and ability to implement innovations, which requires taking risks. Following a growth of the staff's creative potential, pro-innovative attitudes shall be supported. This means a need to hire for the company the employees with the ability to think creatively, who using inventive methods will be able to create innovation. It is therefore necessary to prepare them for such tasks at every level of education from the primary school to the university. The teaching experience of the author confirms the effectiveness of inventive methods to improve young people's creativity. These should be continued through workshops and training for workers.

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KŪRYBINIŲ ŽMOGIŠKŲJŲ IŠTEKLIŲ PLĖTRA KAIP IŠŠŪKIS ŠVIETIMUI IR VADYBAI

Santrauka

Straipsnyje aptariama žemas darbuotojų kūrybiškumo lygis Lenkijos įmonėse. Tai prisideda prie mažo šių įmonių inovatyvumo, ypač MVĮ. Ši problema yra iššūkis švietimo sistemai, o taip pat organizacijos valdymui. Yra daug priežasčių dėl nepakankamo darbuotojų kūrybiškumo ir jos yra susijusios su kūrybiškumo kliūtimis organizacijose. Jos taip pat kyla iš žemo žmogiškųjų išteklių kūrybiškumo potencialo. Šiame dokumente siekiama nustatyti procedūras, kurios gali pagerinti žmogiškųjų išteklių kūrybiškumą per švietimo sistemą ir profesinių pareigų įmonėje vykdymą.
Raktiniai žodžiai: kūrybiškumas, inovacijos, žmogiškieji ištekliai, švietimas, vadyba.