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► **To cite this version:**

Aneta Sokól, Irena Figurska. Creativity as one of the core competencies of studying knowledge workers. *Entrepreneurship and Sustainability Issues*, 2017, 5 (1), pp.23 - 35. 10.9770/jesi.2017.5.1(2) . hal-01708976

HAL Id: hal-01708976

<https://hal.science/hal-01708976>

Submitted on 14 Feb 2018

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CREATIVITY AS ONE OF THE CORE COMPETENCIES OF STUDYING KNOWLEDGE WORKERS*

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Received 20 March 2017; accepted 15 June 2017

Abstract. The article discusses the importance of creativity as one of the core competencies of knowledge workers in universities functioning in the knowledge-based economy. In the theoretical part of this article the essence of knowledge management (KM) is characterized. In particular, definition, objectives and processes of knowledge management are described, as well as benefits from KM and barriers to KM are presented. The attention is also paid to the knowledge workers, their definition, characteristics as well as roles they perform in organizations in which they work. Further part of this article focuses mainly on results of the research on knowledge workers creativity and competences. The main objective of the study was to determine whether competences characteristic of knowledge workers are correlated with the level and the style of creativity. An additional objective was to make a comparative analysis between humanistic, technical and agricultural fields of study. The questionnaire survey conducted among working students was the main source of primary data used in the process of qualitative and quantitative analysis. The method of documents' examination as well as descriptive, analog and heuristic methods were used in this article. On the basis of obtained data the level of creativity and creative style of creative workers were studied, as well as correlations between competences characteristic of knowledge workers, and both the style and the level of creativity were calculated. The Drawing Test of Creative Thinking by Urban and Jellen was used to measure the level of creativity among respondents, and the KAI questionnaire by Kirton was used to measure the style of creativity. The final part of the article includes conclusions resulting from the results of the research and theoretical considerations.

Keywords: creative sector, creative, knowledge management, knowledge workers

Reference to this paper should be made as follows: Sokół, A.; Figurska, I. 2017. Creativity as one of the core competencies of studying knowledge workers 5(1): 23-35. [http://doi.org/10.9770/jesi.2017.5.1\(2\)](http://doi.org/10.9770/jesi.2017.5.1(2))

JEL Classifications: M12

1. Introduction

* This research was supported by the project, which has received funding from the University of Szczecin, Szczecin, Poland and Pomeranian University in Slupsk, Poland

Employees of an organization who make up and use new, creative ideas, products or services, are called *creative knowledge workers*. Thanks to this group of employees, organizations create innovations enabling them to achieve competitive advantage on today's turbulent and unpredictable markets.

The primary objective of knowledge workers is active participation in knowledge management processes, with their creative activity constituting a strategic value for virtually every organization. This resource is a key competence, both in terms of its nature and individual dimension, as its effective use increases value for the customers and brings significant benefits. This type of competence, next to other significant intangible factors such as knowledge, health, motivation and experience, is a very important determinant of individuals' development. Hence the decision that creativity of studying knowledge workers is worth the research effort.

Certain questions arise at this point. Do working students possess the competencies typical of knowledge workers? Are these competencies mutually inclusive? Are the competencies typical of knowledge workers significantly related to creativity? Is it possible to logically group knowledge workers according to their competencies that distinguish them from other employees? In order to verify the theoretical considerations related to knowledge workers' competencies and creativity and, thus, to find answers to these questions, a questionnaire survey was carried out among persons who both studied (humanities or technical or agricultural science) and performed creative work in creative industry organizations.

2. The essence of knowledge management

Today, in the knowledge-based economy, the most important organizations' resource is knowledge, therefore their competitiveness to a large extent depends on the effectiveness of knowledge management, determined by various internal and external factors. However, there is no one definition of knowledge management which would be generally accepted by both theoreticians and practitioners of management. In the literature one can find many definitions, reflecting specificity of scientific interests of their authors (see: Murray & Myers 1997; Armstrong 2006; Serrat, 2009; Girard & Girard 2015). However, for the purpose of this article knowledge management is defined as *a set of systematic, organized, thoughtful and flexible actions aimed at knowledge resources (individual, collective and organizational; explicit and tacit) of the organization, taken and performed with the intention of achieving the objectives of the organization efficiently and effectively. These actions enable the organization to realize knowledge management processes (localization, acquiring, developing, sharing, preservation, use) as well as shape the environment (human, technical, cultural) conducive to KM, using for this purpose appropriate methods and tools* (Figurska 2012).

The knowledge management (KM) objectives complement the organization's general goals at all levels of organizational structure, that is normative (mission and vision), strategic (strategic plans) and operative (assignments) (Probst, Raub & Romhardt 2002). According to different authors the major knowledge management goal is to: enable the organization to act intelligently, learn and adjust to a changing environment with the help of knowledge resources engagement and a company's organizational structure (Auster & Choo 1996) or ensure the environment that creates optimal conditions for the creation, transfer and use of knowledge (Fazlagić 2014). Detailed KM objectives can be related to knowledge management processes (e.g. knowledge development, sharing it and using it in practice) as well as people (knowledge workers), procedures, organizational culture, methods, tools, products etc. (Figurska 2012).

The viability of the knowledge management implementation is confirmed by benefits that effectively managed knowledge brings to all interested parties: individuals, teams and organizations (Dalkir 2005). Knowledge management helps *individuals* do their jobs and save time through better decision making and problem solving,

builds a sense of community bonds in the organization, helps people to keep up to date, provides challenges and opportunities to contribute. In reference to *teams* KM develops professional skills, promotes peer-to-peer mentoring, facilitates more effective networking and collaboration, develops a professional code of ethics and common language (Dlugoborskytė et al. 2015; Menshikov et al. 2017)

For the *organization*, KM helps to: drive strategy, solve problems quickly, diffuse best practices, improve knowledge embedded in products and services, create ideas, increase opportunities for innovation, achieve better competitive position, build organizational memory (e.g. Kiškis et al., 2016; Khanagha et al., 2017; Korsakienė et al, 2017; Bendaravičienė, 2017) Awareness of the benefits that effective knowledge management brings (or may bring) to the organization and its employees is essential to win knowledge workers engagement in KM activities.

Generally, two basic approaches to knowledge management are observed in practice: technology-oriented and people-oriented (see: Hlupic, Pouloudi & Rzevski 2002; Rutheford & Tai 2004; Figurska 2012; Teletov et al., 2017). The first one treats knowledge as objects, which can be easily identified, codified and stored in information systems. This approach is focused on development of information and communication technologies. People-oriented approach treats knowledge as constantly changing processes and is related to knowledge sharing, organizational culture and learning. This approach is focused on people – their evaluation as well as improvement of their skills and behaviour.

Knowledge management is often perceived as a set of processes, which are classified in different ways by different authors. However, the classification put forward by Probst, Raub and Romhardt (2002) is the most frequently cited in the literature. Mentioned above authors distinguish: *knowledge localization* (concentrated on discovering and presenting knowledge sources), *knowledge acquisition* (aimed at obtaining knowledge from external sources), *knowledge development* (focused on specialized knowledge creation), *knowledge sharing and distributing* (aimed at making knowledge accessible to people who need it), *knowledge use* (focused on the productive use of an organization's knowledge sources) and *knowledge preservation* (aimed at preventing the organization from losing valuable intellectual sources). Mentioned above processes are closely interconnected and the success of KM in the organization depends on the effectiveness of each of them. Thanks to effective realization of these processes people who need knowledge can use it in practice and solve problems easier, better and more quickly, or can simply avoid them.

There are many obstacles of knowledge management, which can stem from the existing organizational structure, used methods and tools of management, and above all from people. According to the most important barriers to knowledge management are: insufficient knowledge resources within the organization, lack of (or insufficient, or lack of knowledge on) benefits connected with the realization of KM processes, perceiving knowledge as property or/and as a source of power, unfavourable organizational conditions for knowledge management, lack of (or insufficient) superiors' support in the realization of KM processes, lack of purpose understanding for which knowledge management serves, lack of (or insufficient) access to knowledge sources, lack of (or insufficient) skills at knowledge management, as well as lack of knowledge what knowledge should be managed. The identification of knowledge management obstacles enables their elimination, positively influencing effectiveness of KM.

One of the basic knowledge management success factors is the construction of a KM strategy by the organization, which is defined as a formula that is a combination of KM goals, rules, relations and resources. This formula defines how organization is going to acquire and use knowledge for the realization of its competitive strategy (Mikuła, 2006; Volchik, Maslyukova, 2017). Knowledge management strategy should give answers to three fundamental questions (Bennett & Jessani 2011): Where the organization is now? Where the organization wants to be in the future? How does the organization get there? Organizations may use different strategies depending on:

the industry in which they operate, their size, the kind of knowledge which is most important to them in the context of building competitiveness in the market, and many other factors. Depending on the adopted criteria, different types of strategies can be distinguished, such as: codification and personalization strategy (Hansen, Nohria & Tierney 1999), leveraging, expanding, appropriating and probing strategy (Von Krogh, Nonaka & Aben 2001), knowledge creation, knowledge transfer or knowledge protection strategy (Bloodgood & Salisbury, 2001), knowledge protection and knowledge sharing strategy (Mikuła, 2006). It must be emphasized, however, that there is no universal solution for a good knowledge management strategy. This strategy must reflect specificity of the organization, therefore coping a strategy used in other organization may do more harm than good.

3. Knowledge workers

Knowledge, which is a strategic resource of organizations, is created and utilized by people, thus the importance of employees performing work based on knowledge, called knowledge workers, is growing systematically in organization functioning in the knowledge-based economy.

Definitions of knowledge workers are usually related to knowledge management and/or human resources management (see: Davenport 2005; Serrat 2008). Generally they emphasize the importance of education and/or their personal traits and/or actions taken by them and/or attitudes presented by them and/or their core values. Observed differences stem from different approaches presented by different authors (Figurska 2015). Thorough analysis of various definitions and characteristics of the knowledge worker allowed to define such an employee as a person whose passion, work and professional career are associated with active participation in the knowledge management processes (Figurska 2015). Knowledge worker: *has* (knowledge, experience, social competences, values, etc.), *wants to* (develop, share and use knowledge, experience, social competences, as well as use resources, methods, tools etc.), *is able to* (use knowledge, experiences, tools, resources, methods etc. thanks to his skills), *can* (is provided by the organization the opportunity to actively participate in the realization of KM processes), and *is needed* (his knowledge, experience, social competencies, engagement etc. are important for achieving the objectives of the organization). On the one hand, knowledge worker is under influence of the specificity of the organization in which he works, as well the external environment, which provides the organization and its employees with resources. On the other hand, taking wise decisions and actions, knowledge worker can influence both the organization in which he works and its external environment (Figurska 2015).

To be able to participate in the KM processes, knowledge workers should possess such knowledge (both general and specialist), skills and social competences that allow them to localize, acquire, develop, share, use and preserve knowledge. They are expected to be (Mikuła 2006; Figurska 2012; Figurska 2015): educated, skilled, experienced, creative, innovative, focused on lifelong learning, open to changes, responsible, focused on cooperation, communicative, focus on self-development, self-motivated, demanding, engaged, self-aware, well-informed, active, independent, flexible, trustworthy and ethical.

In the knowledge based economy knowledge workers create the greatest added value and considerably affect the value of their organizations. They are paid for efficiency of thinking, and their minds are regarded as the primary work tools. They work not only with knowledge and information, but also on them (Nickols 2012). They “*understand, identify with, and see how their own contribution can be enhanced*” (Serrat 2008). They are not the labor force, they are capital.

According to Morello and Caldwell (2001), knowledge workers understand their domain of influence, knowledge, activity and responsibility, as well as define, influence and help shape that domain. They understand the people, information and potential resources within that domain, and finally - have the authority to act within that domain.

Some authors of publications devoted to personal aspects of KM list occupations, whose performance is attributed to knowledge workers. It seems, however, that such classifications can be good for today, but not necessarily for tomorrow, as in the knowledge-based economy it is difficult to unequivocally predict occupations which will appear and disappear on the labor market in the future. Therefore classification by T. Davenport (2005), who list specific categories of widely understood economic activities seems to be particularly interesting. Mentioned author put the following categories into "the knowledge worker camp": management, business and financial operations, computer and mathematical, architecture and engineering, life, physical and social scientists, legal, healthcare practitioners, community and social services, education, training and library, arts, design, entertainment, sports and media.

Knowledge workers play different roles in organizations, which is confirmed by Reinhardt, Schmidt, Sloep and Drachsler (2011), who propose a classification of knowledge workers roles and describe knowledge actions they are expected to perform during their daily work (Table1).

It is worth noting that these roles played by knowledge workers are interrelated, and they usually perform more than one role in the organization.

Table 1. Typology of knowledge worker roles

Roles	Description: people who..	Expected knowledge actions
controller	monitor the organizational performance based on raw information	analyze, dissemination, information organization, monitoring
helper	transfer information to teach others, once they passed a problem	authoring, analyze, dissemination, learning, feedback, information search, networking
learner	use information and practices to improve personal skills and competence	acquisition, analyze, expert search, information search, learning, service search
linker	associate and mash up information from different sources	analyze, dissemination, information search, information organization, networking
networker	create connections with people involved in the same kind of work	analyze, dissemination, expert search, monitoring, networking, service search
organizer	are involved in personal or organizational planning of activities,	analyze, information organization, monitoring, networking
retriever	search and collect information on a given topic	acquisition, analyze, expert search, search and organization of information, monitoring
sharer	disseminate information in a community	authoring, co-authoring, dissemination, networking
solver	find or provide a way to deal with a problem	acquisition, analyze, dissemination, information search, learning, service search
tracker	monitor and react on actions (personal and organizational) that may become problems	analyze, information search, monitoring, networking

Source: on the basis on: (Reinhardt, Schmidt, Sloep & Drachsler 2011).

Knowledge workers perform knowledge work consisting in taking actions in the area of knowledge management processes. Reinhardt and others (2011) state that "the main feature differentiating knowledge work from other conventional work is that the basic task of knowledge work is thinking. Although all types of jobs entail a mix of physical, social, and mental work, it is the perennial processing of non-routine problems that require non-linear and creative thinking that characterizes knowledge work".

Based on the above description, the ability of "non-linear and creative thinking" are especially important for knowledge workers. Therefore it can be stated that the most important group of knowledge workers are those characterized by possession of intrinsic creativity, performing creative work. Their knowledge, interests and engagement are internal driving force for effective creative work. Knowledge workers are responsible for

developing and implementing new ideas, enabling organizations in which they work better and/or faster adaptation to the rapid and often unpredictable environmental changes. In today's knowledge-based economy this particular group of employees is becoming more and more numerous.

Creativity may result from the so-called inspiration - breath of the spirit, creative anxiety etc. However, in the literature one can find a considerable number of supporters of the idea that creativity is the result of hard work. In other words, hard work and intense interests in a specific field can lead to creative achievement. Interests, thinking about them and monitoring of processes related to them often become an inspiration for creative activities (Sokół 2015; Sokół 2015a).

Knowledge workers present different levels of creativity, which means that some of them are more creative, some less. They also present different styles of creativity. Generally it is assumed that all people are capable of taking creative activities, and the difference between them lies in the style of dealing with the tasks. These styles are determined by features possessed by people - at one end there are human qualities characteristic for adaptability, while on the other end - for innovativeness. Adaptability is focused on "*improvement*" while innovativeness is focused on performing tasks "*differently*." Therefore, two basic styles of creativity can be distinguished: innovative and adaptive. People with a predominance of adaptive qualities function better when they have possibility to improve existing state of affairs or to its systematic, slow change. They are characterized by: precision, reliability, efficiency, methodical acting, prudence, discipline and conformity. They are more focused on solving problems than on their discovering, and they usually choose proven ways when troubleshooting. Innovators (people with a predominance of innovative traits) prefer revolutionary changes, the total reorganization of reality. They are seen as undisciplined people, thinking "*outside the box*" and undertaking a variety of tasks.

4. Empirical verification of correlations between competencies typical of knowledge workers and creativity

4.1. Material and methods

As already stated, the aim of this study was to examine whether working students in Poland have the competencies typical of knowledge workers, whether these competencies are mutually inclusive and show significant relations with creativity, and whether the respondents can be logically grouped according to their competencies that distinguish them from other employees. An additional objective of the research was to carry out a comparative analysis at faculties of humanities and at technical and agricultural faculties. On the basis of the objectives defined above, the following hypotheses were formulated:

- H1: there are differences in demonstrated competencies typical of knowledge workers and in the style and level of creativity among working students,
- H2: the differences in demonstrated competencies and the style and level of creativity among working students are determined by the number of creative works produced thereby.

The study was based on qualitative and quantitative analysis of statistical data collected through a questionnaire method. The respondents completed a questionnaire with 30 questions. The first 5 questions were general in nature, while the remaining ones were related to competencies of the employees. The analysis was carried out based on examination of documents, and with the use of descriptive, analog and heuristic prediction methods. The level of creative skills and creative style of creative workers were studied first, followed by calculations of correlations between competencies typical of knowledge workers and the style and level of their creativity. For this purpose, the Pearson correlation coefficient was used. With the results of empirical study, it was possible to achieve the objectives set in the article and verify the hypotheses formulated.

The study was conducted in the Masovian and West Pomeranian voivodships in Poland. The selection of the research sample was intentional. 980 respondents were selected from among the students of the University of Szczecin (US - 98 students, including 3 PhD students), West Pomeranian University of Technology (WPUT - 102 students, including 5 PhD students), Academy of Fine Arts (AS - 9 students), the Warsaw University of Life Sciences (WULS - 398 students, including 6 PhD students) and the Warsaw School of Economics (WES - 373 students, including 7 PhD students), from among whom a group of 554 knowledge workers was subsequently selected (Sokoł 2013, 2015, 2016).

The methodology adopted ensures fulfillment of the requirements of a *knowledge worker's* definition, i.e. possession of formally documented specialized education (Bachelor's degree, engineer degree, and Master's degree for PhD students) and employment in creative industries (within the last 2 years or currently), which include: advertising, architecture, design and fashion design, computer software, cultural institutions, art-trade and antiques-trade, media and higher education.

The Drawing Test of Creative Thinking by Urban and Jellen, which consists in drawing production, was used to show operationalization of the level of creativity among respondents. When evaluating the level of creativity with the TCT-DP test, four evaluation criteria were adopted as the key characteristics of the respondents. These criteria include (Sokoł 2016):

- high level of general skills, often equated with general intelligence,
- high level of specific expertise, manifested in a specific area,
- high achievements or potential of high achievements,
- creative predispositions and achievements.

When it comes to the TCT-DP test, there are no set norms for the age groups which participated in the research, wherefore the classification was made with the use of descriptive statistics (division of test results into 10 groups). On this basis, students classified into three categories of results, i.e., low (1), medium (2) and high (3), were prepared. Results coming within the range between 0 and 25 points were classified as low, the ones in the range from 26 to 35 points were considered medium, while results higher than 35 points were assessed as high. It should be noted that this division, made for the purpose of the research, is arbitrary and, therefore, should be treated with due care.

The style of creativity was measured as an overall result in the KAI questionnaire by Kirton (Karwowski 2009), in which a high result denotes innovation (1) while a low result denotes adaptability (2).

4.2. Results and discussion

The results of research show that the biggest percentage of working students with the highest level of creativity (level 3 in the TCT-DP test) was observed in technical fields of study (56%), followed by agricultural studies (48%) and humanities (44%). In the case of technical fields of study and humanities, it was observed that the lower the level of creativity, the smaller the percentage of students representing such a level. Nevertheless, it needs to be noted that, among working students in agricultural fields of study, the lowest level of creativity was demonstrated by more than twice as many persons as the medium level of creativity.

When analyzing the results of the KAI test by Kirton, it should be noted that the majority of students, in all fields of study, demonstrated innovative style of creativity. What is interesting, students in agricultural fields of study presented innovative style of creativity more often than students in other fields of study covered by the analysis (Table 2). On the other hand, adaptive style of creativity was most frequently represented by respondents of technical study fields (49%) and, least frequently, by respondents representing agricultural fields of study (39%).

Table 2. The number and structure of respondents

Fields of study										
agricultural			humanistic			technical				
980 students – 100%										
375			480			125				
38%			49%			13%				
Knowledge worker (number of students and in %)										
206			287			61				
21%			29%			6%				
TCT-DP by Urban & Jellen 1-2-3 (in %)										
1	2	3	1	2	3	1	2	3		
36	16	48	17	39	44	14	30	56		
KAI Kirton 1-2 (in %)										
1			2			1			2	
61			39			57			43	

Level of creativity -TCT-DP by Urban & Jellen - low (1), medium (2), high (3).
Style of creativity - KAI Kirton - innovative (1), adaptive (2)

Source: own elaboration

Subsequently, correlation between the level and style of creativity presented by the respondents and the number of creative projects performed thereby in the creative sector in which they were (or are) employed, was analyzed. The analysis enabled both the assessment whether the variables are inter-dependent and determination of the nature and strength of this correlation. The assumption that medium (2) and high (3) levels of creativity are in a direct, positive relationship with the number of creative works, is put forward in hypothesis 2. The survey results confirm a positive correlation between the variables. The Pearson correlation coefficient stood at 0.759 (for medium level of creativity) and 0.815 (for high level of creativity), and the significance level was 0.05.

Positive correlations are also found between the style of creativity and the number of creative products. The values are as follows: 0.724 for innovative style and 0.265 for adaptive style of creativity. Therefore, hypothesis 2 has been confirmed.

As shown by the results of the research, medium and high level of creativity as well as innovative style of creativity are very important factors enhancing creative work. Therefore, correlations between the level and the style of creativity and competencies typical of knowledge workers who study humanities or technical or agricultural science, are verified further in the text (hypothesis 1).

It was assumed that there is a positive and strong correlation between certain competencies and the level and style of creativity when the correlation index is within the range from 0.6 to 1. A positive sign of the correlation coefficient indicates that the level of selected competencies typical of knowledge workers grows with the increase of creativity level. These correlations are presented in Table 3.

The results of the study were used to determine correlation between the level of creativity and individual competencies typical of knowledge workers. For agricultural fields of study, the strongest correlation occurs between:

- the highest level (3) of creativity and the organization of work, technical skills, negotiating skills, experience, assertiveness, teamwork skills,

- medium level (2) of creativity and decision-making,
- the lowest level (1) of creativity and motivation and willingness to learn, self-reliance, professionalism.

In the case of humanities, the strongest correlation is reported between:

- the highest level (3) of creativity and work organization, motivation and willingness to learn, resistance to stress, teamwork skills,
- medium level (2) of creativity and resistance to stress, experience, decision-making, assertiveness,
- the lowest level (1) of creativity and motivation and willingness to learn, professionalism.

For technical fields of study, the strongest correlation is observed between:

- the highest level (3) of creativity and analytical skills, work organization, conflict management, experience,
- medium level (2) of creativity and analytical skills, resistance to stress, teamwork skills,
- the lowest level (1) of creativity and analytical skills, teamwork skills.

The survey results indicate that competencies such as work organization, experience and teamwork skills were strongly correlated with the level of creativity for all three fields of study. Knowledge of foreign languages, personal etiquette, general knowledge and specific expertise, responsibility as well as ethical behavior, in turn, did not demonstrate strong correlation with the level of creativity for any field of study.

The analysis of correlation between the style of creativity and competencies typical of knowledge workers has shown strong positive correlation between the following in agricultural fields of study:

- adaptive style (2) of creativity and conflict management, experience,
- innovative style (1) of creativity and motivation and willingness to learn, resistance to stress, teamwork skills.

For humanities, the strongest positive correlation occurs between:

- adaptive style (2) of creativity and teamwork skills,
- innovative style (1) of creativity and analytical skills, conflict management.

In technical fields of study, the strongest positive correlation is between:

- adaptive style (2) of creativity and work organization, technical skills, negotiating, experience,
- innovative style (1) of creativity and analytical skills.

As shown, students at technical and agricultural faculties and at faculties of humanities combine innovative style of creativity with analytical skills. The competencies that are closely related to innovative style of creativity include conflict management, for students in humanities, and motivation and willingness to learn, resistance to stress and teamwork skills, for students in agricultural fields of study.

None of competencies listed in Table 3 showed a strong correlation with the style of creativity for representatives of all fields of study. Analytical skills, conflict management, experience and teamwork skills demonstrated strong correlation with the style of creativity for two of the three fields of study. On the other hand, competencies such as knowledge of foreign languages, personal etiquette, general knowledge and specific expertise, responsibility, self-reliance, professionalism, decision-making, assertiveness as well as ethical behavior did not show strong correlation with the style of creativity for any field of study.

Table 3. Examination of the correlation between creativity and competencies characteristic of knowledge workers

Competences of students predestining them to work as knowledge workers		Fields of study														
		agricultural					humanistic					technical				
		Level of creativity			Style of creativity		Level of creativity			Style of creativity		Level of creativity			Style of creativity	
		1	2	3	1	2	1	2	3	1	2	1	2	3	1	2
1	knowledge of foreign languages	0,317	-0,012	0,231	0,321	0,280*	-0,012	0,274	0,521	0,028	0,110	0,387*	0,312	0,429*	0,391	0,002*
2	organization of work	0,043	0,024	0,832	0,582*	-0,029	0,024	0,319*	0,842	0,127*	0,391*	0,388	0,239*	0,716	0,592*	0,832*
3	analytical skills	0,345	0,142	0,551*	0,187	0,003	-0,821	0,102	0,003	0,782*	-0,901	0,812*	0,871*	0,610*	0,742	0,551*
4	technical skills	0,212	-0,012	0,684*	0,541*	0,280	-0,014	0,114	0,421	0,284*	0,052*	0,004	0,041	0,020	-0,018	0,682*
5	motivation & willingness to learn	0,673*	0,239	0,482	0,826*	0,193*	0,944*	0,499*	0,726*	0,018	0,439	0,182	0,126	0,048	0,039*	0,482*
6	conflict management	-0,057	0,142	0,014	0,487	0,619	0,142	0,014	0,487*	0,629	0,144	0,011	0,001	0,629*	0,187*	0,011
7	negotiating	0,043	0,013	0,832*	0,253	-0,021	0,007	0,571*	0,223	-0,017	0,009*	0,329*	0,172	-0,029	0,010	0,842*
8	personal culture	0,248	0,388	0,256	0,285*	0,322	0,228*	0,276	0,005	0,120	0,218	0,256*	0,115	0,120	0,298*	0,159
9	resistance to stress	0,128	0,589	0,023	0,862*	0,011	0,589*	0,723	0,862*	0,095	0,511	0,011	0,721	0,095	0,109	0,129
10	general and specialist knowledge	0,245	-0,023	0,291	0,286	0,029	0,002	0,201	0,212	0,028	-0,129	0,312	0,125	0,197	-0,720	0,288*
11	experience	0,181	0,341	0,642*	0,481	0,798*	0,541*	0,631	0,429*	0,006	0,321	0,523*	0,409*	0,623*	0,491*	0,632*
12	self-reliance	0,845*	0,118	0,363	0,121	0,171	0,228	0,322	0,009	0,091*	0,101	0,331	0,401*	0,189	0,101	0,197
13	responsibility	0,265	0,347	0,578*	0,231*	0,007	0,417*	0,529	0,198	0,125	0,109	0,312	0,198	0,459*	0,201	0,120
14	professionalism	0,712*	0,163	0,237	0,107	0,559	0,813*	0,221	0,113	0,509	0,431	0,103	0,199	0,007	0,163	0,079*
15	decision-making	0,234	0,698*	0,354	0,180	0,199	0,118	0,613	0,008	0,202	0,129	0,067	0,178	0,202	0,008	0,003
16	assertiveness	-0,003	-0,003	0,851*	0,312	-0,118	-0,013	0,601	0,322*	-0,098	-0,021	0,119	0,359*	-0,059	-0,012	0,032
17	ethical behavior	0,000	0,214	0,485	0,128	0,461*	0,144	0,004	0,119	0,310*	0,319*	0,148*	0,469*	0,474*	0,239*	0,489*
18	ability to cooperate	0,034	0,028	0,757*	0,612*	0,131	0,138	0,072	0,872*	0,098	0,918*	0,968	0,629*	0,109	0,027	0,007

Level of creativity - TCT-DP by Urban & Jellen - low (1), medium (2), high (3).

Style of creativity – KAI by Kirton - innovative (1), adaptive (2).

* $p < 0.01$.

Source: own elaboration

On the basis of the results of research, it can be stated that work organization, analytical skills, motivation and willingness to learn, resistance to stress, experience and teamwork skills are the most important competencies of creative knowledge workers, which determine their capability to produce creative works. It needs to be mentioned that competencies corresponding to creative skills are similar regardless of the field of study.

It should be noted that skills demonstrated by creative employees are compatible with those of knowledge workers. This is a positive remark because, these days, knowledge workers with creative potential (the level and style of creativity) are highly desirable. The competencies mentioned above increase the prospects of succeeding on the market. Having the necessary knowledge and the appropriate analytical and processing skills, an employee can create and select processes and actions that will ensure competitiveness and innovativeness of his/her organization.

There is one more remark to be made. It is surprising that in a knowledge-based economy, the knowledge of studying knowledge workers does not show strong correlation with either the style or the level of creativity for any field of study, especially that knowledge is the basis for their decisions and actions. To some extent, the above can be explained by the fact that experience, which can be called the practical dimension of knowledge, is strongly correlated with both the level and the style of creativity. As the research conducted did not allow for

unambiguous identification of the causes thereof, it seems to be an interesting subject of future scientific considerations.

To sum up, it is best when knowledge workers maximize their competencies by presenting creative style and demonstrating high creativity. Unfortunately, it is not always like this. Some knowledgeable employees do not have the creative potential that would allow them to use their knowledge in a specific creative activity. Despite their knowledge, they do not have the necessary skills to translate the creative ideas into effective actions, which would give them competitive advantage on the market. This is why it seems that universities should not only provide students with knowledge, but also develop competencies needed by knowledge workers to boost their creativity.

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Aknowledgements

This research was supported by the project, which has received funding from the University of Szczecin, Szczecin, Poland and Pomeranian University in Slupsk, Poland

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