

THE IMPORTANCE OF CREATIVITY IN ENHANCING KNOWLEDGE TRANSFER: CASE STUDY FROM THE CREATIVE INDUSTRY PERSPECTIVE

Dr. Emília Madudová, university assistant³⁶

Abstract: *The aim of the paper is to contribute understanding of importance of creativity in education system, as well as to find out the degree of creativity in education system, especially at the engineering study programs. Most authors claim, that without knowledge of what drives the process, it is difficult to foster creativity. The paper also evaluates the importance of creativity from business environment point of view and from the creative industry perspective.*

Key words: *Creativity, Knowledge transfer, Creative industry*

1. INTRODUCTION

Universities, facing financial constraints, co-modified their knowledge to serve companies, in what has been christened as *academic capitalism* " or *entrepreneurial universities* [1,2,3]. On the other hand university has to prepare graduate, who stands the labor market. The research shows the importance of creativity in education system, especially in university programmes preparing graduates for creative industries.

The necessity of creative education can be mainly justified by the need of creative workers in the creative sector. Narrower definition of the creative economy gives priority to the creative sector consisting of creative industries, which have gradually evolved from the so-called cultural industries and closely related to the artistic and cultural creativity [4]. In this context, the creative industries are seen as a new key sector of the economy which is a source of employment growth and profits. However, this approach can be applied only in those countries, or regions whose economy is oriented in this direction [5].

2. LITERATURE REVIEW

Especially Asian countries like Hong Kong, Mainland China, Taiwan, Singapore or South Korea, have imposed curriculum reforms, which emphasized creativity development in their primary and secondary schools. One common feature of these countries is that they all recognize the importance of creativity across the curriculum, such as science, language, arts and so on. To cultivate creative citizens, Asian countries are undergoing vigorous education reform in a top-down process, in the strong support of their governments [6].

The aforementioned arguments of several authors affirm the necessity of the presence of creativity, respectively creativity in education. Creative thinking should be a priority in higher (third-level) education as well [7]. Higher educational institutions, is responsible for, the creation and dissemination of knowledge. Currently rising unemployment rate and decreasing

³⁶ University of Žilina, Univerzita 1, 010 26 Žilina

the percentage of graduates in the labor market has resulted in the higher education system should do more to promote the development of students' creativity [8,9]. American psychologist J.P. Guilford has expressed and verified the hypothesis that the creativity is not identical with the intelligence measured by IQ tests, but the extension of creativity can be seen as a sign of intelligence [10]. The difference between intelligence and creativity describes Getzels and Jackson Both as well. Intelligence and creativity are mental abilities. But, the basic difference between the two is that intelligence is a general capacity or ability of an individual, whereas, creativity requires different thinking.

Creativity may be stimulated through education and certain practices, notably certain training programs relating to individual requirements.

2. METHODOLOGY

As explained before, the research was intended to describe an importance of graduate student creativity at the labor market in the area of firms acting in the creative industry, consequently the existence of student's creativity at the engineering study programs.

Quantitative oriented research, states that we should consider the opinions of the participants concerned in the creative process by means of semi-structured interviews. The development of autonomy among engineers has similarities with the development of creativity. We conceived the existence of invariants in the evaluation of creativity and ultimately focused on creativity in educational programs for student engineers, inspired by [11].

The primary research consisted of quantitative research – In Depth semi-structured interviews, Questionnaires and personal observation. Depth Interviews consisted of 50 interviews with experts from the creative industry, advertising agencies and architect ateliers. All the advertising agencies operate more than 10 years at the advertising market. Architect ateliers, are leaders in architecture in Slovakia as well.

The student questionnaire contained 50 questions arranged into groups according to characteristics connected to creativity. Data were also analyzed by cluster analysis, hierarchical clustering, using Euclidean and Manhattan distance metrics. Single linkage method was used, where distance between groups is defined as the distance between the closest pair of objects, where only pairs consisting of one object from each group are considered:

$$D(r,s) = \text{Min} \{ d(i,j) \} \quad (1)$$

where object i is in cluster r and object j is cluster s .



Emilia Madudova

Ph.D. in cross-sectoral economics, Ph.D thesis was dedicated to value chain management. Basic education is Economics of postal and telecommunication operation. 10-years experienced in teaching of microeconomics, financial-economic analysis and cross-cultural management (lectures and seminars). Took part in scientific research in the field of regional disparities and creative economy.

The research also applies survey research methods to a large systematic random sample, contributing to the generalizability of the research findings. This study takes an integrative approach to qualitative research, applying methods and theory from creative economy, psychology and sociology.

3. CASE STUDY OF UNIVERSITY AND CREATIVE ENVIRONMENT

Creativity, as follows not only from theoretical approaches but also from this research, is affected by many different factors. Not only education but also leisure activities, place where we grew up, environment where we currently operate, are the key factors influencing creativity.

University environment

The survey confirmed the importance of environmental influence on creativity. As the survey shows, people living in the city have not more opportunities to develop their skills than people living outside the city. The survey also confirmed the importance of education. Respondents who call in on more than one leisure, or out of school activities are a bit more creative than the others. The more are people interested in particular area and acquire wisdom or knowledge, more creative they will be. They have greater insight into the possibilities that are important for the creativity development. The research proves, that a higher level of education (including both “leisure and out school” activities) promote a higher level of creativity. It is still important to acquire wisdom and knowledge but it is important to be interested in other areas to advance one’s creativity as well.

Comparing students at different study levels (see Figure 1), different score can be seen in personal characteristics. According to psychological analysis of creativity and according to literature review, the main personal attributes were evaluated connected to creativity: Flexibility, Intuition, Curiosity, Deep faith in own skills/knowledge, Extensive knowledge, Autoregulation and Perseverance.

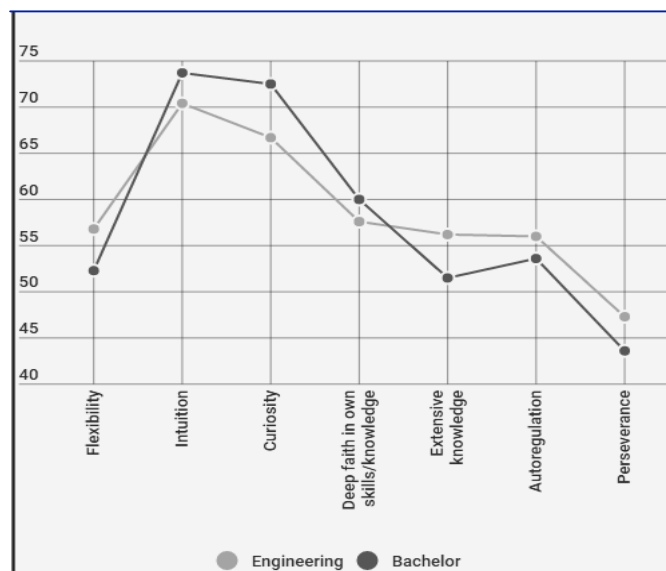


Figure 1: Personal characteristics comparison of groups of the Bachelor (BP) and Master (MP) program students.

Surprisingly, master program students are no longer so curious. Master program students achieved lower score in intuition, Curiosity, Deep faith in own skill/knowledge Not very positive is also declining of Deep faith in own work score of 2,4 % in master programs. This score can also reflect of the education system, where the characteristic of Deep faith in own work should increase, not decrease. Even when bachelors are more curious, have deeper faith in their own skills/knowledge, engineers are wiser and gain higher score in autoregulation.

Cluster analysis – university environment

The main goal of this part was also to find any cluster, context between environment and personal characteristics and reciprocally between characteristics itself by cluster analysis.

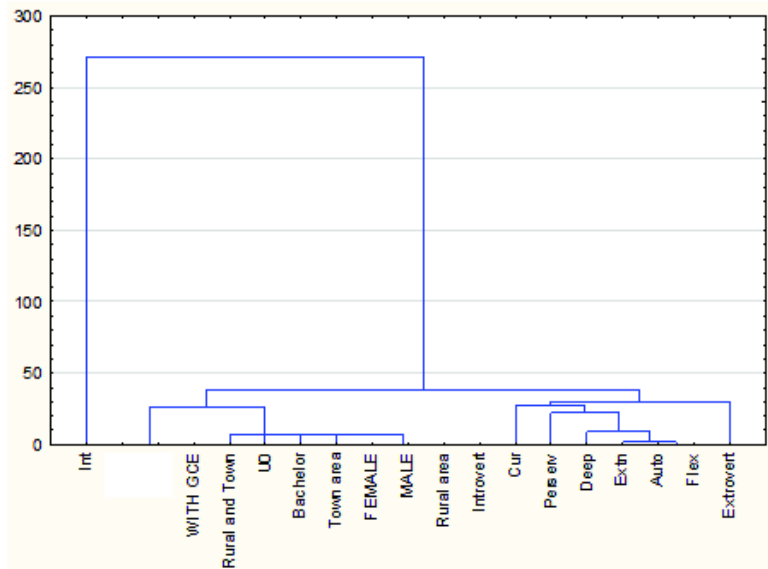


Figure 2: Dendrogram using Euclidean distance metric

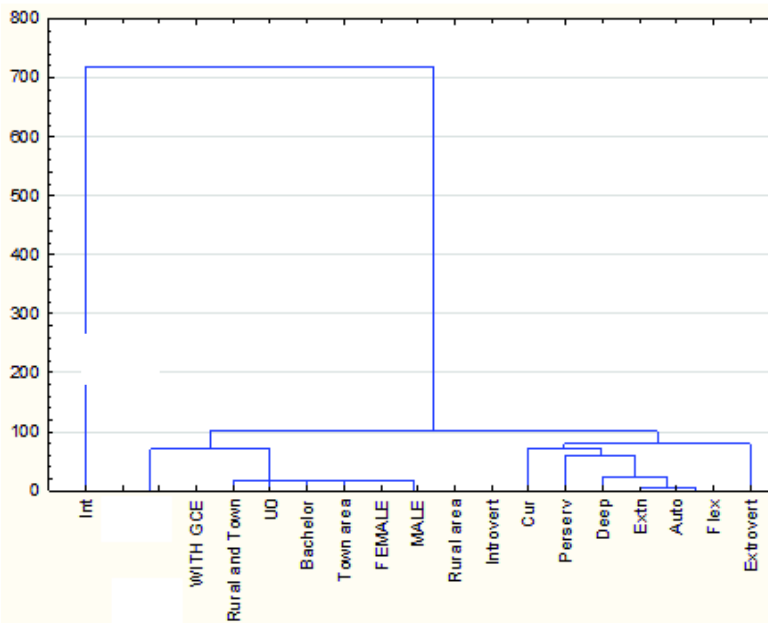


Figure 3: Dendrogram using Manhattan distance metric

As written in chapter 2, the hierarchical clustering using Euclidean and Manhattan distance metrics were used. There are not huge differences between this two metrics in our case. (Figures 2 and 3)

The results surprisingly shows that there is the largest distance in creativity between extroverts and introverts. The statistics states, that introverts are a minority group in society, they form the majority of gifted people.

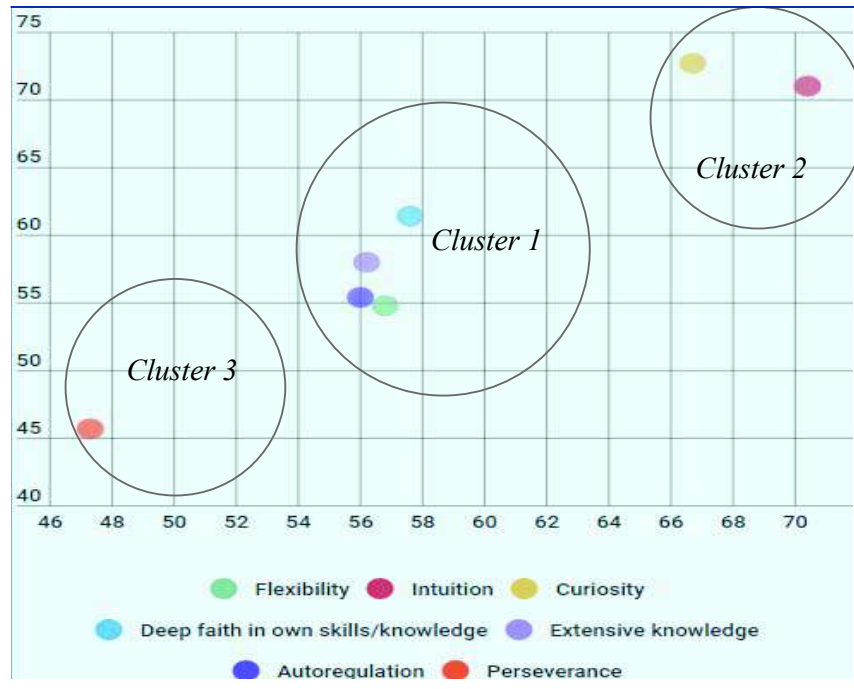


Figure 4: Cluster analysis of personal characteristics

Moreover, it appears that introversion increases with intelligence so that more than 75% of people with an IQ above 160 are introverted. Surprisingly, in our research extroverts gain higher scores of creativity.

Figure 4 presents the results from different perspective. There are three personal characteristic clusters. The largest one, cluster 1 includes deep faith in own skill/knowledge, extensive knowledge, autoregulation and flexibility. Cluster 2 curiosity and intuition and “cluster” 3 only the perseverance.

Creative environment

As the survey showed, some owners of the architectural studios as well as advertising agencies had graduated in completely different study program in which they currently operate. 70 % of respondents graduated in more than one different study programs. For many owners was not a problem to graduate at different universities. The survey showed that owner’s education related to their profession is beneficial to make the business, the education made them professionals in the field of advertising and architecture, however, additional education in other fields is beneficial and needed for making creative ideas and thoughts.

Before setting up own business, the respondents did not operate in the field of advertising or architecture. The previous sphere of business varied as well. Most advertising agencies and architecture studios was set up for the reason to cover the free market space. Some other reasons for setting up own business were: meeting new interesting people, multiplicity of tasks or abolition of previous working position and looking for new job in another sector.

The survey shows, that there are two positions of creative employees: first, individuals able to artistic expressions, secondly individuals who use creativity as managing tool of the company activities. All respondents regard creativity as a firm success factor. For example, architects not only give to architectural works rendering but also the “soul”. For the architects is typical to bring pleasant feelings to their work, in view of the fact, that they have (or are said to be able) developed sense of orientation in space. In such conditions, firm intellectual capital is characterized by 90 % of the results (projects) of their work is based on their talent and inseparable part of their work is to develop their talent.

4. CONCLUSION AND DISCUSSION

The experts opinions on the precise definition of the creativity and the creative process differs (see figure 6). Individual authors do not have the same opinion what the exact definition of the creativity is.

Author	Interpretation
E.P. Torrance 1962, MacKinnon 1961	Creativity is a <i>process</i>
Maslow 1963	Creativity is a universal <i>characteristic</i>
J.P. Guilford	Creativity is a <i>sign of intelligence</i>
Getzels and Jackson 1962	Creativity is a <i>mental ability</i>
Csikszetmihalyi 's (2006)	Creativity is a sum of interactions

Figure 6: Experts opinions on the precise definition of creativity

D. Child states: The truth is that we know little about what makes a person creative and even less about the determinants of creativity. If man did not have the ability to form and create, there would be no social progress, only the reproduction of the current situation [12].

STUDENTS	FIRM PRACTICE	DISCREPANCY
Extrovert +Intuition +Curiosity +Deep faith in own skill/knowledge -Extensive knowledge -Autoregulation -Perseverance	Extrovert/Introvert Curiosity Deep faith in own work Talent Intuition Tacit knowledge	Tacit knowledge Flexibility Intuition Emotional Intelligence
<ul style="list-style-type: none"> • Education can on the one hand increase the creativity, but suppress on the other. • Creative people are interested in different things and areas, have a lot of leisure activities and do study a lot. 		

Fig. 7: Discrepancy between preparation for practice and firm practice

The survey confirmed a high degree of creativity, creative ideas, creative thinking in interviewed firms. Employees of these firms benefits from the creative ideas from various sources. Interestingly, with creative ideas come these mainly in their free time. It is also interesting confirmation interlacing creative and knowledge economy. Besides necessity of having creative ideas is also knowledge important. To be only educated, or only trained or only creative in the field of creative industry is not enough. The combination of interlacing creativity and education is in these creative industries necessary and very important.

Education at the technical study programs is based on academic knowledge. However, there are sectors and industries where creativity is more important than knowledge or at least important than knowledge. The research confirmed the demand from employers for creative employees, resp. demand for “creative abilities”. Not very positive fact remains, that master study program students reached lower levels of intuition, curiosity and especially deep faith in their own skills/knowledge compared to bachelor study program students.

As the survey showed, the majority of respondent, the owners of advertising agencies and architectural studios graduated at several universities and different study programs. All these need creative employees, who would be able think and act creatively. The survey has also brought new findings about the cohesion of man intelligence and creativity, resp. necessity to learn how to act and think creatively, which till now have not been infused into the education system adequately. Figure 7 briefly describes the main finding from this research. We can generalize, that education can promote creativity and creative thinking. As figure 7 shows, the most important is to dispose of the tacit knowledge. In this meaning, the tacit knowledge is the part of the end of the pyramid shown in figure 8. The figure presents the knowledge creation flow from the information to the knowledge, when one can use and disseminate the knowledge.

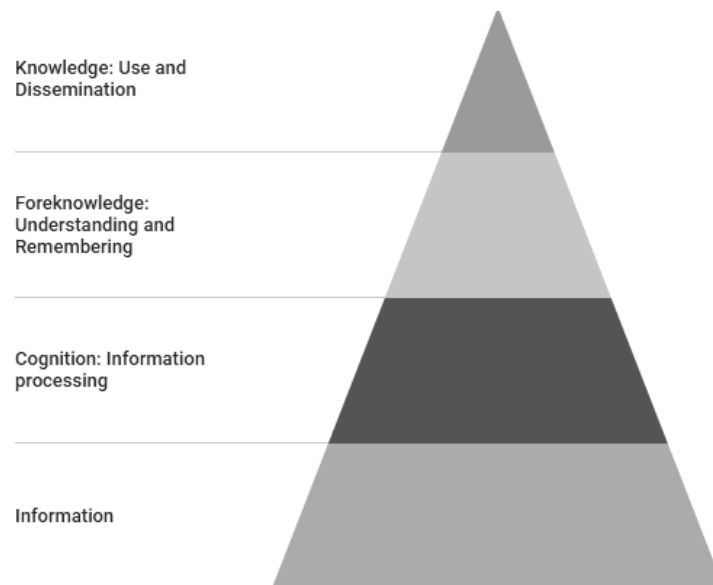


Figure 8: The knowledge creation

To educate creative people will be one of the key competitive advantage, because mainly the ability to create new knowledge is often at the heart of the organization's competitive

advantage.

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