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THE FACTOR OF CREATIVITY AS THE PREDICTOR OF INNOVATIVE ACTIVITY OF INFOGRAPHIC DESIGNERS

This article is devoted to the topic of correlation of creativity indicators of a graphic designer and the prospects for innovativeness of the result of his applied work, which is relevant in the world scientific community. The concepts of creativity and innovation are trending topics of scientific interdisciplinary research; today it has been proven that high creative potential is of practical importance not only in professional areas where it is necessary to show artistic inclinations, but also in all spheres of human life. Creative potential is a fluid indicator of a personality, which depends on a complex of factors, it is the development of this potential that increases the likelihood of a designer creating a fundamentally new, pro-social product. To date, the level of creativity can be measured objectively only conditionally, which makes it difficult to monitor this phenomenon in the framework of scientific experiments. During the course of this study, multiple options were identified that can synergistically interact and positively affect the expansion of the creative possibilities of the individual. An important fact remains that in the development of creativity, it is also necessary to pay attention to its ethical side, since it has both a creative pole and a destructive one. The result of this scientific work is to identify the need to create structural guidelines for the realization of creative potential among the contingent of graphic designers, who specialize in infographics, since innovations in infographic design are necessary not only to achieve the artistic and imaginative attractiveness of infographic material, but also to increase the effectiveness of the product as a tool of visual communications within the framework of a broad socio-cultural education of the population regarding topical global problems of society.

Key words: *creativity, innovation, infographics, infographic design, visual communication.*

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ФАКТОР КРЕАТИВНОСТІ ЯК ПРЕДИКТОР ІННОВАЦІЙНОЇ ДІЯЛЬНОСТІ ДИЗАЙНЕРІВ ІНФОГРАФІКИ

Ця стаття присвячена актуальній у світовому науковому співтоваристві темі кореляції показників креативності графічного дизайнера та перспектив інновативності результату його прикладних робіт. Концепції креативності та інновативності – це трендові теми наукових міждисциплінарних досліджень, на сьогоднішній день доведено, що високий креативний потенціал має аплікаційне значення не лише у професійних сферах, де необхідно виявити мистецькі задатки, а й у всіх сферах людського життя. Креативний потенціал – це флюїдний показник особистості, що залежить від комплексу факторів, саме розвиток даного потенціалу підвищує ймовірність створення дизайнером нового, просоціального продукту. На сьогоднішній день об'єктивним способом рівень креативності можна виміряти лише умовно, що ускладнює моніторинг цього феномену в рамках наукових експериментів. Під час проведення даного дослідження було виявлено множинні опції, що можуть синергетично позитивно взаємодіяти та впливати на розширення креативних можливостей індивідуума. Важливим залишається факт того, що при розвитку креативності необхідно приділяти увагу так само її етичній стороні, оскільки вона має як творчий полюс, так і руйнуючий полюс. Результатом проведення даної наукової роботи є виявлення необхідності створення структурних методичних рекомендацій для реалізації креативного потенціалу серед контингенту графічних дизайнерів-інфографіків, оскільки інновації в інфографічному дизайні необхідні не лише для досягнення художньо-образної привабливості інфографічного матеріалу, а й для підвищення ефективності продукту як інструменту візуальних комунікацій у рамках широкого соціо-культурного просвітництва населення щодо актуальних глобальних проблем суспільства.

Ключові слова: *креативність, інновація, інфографіка, інфографічний дизайн, візуальні комунікації.*

The problem statement. The purposeful professional activity of graphic designers who specialize in creating infographics can have a high degree of probability of achieving an innovative result. It is known that the innovation is preceded by the disclosure of personal creative potential. The study of the relationship between creativity and innovation is relevant and actual for perspective methodical recommendations of boosting the innovative worth of infographic products in the future.

Recent research and publication analysis. In this scientific study, the phenomena of creativity and innovation are closely intertwined, the basis of which is the study of these conceptual structures both separately and in symbiosis. The review scientific papers that consider the phenomenon of innovation and innovative activity in a thoughtful and constructive way include: S. Kline, N. Rosenberg (2010), P. Druker (1998), R. Bishop (2016). Innovation from the perspective of the decision-making process was studied by S. Engelberg (2021). The psychology of design thinking is explored by R. Razzouk (2012) in his article. The basics of creativity, its etymology, aspects of dynamics in the process of human development, as well as exogenous and endogenous factors that affect the parameter of creativity, are outlined by P. Lloyd, D. Jones (2013), A. Mickunas (2011), S. Kyaga et al. (2011), J. Morris (2017), G. David, T. Stjerne (2013), D. Zabelina et al. (2016), N. Andreasen et al. (2012), M. Bishop, M. Al-Rifaie (2016), C. Palmer et al. (2015), S. Acharya et al. (2019), G. Cseh et al. (2015), NACCCE (1999), I. Wenfu et al. (2014), F. Barron, D. Harrington (2003), M. Benedek et al. (2017). The knowledge about the relationship between the level of creative opportunities and potential innovativeness is presented in scientific articles by P. Desmet, M. Saaksjarvi (2016), J. Alves et al. (2017), D. Chasanidou (2016), R. Eisler et al. (2016), N. Andreasen (2011), A. Flaherty (2005).

Purpose of the article.

The main part of the article. In the modern interpretation, the concept of innovation is understood as “a fundamentally new idea, a product of creative thinking, new fantasies that takes the form of an organization or method”. In various scientific fields, experts consider innovation as an opportunity to apply more progressive and perfect solutions, which, in turn, meet new requirements and needs that have not been formulated at the time or are already a real need of the market (Kline, Rosenberg, 2010: 173-203).

Such innovations are implemented by introducing more efficient products, services, technologies, or business models that are accessible to society, markets, and government.

An innovative result is something original, authentic, new, which is closely related to the invention, but it is not, since the inclusion of the practical implementation of the invented product is a more common characteristic of the innovation. It should be noted that not all innovations require an invention. The manifestation of innovation is the characteristic of the design process, while the task or problem to be solved is scientific, technical or, in the case of design activities, additionally artistic in nature (Bishop, 2016).

Today, there are several sources of innovation. An innovative outcome can follow the purposeful cognitive efforts of different agents, either by chance or as a result of a significant failure in the system. P. Drucker argued that the common resources of innovation are diffuse changes in the structure of the industry, in the market structure, in demography at the micro and macro levels, as human perception, mood and concept, in the amount of scientific knowledge available at a specific moment in time (Drucker, 1998: 149-157).

There is an opinion of the scientist S. Engelberg, who described three minimum conditions necessary for the emergence of innovations: a recognized need, competent people with appropriate technologies and financial support (Engelberg, 2021: 1-6). The author of this scientific article considers it appropriate to include in this list additionally the factor of creativity of subjects who practice innovative activity.

The parameters of teaching design in higher education are changing over time. Design is no longer based solely on industry, but is seen as an approach, an attitude, a way of thinking that can make a significant contribution to all programs in the university system. Ensuring the true functioning of this mechanism is a complex task based on training. One of the most urgent issues of teaching is the goal of making truly creative thinking in solving problems common among pupils and students. In recent years, the ontology underlying design courses around the world has been revised many times, it leads to the introduction of approaches in project thinking and practical activity that take into account the larger-scale consequences of design activity for the environment and society. Moreover, in addition to meeting the requirements of sustainable design, a transition to a designer way of thinking was made, which in turn effectively contributes to the reduction of convergent economic theory (Razzouk, Shoute, 2012: 330-348).

The result was a radicalization of the content presented at the project level, opening up the range from the development of commercial and non-commercial products to the level of thinking of service

and product support systems, projects on prospective socially centered engineering in the application of the policy of design activity included in the training. From the point of view of learning, students are now required to have deeper levels of understanding and interpretation of the drives of their decisions, which includes the intention to direct their projects beyond the boundaries of traditional segmental practice (Lloyd, Jones, 2013: 247-263).

Achieving this goal requires a systematic approach to thinking, the learning process, and evaluating results. The main issue is the factor that informs a holistic, complex and multi-level approach to identifying and solving problems, such as the task of promoting the assimilation of a model of qualitatively creative thinking among students. Creativity is possible in all areas of human activity, including art, science, professional activity, play, and other areas of life. Every person has creativity and the ability to be creative, everyone reveals them individually. When people discover their creative side, it has a huge impact on their self-image and overall personal achievement (Mickunas, 2011: 7-16).

Creativity is not just a matter of an arbitrary line of movement and chaos. Serious creative achievements are based on knowledge, control of material and goal setting of ideas. Creative education provides a balance between learning knowledge, skills and encouraging innovation. It is important to say that the development of creativity is directly related to cultural education. We live in times of rapid cultural changes and growing cultural diversity, so we should understand and be tolerant of different cultural values and traditions, including the fact that the engine of cultural modifications is the ability to think creatively and to act (Kyaga et al., 2011: 373-379).

Creativity, with all its positive and useful properties, must have an ethical framework. From an unbiased point of view, creativity has no boundaries, so it is important to consider some “dark” aspects of creativity and the role of ethics in informed and responsible design practice. The intention is to study the future prospects on the non-constructive side of creativity in recognition of its naturalness, which is a condition for the reflective use of knowledge by people, to offer the value of perceived “good and evil”, which is achieved through creativity and is in balance. From this follows the conclusion that the understanding that different worldviews and abuse of socio-economic and technological opportunities can disrupt the balance of benefit and harm in the process of creative activity, which will create the need to correct the situation by stopping or redirecting the practice (Morris, 2017).

It is believed that the level of creativity is partially physiologically determined, to date, some correlations between the structure of the brain and the degree of creative potential have been found. The brains of creative individuals tend to show increased gray matter, especially in the posterior cingulate gyrus, an area associated with the process of awareness. Increased gray matter volume is also associated with increased intelligence (David, Stjerne, 2013).

The neurotransmitter serotonin increases the function of communication between cells. Creative people, as a rule, have an increased level of serotonin, which can explain their ability to generate practically endless associations.

The co-called corpus callosum works as a connection between two opposite parts of the brain, its reduced size is usually found in creative individuals, which means reduced connectivity between both sides of the brain. It can be said that the corpus callosum acts as a narrow bridge between two areas, each hemisphere of the brain, thus it can develop thoughts and ideas more comprehensively without excessive interference from the other hemisphere, this property is called advanced hemispheric specialization. However, there are moments when the brain “allows” impulses to flow through the corpus callosum between two areas of the brain, with the synchronized work of the hemispheres at the moment of connection, the so-called “aha” moment (insight) occurs, which is part of the innovative stage of creativity (Palmer et al., 2015: 1-20).

In order to fully understand how creativity affects large-scale productive transformations and what its character is in the present and future contexts, it is important to approach the phenomenon of creativity from a broader historical and interdisciplinary perspective. In the psychology of creativity, there has been a movement towards shortening the traditional concept of creativity (emphasizing novelty, utility and value). For a complete picture, the definition of creativity should be expanded in a number of critical relationships and considered as an interdependent and interconnected phenomenon. It is also appropriate to focus attention on the hidden subtexts of gender that underlie how creativity has been socially constructed. A contextual approach to creativity should also be proposed, which requires taking into account both its individual and social aspects, their relationship with the phenomenon that is called a partnership, not a dominant social model (Acharya et al., 2019: 3631-3640).

In recent years, a more complex picture of the phenomenon of creativity has begun to emerge, which transforms many existing assumptions about

creativity. Scientific studies of gender differences in the perspective of creativity have not confirmed the formed stereotype that men are more creative than women. Modern studies demonstrate the absence of significant differences in creativity indicators among women and men when conducting creative tests. Given this fact, the question arises why women's creative potential has not been recognized, which suggests biased opinions in connection with gender stereotyping (Cseh et al., 2019: 281-291).

The level of development of the creative vector in a global sense affects life success. In 1994, a scientific discussion began about how the concept of strategic planning was based on some opposition: the combination of strategy development is a synthetic and creative process, it is complex, holistic and creative, and planning is a more analytical and rational process, a conscious division of tasks and actions (NACCCE, 2019).

With this view on the concept of strategic planning, it became clear that many organizations need creativity and creative methods, and not only in the process of strategy development.

The other side of the coin is the lack of a guarantee from the side of developed creativity that the individual will do well in a strategic sense, since the factor of additional analysis and rational thinking should also be taken into account.

Creativity is a topic of great importance, which poses great challenges to scientists. The study of creativity from a scientific perspective, as opposed to an aesthetic one, raises a number of questions: how creativity can be defined, whether scientists should present it as a unitary construct, or whether it should be assumed that there is multiple creativity (Wenfu et al., 2014: 191-198).

Scientific interest in the study of the creativity factor is explained by the need for a perspective understanding of human potential and its qualities in relation to the positive aspects of personality. This indicator of creativity is an important component in ensuring individual well-being, both in personal and professional achievements, and also creativity should be considered as a significant contribution that it can add to the well-being of all mankind. The above reasons make creativity an increasingly valuable resource and characteristic perceived as a valuable source for individual and social progress (Zabelina et al., 2016).

Creativity should be understood as a multidimensional construct, which includes cognitive parameters, personal variables, environment, educational factors, as well as sociocultural aspects. These indicators interact with each other according to

personalized types of thinking and creative styles, so they can be detected and expressed in multiple scientific ways. The phenomenon of creativity is studied using different approaches, the objects of creativity can be a person, a process, a product, the environment or their interaction, so creative potential can be identified in several ways (Barron, Harrington, 2003: 239-276). The scientific study of human creativity includes both cognitive value and personality variables, cognitive aspects that are involved in the creative process, they are mainly related to various thinking skills (such as speed, flexibility, thoughtfulness, originality). Personal variables include curiosity, tolerance for the ideas of others, independence, imagination, motivation, persistence, and similar aspects. There are many different options and ways for a person to manifest his creative potential (Andreasen, Ramchandran, 2012: 49-54).

According to the interpretation from the humanistic perspective, a creative personality has the consciousness and ability to overcome the crisis in transformative ways. From this follows the conclusion that a creative individual is in the process of achieving self-realization and developing characteristics related to mental health (Benedek et al., 2017: 128-134). Creativity involves the interaction of a motivational vector with a specific field of knowledge, that is, people who have and operate creative readiness function creatively due to internal motivation, which is a key component affecting the ability to express personal talents. This procedural state is described in the scientific literature as "flow", a period of intense concentration and maximum involvement during the performance of a highly motivating task. The resulting products of creativity can be concrete, tangible, or intangible, such as learning or developing new experiences (Bishop, al-Rifaie, 2016: 1-6).

The main criteria for evaluating such products are novelty, method of solution and style, where novelty examines the originality of the product's contribution to the field, the aspect of the solution describes the productivity of solving the problem, the style is related to the development or the result of increasing the attractiveness of the product (Desmet, Saaksjarvi, 2016: 1-17).

Some scholars emphasize the influence of the environment on which productivity depends to some extent, stimulating or inhibiting creative expression. The importance of education and training is confirmed in numerous studies: parents and teachers play a certain role in the degree of disclosure of creative gifts and talents. The cultural context of creative expression, which requires not only the originality and relevance of tasks, but also

cultural values, should be considered separately. In the globalized world, innovations are evaluated in order of individual characteristics, innovative activity represents a concept of interdisciplinary interest. The term “innovation”, of course, is always associated with the introduction, implementation or development of an idea, product or service for use in society (Alves et al., 2014: 27-34).

Innovation involves the transformation or application of a concept into something that can have commercial value or can be used by a wide variety of people, it is seen as a phenomenon related to social impact, while innovation is optionally related to technological discovery. Among countries interested in innovative results, there is an increasing tendency to solve this task within the framework of a systemic approach to solving complex problems, rather than individual specific cases, since this modernization includes many variables (Chasanidou et al., 2014: 27-30).

There are two main areas that will be the focus of attention in the scientific world in the long term: creative and innovative thinking (including creative thinking, critical thinking, reflective thinking and decision-making). In connection with the recognition of creativity and innovation as key competencies for development, there is a need for relevant scientific research (Eisler et al., 2016).

There is a direct connection of creative potential as a predictor of innovative results. Studies of the correlation of creativity and innovation are of interest in the scientific world due to the importance of understanding these concepts and their possible interactions.

Although the study of creativity goes back to the origins of psychology, the application of psychological theories in understanding and explaining the relationship between creative readiness and innovation is relatively recent. Until recently, these two concepts were studied mainly separately. For this reason, the gap caused by research independence between the two concepts is only beginning to be explored. Overcoming a certain threshold of creativity is necessary for the generation of innovations, since creative efforts can give an advantage from exceptional originality, while innovative activity requires a certain originality and novelty of a high level, as the most important factor of efficiency and social utility (Andreasen, 2011: 42-53).

In various scientific works, creativity and innovation are considered as differentiated characteristics, as complementary phenomena and as synonyms. In the synonymous concept of creativity and innovation, scientists do not distinguish between

two stages of innovation: the stage of creativity as the generation of new ideas and the stage of implementation, which consists in the successful implementation of creative ideas into reality. In this model, creativity refers to the first phase of the innovation process and is considered as a sub-process of innovation (Flaherty, 2005: 147-153).

A differentiated approach to creativity and innovation is connected with the recognition that the creative factor is defined as the most important determinant of innovations, which is one of their sources of innovative results. That is, the difference between the two constructs is considered to be the fact that innovations are particularly related to the results of the process, which is tantamount to the implementation of the idea in practice in the context. The concept of the relationship between creativity and innovation appears to be the most consistent. In this model, innovation consists of two stages: the stage of a creative act as the generation of new ideas and the stage of implementation, a sequence of creative ideas (Ellamil et al., 2011: 1783-1794).

Both creativity and innovation require a break with traditional thinking, imply both divergence and convergence with the collective picture of the world, the connection between these two concepts cannot be considered simple and linear. It should also be noted that both creativity and innovation are historically complex phenomena that are subject to change under the influence of countless contextual and social factors. In the scientific world, it is accepted that the individual level of creativity of an individual depends on his intelligence, that is, the better developed cognitive abilities in a specific case, the higher the indicators of creative capabilities. It has been proven that intelligence indicators are dynamic during life, that mental abilities can be developed. Including, it is important to take into account that the structure of the human brain, no matter how genetically determined it is, is modified over a prolonged period of time, for example, the volume of gray matter changes during pregnancy, under the influence of long-term alcohol consumption, etc. (Haffeden, 2004).

The thinking of an average person is limited by cognitive, behavioral templates and patterns of perception, therefore, his potential creative output is also limited and is unlikely to reach the level of innovation.

In recent decades, scientists have been busy developing methods of increasing creativity, ancient practices of entering into favorable states of mind for the generation of fundamentally new ideas are also known, but these methods are mostly considered in individual cases, the possibility of developing

programs in the future in which similar methods will be used in combination exercises and practical techniques to maximize the objective probability of increasing the creative potential of designers of a wide profile in order to increase the potential of the possibilities of implementing innovative results as solutions to the tasks set in reality.

Practices of going beyond the limits of thinking options that limit the image of thought, support functional fixedness, should positively affect the factor of creativity, and, as a result, the potential of innovation. Here, the author of this scientific article means going to the level of unconventional thinking, the so-called “outside-the-box”.

The author of this scientific article believes that the adoption of a specific creative task as a game activity, and not a professional necessity for infographic designers, will lead to a qualitative improvement of the creative product, and will also serve as a protector against burnout at work or during training. Therefore, here appears the need to develop and adapt a motivational system for people who are professionally engaged in creativity, which will differ from the classical method of incentives and punishments

An urgent task in the world's leading higher education institutions is the development and application of special learning styles designed to significantly reveal the creative potential of infographic designers.

Conclusions. Considering that the creative aspects of the personality are correlated with openness to

new experiences and curiosity, cultural tolerance, comprehensive development of the personality, the author of this scientific article emphasizes the need for the future development of a methodical compilation of recommendations for the development of creative potential for infographic designers, which will contribute to the discovery of new concepts in professional creativity, as similar characteristic psychological qualities can be deliberately developed in an individual over time by establishing certain habits of action.

Another window of opportunity opens to create the essence of optimized combined learning styles for metaskills that will be needed by infographic specialists in the future, having established which design students will learn to correctly formulate a problem, will have the skills of a creative approach to its solution and the implementation of inventions in a comfortable environment for the creative process, will learn to work with multidimensional arrays of information and acquire the skill of “learning to learn”, which is certainly necessary for successful design practice.

In general, the factor of creativity in the field of infographic design can be called a multifaceted topic for extended scientific research, there is a high probability that deepening the study of this topic will lead to the discovery of new facets of this phenomenon, the developments can be usefully applied not only in academic or professional design environment, but also, in general, in ordinary life.

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