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TERMINOLOGICAL TOOLKIT FOR STUDYING THE CONCEPTS OF “INNOVATION” AND “INNOVATIVE ACTIVITY”

The article provides an overview of the interpretation of the terms “innovation” and “innovative activity” in the works of foreign scientists. There is a wide range of definitions of the concept of “innovation” in foreign scientific discourse. The author pays attention to the concepts of “creativity”, “novelty”, “implementation” and “entrepreneurship” to understand the essence of the concept of “innovation”. The article reveals that the term “innovative creativity” means the production of something useful and new by a group of people working together in a complex social system. It also presents that higher education establishments can be the main centers of innovations and innovation activities. If in higher education establishments creativity of the individual is stimulated in the process of interaction, new products and processes can be created, a creative product or process can be implemented, then such institutions are innovative ones. However, the innovative activities of higher education establishments, which can benefit society, are not considered exclusively within the financial aspect. Besides, innovation is a product to be implemented, which includes diversity, intrinsic motivation, and autonomy.

It is worth noting that there are many classifications of innovations in the foreign scientific and pedagogical literature, which are presented in the study. The author points out that innovations can be in the form of developing new products; the use of new production methods; the opening of new trading places; creation of new forms of organizations; discovery of new sources of raw materials (according to J. Schumpeter); presented in the form of five generations (according to L. Cagnazzo, et al.), etc. In addition, in the works of foreign researchers innovative activity is interpreted according to the definition of research and development (R & D). The article states that each establishment must have its own definition of innovation, which corresponds to its mission and vision. Moreover, it emphasizes that it is necessary to take into account many aspects when formulating a definition.

As for prospects of further researches, they deal with the coverage of innovative activities of higher medical education establishments in Ukraine and the USA in the XXI century.

Key words: *innovation, innovative activity, classification of innovations, creativity, novelty, implementation, entrepreneurship.*

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ТЕРМІНОЛОГІЧНИЙ ІНСТРУМЕНТАРІЙ ДОСЛІДЖЕННЯ ПОНЯТЬ «ІННОВАЦІЯ» ТА «ІННОВАЦІЙНА ДІЯЛЬНІСТЬ»

У статті представлено огляд тлумачення термінів «інновація» й «інноваційна діяльність» у працях закордонних учених. Встановлено, що в закордонному науковому дискурсі існує широке коло дефініцій поняття «інновація». Для усвідомлення сутності поняття «інновація» звернуто увагу на концепти «креативність», «новизна», «імплементация» та «підприємництво». Розглянуто термін «інноваційна креативність», що вказує на продукування чогось корисного й нового групою людей, які співпрацюють у складній соціальній системі. Встановлено, що головним осередком інновацій та інноваційної діяльності є заклади вищої освіти. Якщо в закладах вищої освіти творчість особистості стимулюється у процесі взаємодії, можуть бути створені нові продукти та процеси, творчий продукт або процес може бути імплементований, то такі інституції є інноваційними. Проте інноваційна діяльність закладів вищої освіти, що може принести користь суспільству, не розглядається суто в межах фінансового аспекту. Крім того, інновації є продуктом, що підлягає імплементации, до чинників якої належать різноманітність, внутрішня мотивація й автономія.

Варто зазначити, що в закордонній науково-педагогічній літературі існують класифікації інновацій, які подані в дослідженні. З'ясовано, що інновації можуть бути у вигляді виробництва нових продуктів; використання

нових методів виробництва; відкриття нових торговельних місць; створення нових форм організацій; відкриття нових джерел сировини (за Дж. Шумпетером); представлені у вигляді п'яти поколінь (за Л. Кагнаццо й іншими) тощо. Зауважено, що перші покоління інновацій (лінійні інноваційні моделі) не лише не зникли, але й значно просунулися вперед. Констатовано, що інноваційна діяльність у працях закордонних дослідників трактується відповідно до визначення *research and development (R & D)*. Зазначено, що кожна інституція повинна мати власне визначення інновацій, що відповідає її місії та баченню. Водночас підкреслено, що необхідно зважати на низку певних аспектів під час формулювання дефініції.

Перспективами подальших досліджень вважаємо висвітлення інноваційної діяльності закладів вищої медичної освіти України та Сполучених Штатів Америки у XXI столітті.

Ключові слова: інновація, інноваційна діяльність, класифікація інновацій, креативність, новизна, імплементація, підприємництво.

Formulation of the problem. Each study should begin with the terminological toolkit identification, its features in different fields of science and interpretation in different countries. As one phenomenon can have ambiguous interpretation, linguistic and cultural features, etc. Now in modern education, following the needs and requirements of society, attention is focused on finding fundamentally new concepts, forms, methods of teaching and learning, implementation of new products designed to improve the quality of the educational process and life, in particular. Moreover, as P. Gomez-Moreno notes, “technology and science development have significantly affected the way contemporary society perceives the world. From a linguistic point of view, however, the steady growth of scientific research has resulted in a continuous need for the non-expert community to understand the academic discourse – predominantly in English – which pervades the media and the Internet” (Gomez-Moreno, 2019: 118). Therefore, there is an urgent need to consider such concepts as “innovation” and “innovative activity”, which indicate something new in the international scientific space.

Research analysis. The pedagogical investigations of Ukrainian scientists are of value in the study of the outlined problem. In particular, M. Boichenko, S. Vitvytska, O. Zabolotna, I. Zyazyun, G. Klimova, I. Likarchuk, A. Sbruieva, S. Sysoieva, and others cover this issue. However, the general foreign vision of the terms “innovation” and “innovative activity” needs special attention in the domestic pedagogical space.

The purpose of the article is to focus on definitions of the concepts of “innovation” and “innovative activity”, highlighting their features in scientific and educational works of foreign scientists.

The main material. In foreign scientific and educational literature, there is a wide range of definitions of the concept of “innovation”, such as opportunities for developing new products, services or processes (Maier et al., 2016); a process of transforming ideas and the possibility of their implementation in practice; a planned, rational process; an evolution-

ary non-linear and interactive process that requires intensive communication and collaboration between various actors (Aouad, 2010); combining the ability to identify challenges (vision) with the ability to find new solutions (inventions) that benefit both the client/user and society (Bayó, Camps, 2015).

While agreeing with V. Tierney and M. Lanford (Tierney, Lanford, 2016), we note that for a better understanding of the concept of “innovation”, we should analyze other concepts that specify its essence, namely, “creativity”, “novelty”, “implementation” and “entrepreneurship”.

In this context, we mention that some authors use the terms “creativity” and “innovation” as synonyms, while others clearly distinguish them. In particular, A. Maier et al. consider creativity to be the first step to innovation (Maier et al., 2013).

According to T. Amabile (Amabile, 1998), creativity is the result of three qualities – experience, motivation, and figurative thinking – that are collectively possessed by one person. At the same time, the leading characteristic that distinguishes innovation from creativity, researchers note novelty (Godin, 2014; Schumpeter, 2005). As early as 1932, J. Schumpeter in his work “Development” wrote that novelty invested an element of uncertainty in the process of innovation, and only time and retrospective review would help to distinguish a truly innovative product or process from just new. Innovation can initiate a “process of creative destruction” by creating markets for new technologies (such as oil and steel ones) that transform economic sectors and potentially cause them social upheaval (Schumpeter, 2005). The result of such a change could be a monopoly, thanks to which successful innovators could achieve market leadership and benefit. Based on these considerations, institutions should have focused on innovation for competitive survival (Dodgson, Gann, 2010).

The statement does not lose relevance in modern conditions, because today the participation of an establishment in innovation is the key to maintaining an appropriate level of competitiveness, with an emphasis on the implementation of innovations. Lack of imple-

mentation does not allow to evaluate the effectiveness of a creative idea. In this case, if the novelty is subject to evaluation by external forces (Wang, Ahmed, 2004), the implementation process involves internal evaluation by the organization (Crossan, Apaydin, 2010). Usually, an innovative organization is creative. However, an organization that does not have its creative potential can recognize an innovative product or process and implement another organization's invention. In this context, L. McLean argues that a creative organization must also be innovative, because "many ingenious ideas will never see the light of day. Its potential needs to be unleashed to bring the idea from concept to market" (McLean, 2005). The author clearly distinguishes between an invention (a product that is the result of intellectual creativity) and innovation (a product that is subject to a specific implementation process initiated by the organization) (McLean, 2005).

R. Sternberg adds another aspect of creativity – usefulness, which together with novelty is a component of the final product or service, which are new, original, and useful at the same time (Sternberg, 1999: 143). Creativity results in an idea that can (but does not) have to be implemented (Gandotra, 2010), while innovation is the process that drives an idea from the beginning to the result – new value for the customer (McLean, 2005).

Another aspect that provokes many debates among researchers is the ability of an organization to stimulate the creativity needed for innovation. One group of researchers believes that due to their bureaucratic policies and procedures, organizations are often considered negative forces that suppress the creative spirit of the individual, because, according to researchers, the need to meet the expectations of the organization destroys the internal motivation, imagination, and creativity (Sternberg, Lubart, 1999). In this context, higher education establishments have undeniable advantages, as they are organizations that are loosely connected systems, where a teacher or researcher can work without depressing norms and constant supervision (Weick, 1976).

Another group of researchers emphasizes the existence of "innovative creativity", which is interpreted as "the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system" (Woodman et al., 1993: 293). This definition reflects creativity as the creation of an innovation by a group of individuals, not as the product of an individual working in isolation. After all, there is an indisputable fact that creativity can be enhanced through social interaction, and talent can be developed through socialization (Amabile et al., 1996).

American researchers R. Florida, G. Gates, B. Knudsen, and K. Stolarick think that the university must play a creative role in economic development; they also claim that the creation of talent and the promotion of new ideas and diversity are the leading activities of the university: the role of the university already goes beyond the "engine of innovation". Higher education establishments are not just developers of commercial technologies or founders of startup companies, they are becoming centers of regional development (Florida et al., 2006: 38).

Agreeing with the opinion of these researchers, we note that the well-being of most countries (including the United States) depends in particular on the ability of higher education to be creative. Higher education establishments can be considered innovative under the following conditions:

- the creativity of the individual is stimulated during the process of interaction;
- new products and processes can be created;
- creative product or process can be implemented.

Along with creativity and innovation, a characteristic feature of modern higher education establishments is entrepreneurship, the defining feature of which is the creation of a new enterprise that meets market expectations. In this aspect, we can talk about the commercialization of innovations. Creating innovations with their simultaneous implementation is a unique process that allows people to implement new ideas for the benefit of themselves and others (Yang, 2012: 388).

We should mention that in foreign scientific discourse there are many works devoted to highlighting the relationship between the concepts of "innovation" and "entrepreneurship". For example, researchers emphasize that entrepreneurship is more focused on marketing innovation. Entrepreneurs should not be innovative but focus on business goals, corporate governance, and financial imperatives, considering the potential impact of innovations.

M. Mars and K. Rios-Aguilar argue that "academic entrepreneurship is viewed through the prism of market guidelines" (Mars, Rios-Aguilar, 2010: 452), which distinguish entrepreneurship from innovation, because the latter may cover different product or process-oriented activities for social/cultural impact or financial gain. The main task of entrepreneurship is to make a profit with new or existing ideas.

Accordingly, in the field of higher education, identifying the difference between innovation and entrepreneurship has far-reaching implications for institutional decision-making. Traditionally, entrepreneurship and a willingness to adapt to societal

needs have been necessary features of successful higher education institutions (Kimball, Johnson, 2012). However, business goals do not always contradict the social mission of the university, which involves, above all, the achievement of public welfare and social justice. Therefore, the innovative activities of free economic zones, which can benefit society, are not considered exclusively within the financial aspect.

Thus, innovations can act as “catalysts of entrepreneurial activity” (Mars, Rios-Aguilar, 2010: 454), focused on increasing capital. Entrepreneurial strategies depend on innovations, but innovative thinking is not always motivated or even driven by entrepreneurial goals.

As noted above, innovation is a product to be implemented, so we consider it appropriate to focus on the factors that contribute to this process. Such factors, according to W. Tierney and M. Lanford, include diversity, intrinsic motivation, and autonomy (Tierney, Lanford, 2016).

At the organizational level, a diverse range of professions and opportunities enhances the creative impulses of people, as well as the innovative potential of the group. M. Feldman states that “innovation at the fundamental level is a social process that connects people from different fields with different competencies, different professional vocabulary and unique motives” (Feldman, 2002: 48). Diversity is sometimes viewed in terms of characteristics such as race or gender. According to the analysis of the scientific literature, companies that are guided by the principle of diversity in their personnel policy, in particular, employment in management positions, have a significant financial return. For example, companies that demonstrate gender diversity in corporate leadership have a financial return of 15% more than the industry average at the national level. Companies that profess the principle of ethnic diversity in corporate leadership are 30% more likely to rise above the national median (Hunt et al., 2014). Similarly, companies with a high level of diversity among employees not only show a higher level of innovation than other companies but also increase market share 45% more often and capture a new market 70% more often (Hewlett et al., 2013).

The next factor that contributes to the implementation of innovations is intrinsic motivation. It is indisputable that the main means of motivating employees, including scientific and pedagogical, in higher education, are external, which are divided into material (employee bonuses, fines in the form of reduced bonuses, salary increases, etc.) and intangible ones (the ability to work on an individual schedule, providing career prospects, improving working condi-

tions, employee training, recognition and demonstration of merit, direct expression of gratitude, organization of corporate holidays and trainings, increasing staff involvement, etc.). Researchers (Bénabou, Tirole, 2003; Scotchmer, 2004) consider these types of external motivators as necessary tools to distinguish the exemplary performance of job responsibilities and encouraging desired behavior. However, for innovators, external motivational factors do not play a decisive role, as evidenced by a study conducted by a team of scientists led by T. Amabile at Harvard Business School (Amabile, 1998). The researcher explains that “external motivators cannot make an employee love their job. A monetary reward cannot magically turn a job into an interesting one if he feels the opposite in his soul” (Amabile, 1998). A meta-analysis of motivation by E. Deci, R. Ryan, and R. Koestner also confirms T. Amabile’s argument that “performance-dependent reward can significantly undermine the intrinsic motivation of free choice” (Deci et al., 1999). As a result, higher education establishments should stimulate the internal motivation of researchers, administrators, teachers to create an innovative work environment. Accordingly, the higher education establishment should promote the development of creativity and innovation of the above-mentioned employees by creating conditions for self-determination and giving them greater autonomy. After all, it is an indisputable fact that such stable organizations as higher education establishments have “deep cultural features” (Tellis, 2013) that prevent change or innovation.

Along with intrinsic motivation, autonomy is an important factor in the implementation of innovations. A person who feels competent enough to perform a task, but does not have a sense of independence, will not feel the intrinsic motivation needed to perform the task, and therefore autonomy is necessary for the implementation of innovations in higher education (Ryan, 1982). Researchers working at the university are highly qualified specialists in certain disciplines who can use their knowledge to build the best action plan to achieve the desired result. In the scientific literature on management, the degree of autonomy that a participant in the decision-making process receives is sometimes characterized as a “coordination-autonomy dilemma” (Puranam et al., 2006). However, a production line mentality that requires employees to adhere to certain standards during the working day will not stimulate an innovative climate in higher education. Academic freedom is necessary to preserve autonomy. Researchers need freedom while developing theoretical concepts without fear of censorship or reproach for “wrong” or “unproductive” results.

The next issue that attracts the attention of researchers is the classification of innovations. Thus, in particular, J. Schumpeter identifies the following types of innovation:

- development of new products;
- use of new production methods;
- opening of new trading places;
- creation of new forms of organizations;
- discovery of new sources of raw materials

(Schumpeter, 2005).

Agreeing with G. Hamel, we note that the latter category includes managerial innovations, which in some classifications are defined as a separate type (Hamel, 2006).

In classifying innovations, Italian researchers L. Cagnazzo, P. Taticchi, and M. Botarelli singled out five generations of innovations (see Table 1).

As we can see from Table 1, the phenomenon of innovation is constantly evolving and is now marked by many manifestations, depending on the measurements, frequency, the modality of implementation, and results of innovations. It should be noted that the first generations of innovations (linear innovation models) not only did not disappear but also advanced significantly. However, despite numerous studies on this issue, scientists have not agreed on the definition of “innovation”.

In this context, E. Bayó and X. Camps point out that each company (organization) should have its own definition of innovation, which corresponds to its mission and vision (Bayó, Camps, 2015). It is necessary to take into such aspects in the process of formulating the definition:

1. Innovation is a process and should, therefore, be managed as a process.

2. The process of innovation is completely inseparable from a strategy.

3. The goal of innovation is to provide the market with solutions that are valuable to both customers and the company.

4. Innovation involves risk.

5. Innovation is not simply the involvement of a research or technology department.

6. Innovation (process) ≠ Innovation (result).

7. Innovation ≠ Creativity, research.

8. There are different types and levels of innovation.

9. Innovation is a collaborative process.

10. The degree of innovation is directly proportional to the opportunities for the creation, development, and management of innovative projects (Ceausu et al., 2017: 2395).

Despite the conceptual pluralism in defining the term “innovation”, innovative activity in the works of foreign scientists is interpreted following the generally accepted definition of research and development (R & D).

Conclusions. Thus, in foreign scientific discourse, there is a rather broad interpretation of the concepts of “innovation” and “innovative activity”. The term “innovation” is inextricably linked to the concepts of “creativity”, “novelty”, “implementation” and “entrepreneurship”, which are also debatable.

Higher education establishments are considered to be the main center of innovations and innovative activity. If in higher education establishments the creativity of the individual is stimulated in the process of interaction, new products and processes can be created, a creative product or process can be imple-

Table 1

Generations of innovation (Cagnazzo et al., 2009)

Generation	Characteristic	Strengths	Weaknesses
First generation	– linear; – consistent; – due to the development of technology.	– simple; – radical.	– lack of feedback; – lack of market orientation; – lack of network interaction; – lack of technological tools.
Second generation	– linear; – consistent; – due to market needs.	– simple; – step by step.	– lack of feedback; – lack of technological research; – lack of network interaction; – lack of technological tools.
Third generation	– linear; – consistent; – due to both the development of technology and market needs.	– simple; – step by step and radical; – there is feedback between the phases.	– lack of network interaction; – lack of technological tools.
Fourth generation	– consistent; – parallel sub-activity; – social interaction.	– networking of participants; – parallel phases of development.	– difficulties in determining the level of reliability; – lack of technological tools.
Fifth generation	– parallelism; – social interaction; – strong technological means.	– pervasive; – use of complex technological tools; – networking for innovation development.	– difficulties in determining the level of reliability.

mented, then such institutions are innovative. However, the innovative activities of higher education establishments that can benefit society are not considered exclusively within the financial aspect. Moreover, innovation is a product to be implemented, which includes diversity, intrinsic motivation, and autonomy. It should be noted that in the foreign scientific

and pedagogical literature there are many classifications of innovations. Besides, innovative activity is interpreted according to the definition of research and development (R & D). As for prospects of further researches, they deal with the coverage of innovative activities of higher medical education establishments in Ukraine and the USA in the XXI century.

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