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INNOVATIONS AND COLLABORATIONS IN A MULTIDISCIPLINARY WORLD

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ABSTRACT
As a result of globalization, innovations have become the source of technological and economic development of advanced countries of the world. Modern conditionsof international companies are characterized by a high level of cooperation and coordination and are oriented towards global innovations, which on the one hand is a significant source of technological progress and on the other hand of their profit growth. The prerequisites for innovative development are considered to be: thedevelopment of scientific-research institutes of the appropriate profile, funding sources Search, formation of highly qualified scientific personnel, technological progress of the country, as well as business culture as a source of innovative progress not fully studied. This is motivated by the prevailing opinion that the technological component of innovation is more specific than the cultural one. In the context of the globalization of markets and industries, the study and analysis of multicultural factors of innovation is becoming more and more relevant.

INTRODUCTION

Over the millennia since the appearance of man on planet Earth, all technical achievements taken together have not been enough to significantly accelerate the pace of human life In the eighteenth century, Goethe traveled with almost the same luxury and the samespeed as the apostle Paul at the beginning of the first millennium The technological revolution that began only in the eighteenth century turned the endless hours spent on the road into minutes. And the advent of electricity and the telegraph made it possible to read a record still on paper thousands of miles away. Technological advances have brought the previously distant countries of the earth closertogether. "The first word from across the ocean" - Stefan Zweig

The essence and meaning of innovations

The word "innovation" is synonymous with the introduction of newness or novelty and canbe used interchangeably. Innovation means the process of creation and utilization of innovations in economic systems, as well as the result of this process. It is necessary toemphasize innovation as a process defined as an innovative process. Innovations will be studied by the science of innovation, the subject of which are the sources of innovations, methods of their generation, principles and others. Innovations are considered as new technologies and new products, which are achieved through scientific and technical progress. The specific content of innovation is changes, and the main function of innovative activityis the implementation of these changes.

Examples of innovations:

1. New device (drone, smartphone, ...)
2. Method (a new way of growing crops, a new way of producing products...)
3. Material (new type of ultra-light metal, ...)

What is innovation management?

Innovation management is the management of the processes through which the organization and its personnel conduct innovation activities. Processes by which new devices, methods and materials are created.

Schumpeter formulated five types of changes:

1. Use of new techniques and technology
2. Adoption of products with new properties
3. Use of new raw materials

4. New principles in production organization
5. Creation of a new market

He also formulated the concept of innovation as a change related to the type of new consumer goods, new enterprises and means of transport, the formation of a new organization of enterprises, in order to exploit a new market. Innovations can be divided into technological and institutional. Institutional innovations, inturn, are: new institutions, new procedures for the production of operations in theeconomy, the organization of markets and the interaction of institutions, and new "matrices" of culture. The latter refers to the existing traditions in the organization of the economic life of the society at the given moment, ways of motivating workers and others. According to the fields, institutional innovations are divided into 5 types. These are: 1) organizational, 2) governance, 3) legal, 4) social, 5) ecological. Technological innovations are divided into 2 groups: productive and process. Productive technological innovations are reduced to new types of goods and services thatare created and absorbed by enterprises in production and development. Process technological innovations include new technological processes, that is, new ways of combining production means to increase economic resources and labor productivity. A new technological process often requires the use of new equipment and new materials. It can be said that the realization of product and process innovations happens together, because in order to make a new product, it is often necessary to introduce a new technological process.

We can classify technological innovations:

1. With the quality of economic news
2. With the degree of scientific and technological innovation
3. By life cycle stage
4. With complexity
5. According to the degree of economic novelty, the innovations were:
6. For the entire market for the regional market
7. For individual enterprises

Scientific-technological innovation is characterized by the volume of research that is specifically conducted to create innovation. Innovations of high, medium and low novelty quality are distinguished according to the quality of novelty. How many patented inventions form the basis of the technology to be absorbed can serve as a formal sign. According to the concept of the innovation policy of the state, innovation is the final resultof innovative work, which will be realized on the market as a new or improved product, updated and improved technological process that was used in practice. It should be emphasized that an innovation is considered implemented if it is implemented in the market or in the production process. Innovative activity is based on scientific-technical activity, which is closely related to the creation of scientific-technical knowledge in all fields of science and technology. A scientific problem is a part of scientific and technical directions and represents one of theways of its solution. A scientific topic is a part of a problem, which starts within the framework of a scientific organization. The purpose of the topic is an effective solution toa specific task. It can be divided into stages and sub-stages.

The role of innovation in economic development

Economic development means the transition of the scale of the economy to a qualitativelynew, more perfect state. It is not surprising that it is technological and innovative progressthat gives us the impetus to conduct this process correctly. In today's market economy, it is becoming more and more difficult for enterprises and countries to occupy an important place in the market, because the growing influence of globalization has completely changed the image of the world economy, and therefore, thegoods and services that were novel even a few years ago are not valuable to society. If companies and countries want to establish their place in the market, they have to keep pace with innovative developments.

Innovation has an important role in the economic well-being of countries. It promotes high competitiveness, which helps business and economic development. Statistically, where innovation is developed, the standard of living of society is also high. The latter is one of the factors of economic development. Development, on the other hand, is a multidimensional process that includes the reorganization of both the economy and the social system. It makes a radical change in institutional, social and administrative structures, which leads to changes in publicthinking.

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The Future of Multidisciplinary Research and Education

Progress and innovation are necessary for the education system, but is it alwayssuccessful? On what basis should the reform be developed and how to avoid the expected threats? These issues were studied in 2017 by University of California education researcher Peter Serdyukov. In his research, on the example of the USA, the importance of educational innovation, its integration in colleges and schools is discussed.He asks why innovation does not always have a positive outcome. Recommendations have also been developed based on the research.

> *"Education, which serves human needs, must be focused on the progress and success of society. To achieve these goals, the sophistication and stability of the system is not enough. It must be evolving, fast and adapted to the new challenges of the world, but thisdoes not mean unsystematic. On the contrary, each initiative should be consistent, systematic and measurable (valuable, scalable). Therefore, the team of initiators should consist of school teachers, professors, researchers, administrators and politicians, so thatthe developed theory fits the existing learning/teaching system and ensures the full preparation of the student for life and work. "Innovation is like a mutation, a biological process directed towards the development of an organism" (Hoffman).*

So, innovation is considered to be an instrument of positive changes, but it is not always so," we read in the research abstract.

METHOD

Innovation consists of three steps: idea, implementation, and result. The goal is one - thebest change. An educational initiative may mean new pedagogical theories, methodical approaches, teaching methods, learning resources.

RESULTS AND DISCUSSION

Many educators naively believe that grandiose reforms or new technology will transformthe education system as a whole, but then analyze that neither has a direct impact on either the teacher or the student. In many cases, the changes implemented in this area do not apply to routine issues, the teaching process.

Figure 1 *- Illustration Of The Use Of Technology In Schools*

Innovation in education does not mean its use only in schools and universities. It is important for its effectiveness to be active and ready to change the system for the better.Research conducted in 2013 with the support of UNESCO shows that the reform is only successful if the school, teachers and administration support it and contribute to the implementation of the initiative.

For this, the motivation and energy of the authors of the idea is not enough, they should deserve trust (like teachers in Finland) and their main challenge should be to adapt the reforms to the future generations, but

still the question is asked: what changes do we need and what don't we? And what is an innovation lie? Finnish education specialist Pasi Salhberg, using the example of her country, explains that it is not necessary to test all reforms carried out in the world on oneself. He cites as an example the reforms that are popular in many countries, but Finland refused to acceptthem:

1. Frequent testing provided by the curriculumMinimize the training program
2. Reducing the teaching of innovative strategies
3. Adopting educational ideas from external sources instead of developing local innovationsand finding solutions to problems.

High stakes accountability with politics.

Instead of implementing these reforms, the Finns are going their own way. In recent years,schools have been equipped with modern technology, but their effectiveness is controversial. Education specialist Larry Koban talks about this in his book:

> *"Since 2010, schools have started introducing laptops, interactive whiteboards and other modern technology, but is it working?" After all, millions of dollars were spent for this. Didit change, improve the quality of teaching or make the work process better? These are the questions that plague administrators and politicians, and the answers to them are 'no','no' and 'no', suggesting that technology is not a guarantee of better teaching," he wrote.*

CONCLUSION

Before using technology in the learning/teaching process, we should consider the expected risks, costs and benefits. All technological programs require an appropriate theoretical basis for its use in teaching, which is the result of purposeful, systematic research and aims to increase the effectiveness of teaching in the background of reducingnegative effects. Therefore, innovation is successful when the idea is analyzed in many ways and aims todevelop the student's creativity and critical thinking. In order to succeed, innovative education must become a universal desire and society must take responsibility for it. Otherwise, all efforts will be in vain.

United Nations Development Agenda 2015 the document suggests that "Governments will find it difficult to sustain rising living standards, sustain growing populations, maintainthe health of future generations and protect the environment unless they can find better,cheaper and smarter ways to produce and market goods" (UN, 2012). Against the background of these challenges, science, technology and innovation are given a key role, Strengthening their capabilities is an urgent need. All this is related to long-term investment in science and innovation in a very wide range, including basic research, education, information and communication technologies (EC, 2018). According to John Hardin, executive director of the North Carolina Chamber of Commerce Science, Technology and Innovation Council: "Innovation comes from science, which has systematic knowledge and practical technologies, and an innovative ecosystem is needed to develop the system" (Hardin,2017). In order to create a competitive environment in the global world, to raise productivity andeconomic growth, to improve the quality of life of the population, the development of science, technology and innovation is the highest priority. Some progress is being madein this area. However, the existing problems of the EU norms and approaches in accordance with thesystem the urgent need for modernization is indicated by science, technology and Innovations remain an important challenge for the country.

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