CONCEPTUALIZATION OF THE INFLUENCE OF EDUCATION
CREATIVE MODEL ON INNOVATIVE SOCIETY DEVELOPMENT IN
THE CONDITIONS OF TECHNOLOGICAL REVOLUTION 4.0 AND
GLOBALIZATION 4.0

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Abstract. The relevance of the research topic is that the theme of education is relevant in
the information society, which is called "the society of knowledge", digital society, smart
society (smart society), which requires the formation of an appropriate model of creative
education and creative personality. The purpose of the article is the conceptualization of the
creative model of education as a factor of innovative development of society. Objectives of
the research: to develop a model of creative education of the society of the e-era, where the
algorithms and digital technologies dominate; to reveal the conditions and directions of the
development of the technological revolution 4.0 and globalization 4.0, which distinguishes the
incredible speed during which changes are taking place; to reveal the essence of the creative
process and the consequences of its implementation in the model of creative education. Using
the methodology of system analysis, forecasting and modeling, to explore the
conceptualization of the influence of the creative model of education on the development of
an innovative society in the conditions of technological revolution 4.0 and globalization 4.0.
An analysis of recent research and publications, which launched the solution to this problem.
We rely on the research of O. Bazaluk, V. Bekh, V. Andrushchenko, O. Kivlyuk, R.
Oleksenko, M. Kyrichenko, V. Kremen, V. Melnyk, V. Nikitenko, A. Punchchenko,
D.Sviridenko, S. Terepischiy, in whose works a creative model of the information society was
launched. Among the foreign authors, we highlight the work of such authors as Al-Khalili
Jim, E. Brignolfsson, E. Makafi, K. Kevin, O’Riley Tim, D. Rose, K. Stainer, V. Stargins, V.
Tsekalo, P. Florida, M. Ford and others, who presented the theme of creativity in the
conditions of technological revolution 4.0 and globalization 4.0. The scientific novelty of the
research is the conceptualization of the creative model of education as a factor of innovative
development of society. Results of the research: the conditions of the formation of an
innovative society were found out, based on which the creation of a model of creative
education and creative personality; the definition of creative education and creativity
personality and the need to form a new model of education and personality. Conclusion -
Higher school should equip young people to work in the conditions of the innovation era -
new knowledge, prepare to master the necessary skills and competencies, to be constantly
prepared for the constant updating of knowledge of their profession and obtaining new
demanded skills of digital society, namely, to develop creative competencies, with the
communication, information, digital competencies of the digital era.

Key words: creative model of education, creative personality, technological revolution
4.0, globalization 4.0, innovative society, information society, digital society
in information society, which is called "knowledge society", digital society, smart society (smart community), which requires the development of an appropriate model of creative education and creative personality. Therefore, the emphasis is on the development of knowledge, science, culture, education, know-how, information and computer technologies, and smart technologies. Today Ukraine needs innovative model of education that cultivates innovation and technological development path, that investing in innovative processes and therefore such education to facilitate more effective global index creativity (45 position), Global Innovation Index (64 seats), patent activity (27th place), the index of human development (81st place), index of economic freedom (81st place). The creative model of education allows you to take a fresh look at the development of a creative component in a variety of fields of activity. In the context of the innovation-technological model of development of education, emphasis is placed on the development of science, education, know-how, information technologies, a "new wave" of neo-economics. [5].

**The analysis of the latest research and publications, which initiated the solution of this problem, which is the author based on**

We rely on the research of O. Bazaluk, V. Bekh, V. Andrushchenko, O. Kivlyuk, R. Oleksenko, M. Kyrichenko, V. Kremen, V. Melnyk, V. Nikitenko, A. Punchchenko, D.Sviridenko, S. Terepischiy, in whose works a creative model of the information society was launched. Among the foreign authors, we highlight the works of such authors as Al-Khalili Jim, E. Brignolfsson, E. Makafi, K. Kevin, O 'Riley Tim, D. Rose, K. Stainer, V. Stargins, V. Tsekalo, P. Florida, M. Ford and others, who presented the theme of creativity in the conditions of technological revolution 4.0 and globalization 4.0. [6].

**Selection of previously unsettled parts of the general problem to which this article is devoted.**

Today it is necessary to change the system of education as the center of growth of human (intellectual, social) capital, to organize it according to the principles of creativity and as the highest values of knowledge, and therefore to cultivate the creative environment and creative thinking that forms the collateral capital, which is the central factor of economic growth. [4].

Today it is necessary to position the formation of creative universities as key drivers of science and scientific schools, which are key institutions of the creative economy, the centers of leading research in a number of industries - from software to bio- and nano-technologies, from socio-humanitarian technologies, which are called sources of "breakthrough technologies". Therefore, it is necessary to stimulate the creation of the newest scientific areas, helping to attract young people to advanced creative science projects and advanced technologies [7].
The purpose of the article is the conceptualization of the creative model of education as a factor of innovative development of society.

Formulating the goals of the article:
- To develop a model of the creative education of the e-era society, where the algorithms and digital technologies are dominated;
- To reveal the conditions and directions of the development of the technological revolution 4.0 and globalization 4.0, which distinguishes the incredible speed during which changes are taking place;
- To reveal the essence of creative process and the consequences of its implementation in the model of creative education;

Methodology of research. Using the methodology of system analysis, forecasting and modeling, to explore the conceptualization of the influence of the creative model of education on the development of an innovative society in the conditions of technological revolution 4.0 and globalization 4.0. The concept of a new model of education should be presented as an open system, which is based on the problem of organization, integrity, dynamic interaction [8].

Presentation of the main research material with the foundation of the received scientific results

Innovative way of development requires the "unification" of scientific schools, which are the conditions for mastering the experience of accumulated capital in the society. A simpler and cheaper model is technological, that is, investing in a new process. Japan was developing in this way, having no finances for fundamental science. Japan carefully studied the experience of the whole world, first of all the United States, and developed the production of electronics or automotive. For three years, Japan has been comparable with the United States in the automotive sector. Following Japan, South Korea, and then Taiwan, followed by Taiwan's small Pacific dragons [9]. Education must do all that is necessary to use the creative abilities of young people, involving in sectors of the creative economy, in which the highest value will be productivity, the use of creative potential of the individual, its self-realization and high motivation of work, so that our intelligent young people do not go abroad and their creative abilities did not enrich another's economy [3].

Today, the higher school supports creativity with the help of creative specialties and professions of information and digital society, which requires radically changing the system of education in the direction of training as a center for the growth of human (intellectual) capital, to organize it on the principles of critical thinking and creativity as the highest values of education. [2]. Today, the creative education of the information society includes the definition: information provision of modern development of society; information resources and management; information services in the context of the Internet economy; information services and entrepreneurship; information systems, their technical
Among them, the emergence of a computer and digital solutions as a catalyst for increasing the physical and intellectual capabilities of the digital era and achieving computer well-being through computer technology [11].

We live in an era of e-commerce, where algorithms and digital technologies dominate, in the era of incredible technologies and changes. There are new terms and professions - bit coin, cryptography, blockade, intelligent contracts, cryptoinvestors of cryptomoney, Fintech - a revolution in finance, other insurance, the digital transformation of the insurance market, virtual banking, artificial intelligence and robotics, BIG DATA (large data), which must be controlled by a man. And they are not just foreign terms – they are our real life, which already surrounds us. The world has changed - the generation Z is no longer surprised by these words [1]. The greatest driver was the emergence of the Internet, and then, smart phones, by which technological innovations change the entire labor market; there is a transformation of professions, therefore today it is necessary to adapt to the future of new working conditions. Production is fully automated thanks to the automation and work of robots; new terms of line production and cost-effective production are emerging. According to the latest data there are more than 2 billion smart phones in the world. New achievements in materials, biotechnology, genetics have led to a revolution in medicine [12].

Innovations have already come to our house, stand on the threshold and change our world at an unprecedented speed. Technological revolution 4.0 and globalization 4.0 are distinguished by the speed at which changes take place. The world is changing around us and carries automation, robotics and new business opportunities. Works, automation and artificial intelligence will permanently change the world of trades in the near future. Effectiveness and not the process will become the main measure of labor. We distinguish - talent, creativity and tolerance, creativity and critical thinking, which are the components of the strategic advantages of the individual [11].

Over the past few decades, systematic research on social sciences has substantially expanded creativity across different levels of production and management, which have tried to model the creative process so that workers are creative. Therefore, we can state that the creative process is manifested in our lives at every step. In much intelligence, it is noted that creativity as a cognitive ability differs from other mental functions, which is called "reasonableness," although wisdom is the ability to handle and process a large amount of information.
and it is not synonymous with creativity [12]. As Richard of Florida notes, "Creativity implies the ability to synthesize. Albert Einstein once described his work as "a combination game". The task is to sift data, representations and various materials in order to create new useful combinations [25].

The creative synesthesia should give a completely different result than practical inventions, theory or insights, which can also be used to solve various tasks or to create a highly aesthetic artwork [12]. Creativity requires self-confidence and ability to risk, which requires a combination of lust and extravagance and innate ability. "A person needs a healthy self-esteem for the invention of ideas, for new mistakes, and all this is a shocking critique of others. Violation of generally accepted rules, or even their expansion, requires self-confidence "[13]. Creative work often goes against the accepted patterns of thinking and life itself, because Creativeness is a process of destroying its own image for the sake of the best of Creation. Schumpeter wrote that "the creativity of destruction" transforms the existing industry into a completely new one, because it rebelled against the dictatorship of nature, as "technological creativity is a rebellion" [14].

Creativity is versatile and based on human experience, because creativity is promoted by intelligence, enriched with varied experiences and mind-set different views, which contain many different interests and different knowledge. The big changes of our time, which are expanding more and more often, are due to the explanation of the role of creative education as a defining characteristic of progress and prosperity in times of extraordinary technologies. Creative education has begun to be appreciated, and for the sake of support and encouragement, the whole system has spread. As more and more people are inclined to recognize the decisive role of education, the emergence of new technologies, and new industries of new wealth [15].

Creative education involves expressive mental activity, activity and patterns of behavior, which should be cultivated both at the individual and at the social level. Creative ethos penetrates everywhere - in jobs, values, communities, and transforms our vision as ourselves, as well as economic and political actors, and thus forms the core of our identities [16]. Creative education reflects creativity and at the same time enhances its role, as this requires an environment that supports creativity through social, economic and cultural stimuli [9, p. 38]. That is why creative education forms a new working environment, new lifestyles, new organizations that are critical to the production of technological creativity and commercial innovation [17]. Therefore, creativity is a victory that contributes to the fulfillment of many functions of the new creative economic system [18].

In our opinion, creativity differs from what can be called "intelligence". Creativity as a cognitive ability and differs from other mental functions, and especially
from a set of other abilities, which is collectively called "intelligence". Although reasonableness is the ability to cope with a large amount of information and to process it - it prefers creative potential, it is not synonymous with creativity [16]. Creativity involves the ability to synthesize, "sift data" to create new stylized combinations, so creative synthesis can give a completely different result. Therefore, creative education is a source of economic value. The creative ability of man is the most important intellectual property that replaced land, labor and capital as the most valuable economic resource [19].

It is no coincidence P. Drucker declared the emergence of a "new knowledge economy", based on information, knowledge, which are the tools of creativity. Innovations embodied in the forms of technological artifacts are also products of creativity. Today, for employment in more and more industries, creative professions and creative competences are needed [12, p. 280]. Scientists distinguish the following types of creativity:

1) technological creativity (ingenuity);
2) economic creativity (entrepreneurship);
3) artistic creativity;
4) cultural creativity [20].

A common for all types of creativity is the thinking process, which all the components of the creative process, based on the innate mind and intellect, are mutually reinforcing and mutually supplemented. It is no coincidence that Bernard Shaw said that the genius is 90% of the work of the sweat of the forehead and 10% of inspiration, the creativeness is based on discipline and concentration, the man needs time and improvisation to work to develop the mental structures and master their potential. Only strong devotion to any realm - music, mathematics, and medicine - can keep a person from spraying energy to other things [21].

Creative people - artists, writers, scholars, programmers who write programs - stimulate internal motivation, internal reward, and enjoyment of their creative efforts. Successful inventors often organized themselves and rallied others to the team to systematize their efforts. Best of all, product flourishes in a unique environment of the social environment, which is sufficiently stable to ensure long-term effort, but at the same time diverse and with sufficient horizons, in order to nourish creativity in a single-versatile variety of forms of its manifestation. Creativists are extremely sensitive to the social and economic arts, which can easily hinder its development; it requires constant attention and requires in-depth investments in royal and social forms that nourish creative impulses.

Formation of the creative class as a goal of modern education comes into being during its maturity, which shows that for the first time in the history of mankind, we have to bring economic development in line with the development of human potential, which depends on the use of talents.
and creative potential and the acceleration of this process, by developing Smart-technology as a factor in the development of modern progress - says T. Teslenko [22]. Now, in an era, where the driving factors of the economy are knowledge, innovation, creativity and human potential, the situation is different. Therefore, it is necessary now to create new, effective indicators of creativity of human potential as a matrix of modern innovation, information and technological education, than a gross domestic product, to achieve an overgrowth from the industrial to the creative age, which requires the formation of the concept of "knowledge society" [21].

Consequently, the modern state should create innovative indicators of genuine growth, in order to achieve economic efficiency and social progress [22], we must move from the absurd growth (Industrial age) to a reasonable growth (Creative age), based on the use of all human opportunities, its talents, self-expression as one of the most important human rights in the strategy of strengthening civil society. One of the problems is the formation of an innovative society, creative education, a creative person, based on which reason, intelligence, morality, justice, development, innovation, knowledge, information are based.

Creative education is experiencing the most difficult stage on which the choice of the main direction of development [23]. Creative education as the broadest synthesis of economic and humanitarian knowledge, is intended to reveal the principles and laws of the noosphere culture. Creative education structures the constructs of the spiritual economy, in which the economic behavior of the "economic person" should include the primacy of spiritual needs over material needs. The main function of creative thinking is to ensure the integral integrity, unity, security and well-being of its citizens, which is ensured by skilful leadership and effective management. As it is always necessary to overcome dissipative structures, an adaptive mechanism of the self-organizing system must be developed at the expense of cooperative ties, organization of space in order not only to survive under various ideological influences, but also to withstand the destruction of the established society [24].

The study conclusions and perspectives of further exploration in this direction.

Higher education should equip young people to work in an innovative era - new knowledge, prepare for the skills and competences required, to be constantly prepared for the constant updating of knowledge of their profession and the acquisition of new demanded skills of the digital society, namely, to develop creative competences related to communication, information, digital competencies of the digital era. We emphasize the three "T" of economic developments, which means the ideal paradigm for the development of innovation-informational-noosphere-technological education: technology, talent and tolerance. Technologies are
measured on the basis of the High Technology Index for the assessment of high-tech industries and can be explored taking into account data on the state of the enterprise and business, as well as indicators of innovation development: the number of patents per capita and the medieval increase in patents [25]. The aggregate technology index as a general purpose combines all of these indicators: talent is calculated as a creative class; Tolerance is measured by indicators such as the number of immigrants or residents born abroad, the gay and lesbian index, the integration index, which estimates the racial and ethnic group index within a single urban agglomeration. If the integration index value is 0, this indicates a high degree of segregation.

**Prospects for further research**

- Research on the formation of the postmodern era, information technologies and applications that change the world, and form our future.

**REFERENCES**


Conceptualization of the influence of education creative model on innovative society development in the conditions of technological Revolution 4.0 and Globalization 4.0


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КОНЦЕПТУАЛІЗАЦІЯ ВПЛИВУ КРЕАТИВНОЇ МОДЕЛІ ОСВІТИ НА РОЗВИТОК ІННОВАЦІЙНОГО СУСПІЛЬСТВА В УМОВАХ ТЕХНОЛОГІЧНОЇ РЕВОЛЮЦІЇ 4.0 І ГЛОБАЛІЗАЦІЇ 4.0

Анотація. Актуальність теми дослідження в тому, що тема освіти є актуальною в інформаційному суспільстві, яке називають «суспільством знань», цифровим суспільством, смарт-суспільством (розумним суспільством), яке вимагає формування відповідної моделі креативної освіти та креативної особистості. Мета статті - концептуалізація креативної моделі освіти як чинника інноваційного розвитку суспільства. Завдання дослідження: розробити модель креативної освіти суспільства електронної ери, де водолюбять алгоритми та цифрові технології; розкрити умови та напрями розвитку технологічної революції 4.0 і глобалізації 4.0, які відрізняють неймовірна швидкість, на протязі якої вібуваються зміни; розкрити сутність креативного процесу та наслідки його впровадження в модель креативної освіти.

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Використовуючи методологію системного аналізу, прогнозування і моделювання дослідити концептуалізацію впливу креативної моделі освіти на розвиток інноваційного суспільства в умовах технологічної революції 4.0 і глобалізації 4.0. 

Аналіз останніх досліджень і публікацій, в яких започатковано розв’язання даної проблеми. Ми спираємося на дослідження О.Базалука, В. Беха, В. Андрущенка, О. Кивлюк, Р. Олексенка, М.Кириченка, В.Кременя, В.Мельник, В.Нікітенко, О.Пунченка, Д.Свириденка, С.Терепищого, в роботах яких започаткована креативна модель інформаційного суспільства. Серед зарубіжних авторів ми використовуємо роботи таких авторів, як Аль-Халіл Джима, Е. Бріньолфссона, Е. Макафі, К.Кевіна, О’ Райлі Тіма, Д. Руза, К. Стаїнера, Б.Старжинського, В.Цекало, Р. Флориди, М. Форда та інших, у яких представлена тема креативності в умовах технологічної революції 4.0 і глобалізації 4.0.

Наукова новизна дослідження – концептуалізація креативної моделі освіти як чинника інноваційного розвитку суспільства. Результати дослідження: виявлено умови становлення інноваційного суспільства, в основі якого створення моделі креативної освіти та креативної особистості; представлено визначення креативної освіти та креативної особистості та необхідність формування нової моделі освіти і особистості. Висновок – вища школа повинна озброїти молодь до роботи в умовах інноваційної ери - новими знаннями, підготувати до оволодіння необхідними навичками і компетентностями, бути постійно готовими до постійного оновлення знань своєї професії та отримання нових витребуваних навичок цифрового суспільства, а саме виробити креативні компетентності, пов’язані з комунікаційними, інформаційними, цифровими компетентностями цифрової ери.

Ключові слова: креативна модель освіти, креативна особистість, технологічна революція 4.0, глобалізація 4.0, інноваційне суспільство, інформаційне суспільство, цифрове суспільство.

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КОНЦЕПТУАЛИЗАЦИЯ ВЛИЯНИЯ КРЕАТИВНОЙ МОДЕЛИ ОБРАЗОВАНИЯ НА РАЗВИТИЕ ИННОВАЦИОННОГО ОБЩЕСТВА В УСЛОВИЯХ ТЕХНОЛОГИЧЕСКОЙ РЕВОЛЮЦИИ 4.0 И ГЛОБАЛИЗАЦИИ 4.0

Аннотация. Актуальность темы исслѣдования в том, что тема образования есть актуальной в условиях информационного общества, которое называют «обществом знаний», цифровым обществом, смарт-обществом (разумным обществом), которое требует формирования соответствующей модели креативного образования и креативной личности. Цель статьи - концептуализация влияния креативной модели образования как фактора инновационного развития общества. Задачи исследования: разработать модель креативного образования общества электронной эры, где властуют алгоритмы и цифровые технологии; раскрыть условия и направления развития технологической революции и глобализации 4.0, которые отличает немеровую скорость, на протяжении которой происходят изменения; раскрыть сущность креативного процесса и последствия его внедрения в модель креативного образования. Используя методологию системного анализа, прогнозирования и моделирования, исследовать концептуализацию влияния креативной модели образования на развитие инновационного общества в условиях технологической революции 4.0 и глобализации 4.0.

Анализ последних исследований и публикаций, в которых представлено решение данной проблемы. Мы опираемся на работы О.Базалука, В.Беха, В.Андрущенко, О.Кивлюк, Р.Олексенка, Н.Кириченко, В.Кременя, В.Мельник.

Conceptualization of the influence of education creative model on innovative society development in the conditions of technological Revolution 4.0 and Globalization 4.0.
В. Никитенко, О. Пученко, Д. Свириденко, С. Терепищего, в работах которых представлена креативная модель информационного общества. Среди зарубежных авторов мы выделяем работы таких авторов, как Аль-Халили Двима, Э. Бринелфосона, Э. Макафи, К. Кевина, О’ Райли Тима, Д. Роуза, К. Стайнера, В. Старжинского, В. Цекало, Р. Флориды, М. Форда и других, в которых представлена тема креативности в условиях технологической революции 4.0 и глобализации 4.0. Научная новизна исследования — концептуализация креативной модели образования как фактора инновационного развития общества. Результаты исследования: выявлены условия становления инновационного общества, в основе которого создание модели креативного образования и креативной личности; представлено определение креативного образования и креативной личности и необходимость формирования новой модели образования и личности. Вывод — высшая школа должна вооружить молодежь к работе в условиях информационной эры новыми знаниями, подготовить к овладению необходимыми навыками и компетентностями, быть постоянно готовыми к постоянному овладению знаний своей профессии и получения новых востребованных навыков цифрового общества, а именно выработать креативные компетентности, связанные с коммуникационными, информационными, цифровыми компетентностями цифровой эры.

Ключевые слова: креативная модель образования, креативная личность, технологическая революция 4.0, глобализация 4.0, инновационное общество, информационное общество, цифровое общество

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