EDUCATION AND KNOWLEDGE IN THE CONTEXT OF THE KNOWLEDGE ECONOMY

Abstract. The article discusses certain theoretical issues regarding the development of education within the context of the «new economic approach», «new economic narrative» or «new economic thinking» particularly the emergence and establishment of the so-called knowledge economy. It is noted that globalization and technological transformations accelerate the transformation of the modern economy into a knowledge economy. In this economy, education and knowledge play a crucial role, becoming driving forces of societal development and transforming it into a learning society that adapts to the new.

It is underlined that the knowledge economy can work where there is a cult of knowledge, where citizens are ready to constantly learn and develop, where economic development and the country’s development strategy are closely related to the accumulation, use, and management of intellectual resources, information and knowledge, in particular professional and universal.

It is emphasized that scientific knowledge is the most crucial for the knowledge economy among all types of knowledge. The ability of scientific knowledge to increase future economic benefits and generate profit underscores the possibility and necessity of considering it as a driving force of the economy. Scientific knowledge is directly related to education: science and research can contribute to education at all levels of society, engaging more people in research, teaching them scientific knowledge, and providing them with a basic understanding of how science contributes to economic development and economic growth.

It is accentuated that in modern socio-economic realities, there is an urgent need for a transition to lifelong learning, which is reflected in the National Strategy...
for the creation of a barrier-free space in Ukraine until 2030. It highlights that adults will be able to acquire new skills, relevant knowledge throughout their lives, quickly change professions when necessary, and remain competitive in the labor market.

It is highlighted that creative thinking and creative abilities of individuals are of considerable importance for economic activity. Creativity contributes to economic growth and is essential for entrepreneurial activities. There are a number of factors that influence entrepreneurial creativity, which in turn leads to economic growth. These factors include knowledge, education, and creativity.

It is underscored that the state is an essential participant, coordinator, and driving force in the development of education, knowledge production, and dissemination. According to the Strategy for the Development of Higher Education in Ukraine for 2022-2032, published by the Cabinet of Ministers of Ukraine on April 14, 2022, the expected result of its implementation is the creation of a modern and efficient higher education system that meets the needs of citizens, the economy, and society, has a good reputation, and is competitive in the domestic and global education services market.

**Keywords:** education, lifelong education, knowledge, information, knowledge economy, creative potential, human development

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**ОСВІТА І ЗНАННЯ В КОНТЕКСТІ ЗНАННЄВОЇ ЕКОНОМІКИ**

Анотація. У статті розглядаються деякі теоретичні питання розвитку освіти в контексті «нового економічного підходу», «нового економічного наративу», «нового економічного мислення», зокрема, становлення та утвердження так званої економіки знань або знаннєвої економіки. Зазначено, що глобалізація та технологічні перетворення прискорюють трансформацію сучасної економіки в економіку знань. У цій економіці освіта та знання відіграють вирішальну роль, стають рушійною силою розвитку суспільства, перетворюють його на суспільство, що навчається, адаптується до нового.

Підкреслюється, що знаннєва економіка може працювати там, де існує культ знань, де громадяни готові постійно вчитися та розвиватися, де економічний
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розвиток і стратегія розвитку країни тісно пов’язані з накопиченням, використанням та управлінням інтелектуальними ресурсами, інформацією та знаннями, зокрема професійними та універсальними.

Наголошується, що серед усіх видів знань найбільш важливим для економіки є наукове знання. Здатність наукового знання збільшувати майбутні економічні вигоди, приносити прибуток зумовлює можливість і необхідність розглядати його як рушійну силу економіки. Наукове знання має безпосередній стосунок до освіти: наука та дослідження можуть сприяти освіті на всіх рівнях суспільства, залучаючи більше людей до досліджень, навчаючи їх науkovих знань, надаючи їм базове розуміння того, як наука допомагає економічному розвитку та економіці в цілому.

Акцентується, що в сучасних соціально-економічних реаліях існує нагальна потреба у переході до освіти протягом життя, що знайшло відображення в Національній стратегії створення безбар’єрного простору в Україні на період до 2030 року, в якій наголошується на тому, що доросла людина зможе отримати нові навички, відповідні знання протягом усього життя, при необхідності швидко змінити професію та залишатися конкурентоспроможним на ринку праці. Їдеться про розвиток гнучкої системи безперервної освіти дорослих, яка відповідає сучасним вимогам суспільства загалом та запитам окремих верств населення зокрема.

Відмічається, що неабиякого значення для економічної діяльності має творче мислення та творчі здібності особистості. Творчість сприяє економічному зростанню та є важливою для підприємницької діяльності. Існує низка факторів, які впливають на підприємницьку креативність, що, своєю чергою, призводить до економічного зростання. Серед цих факторів – знання, освіта та креативність.

Зазначається, що неодмінним учасником, координатором і рушійною силою розвитку освіти, виробництва та поширення знань є держава. Відповідно до Стратегії розвитку вищої освіти в Україні на 2022-2032 роки, оприлюднену Кабінетом Міністрів України 14 квітня 2022 року, очікуваним результатом її реалізації є створення сучасної ефективної системи вищої освіти, яка відповідає потребам громадян, економіки та суспільства, має гідну репутацію та є конкурентоспроможною на внутрішньому та світовому ринку освітніх послуг.

**Ключові слова:** освіта, освіта протягом життя, знання, інформація, економіка знань, творчий потенціал, людський розвиток

**Introduction.** The relevance of the economic development model based on knowledge is due to the increasing influence of education, science, and technology achievements on the socio-economic sphere of society during the last decades. The
latest technologies have caused fundamental changes in the structure of the world economy. Failure or delay in carrying out structural transformations of the economy in accordance with modern challenges and needs inhibits its development, leads to economic decline and pushes it to the sidelines of global social and economic processes.

It is known that the formation of modern, highly dynamic economies require the involvement of significant financial and investment resources, therefore, in order to achieve the advantages of the knowledge model, developing economies must implement an effective educational policy, which involves actively stimulating the structural transformation of the economy, reforming the education system, strengthening the role of science and innovative activities with taking into account the available scientific and technical-technological potential and global development trends.

The growing value of unique types of knowledge, the possession of which provides great economic and social advantages, scientific research as a source of essentially new knowledge and basis of high-tech production, makes it necessary to update, specify and deepen certain aspects of the modern economic theory in regard to the development of the knowledge economy and its fundamental, underlying elements in the context of the current global trends.

**Literature review.** To overcome negative manifestations in the economy, the state should carry out structural restructuring at a rapid pace, actively promote industries with high added value, attract investments in human capital, and modernize education and science. A primary focus should be placed on the construction of a modern national education system.

Theoretical foundations for the formation of such a system were outlined in the works of domestic economists such as: Azhazha M., Androschuk H., Bazhal Y., Bashnianin H., Vizirenko M., Haponenko A., Geets V., Danylyshyn B., Dolishnii M.I., Zharov V., Zgurovskyi M., Zlupko S.M., Kaleniuk I., Kondaurova I., Melnyk L. and others.

The analysis of the formation and development of the knowledge economy primarily draws upon the works of the founders of post-industrialism theory. In particular, representatives of institutional theory such as T. Veblen and J. K. Galbraith, as well as proponents of technocratic concepts including D. Bell, P. F. Drucker, F. Makhlup, O. Toffler, and others, have contributed significantly to this field.

Similarly, the analysis of the information and communication component of post-industrial society is presented in the works of M. Castells, V. Martin, M. Malone, J. Naisbit, M. Porath, J. Stiglitz, T. Stoneyer, K. Arrow.

The works of F. Aguillon, M. Boskin, J. Grossman, R. Lucas, P. Romer, J. Tinbergen, J. Hicks, and P. Howitt have contributed to the integration of knowledge and technology into neoclassical analysis as the third factor of production.
Statement of Problem. It should be noted that the impact of education and knowledge on the development of the knowledge economy is considered quite comprehensively and systematically in the Ukrainian scientific literature. However, some aspects should be subjected to closer scrutiny by theorists. Insufficient attention is also given to the problems related to the formation of the Ukrainian model of the knowledge-based economy.

The theoretical, methodological, practical relevance, and significance of the formation and development of an economy based on intellectual and knowledge resources determined the topic selection for the paper, its purpose, and objectives.

The purpose of this work is to examine education and knowledge as essential resources in the knowledge economy. In the process of achieving the specified purpose, the following objectives were set: to examine the knowledge economy in terms of its specificity and features; to explore education and knowledge in terms of their importance and influence on the knowledge economy.

Results. In the era of globalization, the economy is, and must be, knowledge-intensive and education-intensive. This is both a condition and a result of innovation and the utilization of new technologies. It is evident that preparing a skilled workforce capable of functioning effectively in the global economy is critical for improving resource productivity. The harnessing of skills, technology, and learning becomes a competitive advantage. In other words, a modern economy cannot thrive without the development of human resources and the high added value of human intelligence. A dynamic, extensive information and educational infrastructure is a prerequisite for this, ensuring effective communication, dissemination, and transfer of information and knowledge.

Given the limitations and exhaustibility of traditional economic resources, it can be argued that further economic growth increasingly depends on the utilization of information and knowledge. The primary bearer of them is an individual with an appropriate level of education and professional training. Consequently, in modern socio-economic development, the role and importance of education have become paramount. The ability not only to assimilate and absorb existing scientific knowledge but also to generalize, creatively apply, analyze, and generate new knowledge in the form of innovations, scientific ideas, technologies, services, products, etc., transforms education into a fundamental factor of economic growth.

Achieving this necessitates appropriate scientific and theoretical reflection, as well as the development of adequate approaches to the functioning of the economy amidst the rapid creation and dissemination of new information and knowledge.

The world today confronts profound economic challenges that urgently require a new economic approach.

As noted in the report «Beyond growth: towards a new economic approach», a «new economic narrative» consists of three elements:
- A new conception of economic progress. This involve a deeper understanding of the relationship between growth, human wellbeing, a reduction in inequalities and environmental sustainability, which can inform economic policymaking and politics.

- New frameworks of economic theory and analysis. This entails a richer basis of understanding and evidence on how economies work, along with new tools and techniques to assist policymakers in devising policy.

- New approaches to economic policy. This encompasses a broader set of policy and institutional reforms based on the new frameworks and analysis to achieve the new social and economic goals [1, p. 5].

This leads us to the concept of the knowledge economy. The term «knowledge economy» is commonly used, yet there is no single agreed-upon definition. Instead, at least three alternative concepts of the knowledge economy have been proposed:

1. The part of the economy involved in the production and distribution of knowledge.
2. The part of the economy composed of knowledge-intensive industries.
3. The characterization of an entire economy in which the production, distribution, and utilization of knowledge play a pivotal role throughout the economy [2, p. 3-4].

Taking these perspectives into account, we can observe the following. The knowledge economy is predicated on creating and exchanging ideas and information. It is an economy where knowledge assumes a central role, serving as a driving force for the advancement of both the country and society. Knowledge becomes a marketable product that can be traded for profit.

In essence, the knowledge economy entails using knowledge as the primary tool to generate new economic benefits or enhance existing ones. Unlike industrial economies, knowledge-based economies prioritize intangibles such as information, education, and knowledge over raw materials. It emphasizes the fundamental significance of human and intellectual capital. «The greater dependence on human capital and intellectual property as the source of innovative ideas, information, and practices» constitutes a key element of the knowledge economy [3].

The knowledge economy explores how education and knowledge—referred to as «human capital»—can function as productive assets or business products, capable of being sold and exported to generate profits for individuals, businesses, and the economy.

The main factors that shape the knowledge economy include:

1. Institutional structures that provide incentives for entrepreneurship and the use of knowledge.
2. Availability of skilled labor and a good education system.
3. Access to information and communication technology infrastructures.
4. A vibrant innovation landscape that includes academia, the private sector, and civil society [4, p. 5-8].

These factors distinctly differentiate the knowledge economy from traditional economies focused on the production of tangible goods and services.

Knowledge has three characteristics that have very important implications for the knowledge economy: it can be used over and over without being consumed by that use, it can be used by many individuals at the same time, and it can be used in many different locations simultaneously [2, p. 6].

All types of knowledge are an essential and meaningful economic resource, and also one of the key factors of production in the knowledge economy, a fundamental base for economic growth. However, it is undeniable that attention should be primarily focused on scientific knowledge in this context. Being a socioeconomic and human phenomenon in its inherent nature, scientific knowledge allows us to develop new technologies, solve practical problems, and make informed decisions – both individually and collectively. New scientific knowledge may lead to new applications, while new technological advances may lead to fresh scientific discoveries. Potential applications may also motivate scientific investigations.

Yet, the most distinguishing aspect of scientific knowledge (in terms of the economy) is its ability to increase future economic benefits and generate profit. This justifies considering it a driving force behind the economy, a crucial component of which is intellectual capital. In other words, scientific knowledge, being owned by specific individuals, is part of intellectual capital, contributing to its movement and enhancing social utility. Consequently, ownership of scientific products (scientific knowledge) brings profit to its owner.

Viewing scientific knowledge as a resource, particularly as intellectual capital, reveals its significant social benefits through its application:

- it helps to satisfy many basic human needs and improve living standards;
- it drives economic growth, which is seen as a return-on-investment for public funding;
- it helps to find a way to rationally use natural resources to guarantee their continuity and the continuity of humanity itself; an endeavor that is currently referred to as «sustainability».

However, another application of scientific knowledge holds significant potential to address economic challenges: modern-day education. Science and research can contribute to education at all levels, not just by engaging people in research and teaching them about scientific knowledge, but crucially by equipping them with a basic understanding of how science fuels economic development and growth. In essence, education stands poised to become the primary conduit for science, research, and scientific knowledge in the coming decades, further amplifying its role and significance in socioeconomic progress.
One of the fundamental axioms of economics is the scarcity of economic resources, posing a significant challenge for any society or economy: how to optimize their utilization. The knowledge economy offers a promising solution by shifting focus to the production and dissemination of information and knowledge, fostering innovation that underpins its foundation. Central to this framework is the pivotal role of education and educational resources. It's widely recognized that the socioeconomic development of any nation hinges largely upon its skilled workforce, with education serving as a vital component of human development.

By investing in education and empowering individuals with knowledge and skills, societies can effectively address the challenges posed by resource scarcity, driving sustainable economic growth and fostering prosperity.

Skilled human resources are expected to possess a range of essential skills, including: Leadership, Communication skills, Decision-making abilities, Negotiation skills, Counseling expertise, Conceptual proficiency.

The impact of skilled human resources is manifold:
1) Optimal Resource Utilization: Skilled individuals possess the capability and capacity to utilize natural resources in the most efficient and sustainable manner.
2) Technological Advancement: Skilled professionals drive technological progress and innovation across various fields, contributing to overall societal development.
3) Job Creation and Industrial Development: Skilled individuals are instrumental in establishing industries and creating employment opportunities for others, thereby bolstering economic growth and stability.
4) Reducing Dependency on Imports: Skilled workforce enables countries to produce goods domestically, reducing dependency on imports and fostering self-reliance in critical sectors.
5) Income Improvement: Skilled human resources play a crucial role in enhancing per capita income levels, leading to improved living standards and socioeconomic prosperity.

Indeed, the value of educated, trained, and skilled human resources cannot be overstated in the context of the knowledge economy. Their ability to work independently and efficiently, coupled with substantial work experience and the capacity to generate and redistribute knowledge flows, represents a cornerstone of this economic paradigm.

In essence, the cultivation and utilization of such human capital are not only characteristics but also essential goals and outcomes of the knowledge economy. By harnessing the expertise and innovative potential of skilled individuals, societies can achieve sustainable growth, foster continuous learning, and adapt to the evolving demands of the modern world. Thus, investing in education, training, and skill development becomes imperative for nations aspiring to thrive in the knowledge-driven global landscape.
Describing post-industrial society, D. Bell notes that a post-industrial society is a society where serious shifts are taking place: transition from a society predominantly based on the production of physical goods to a service-based one; knowledge-intensive industries begin to play a leading role; education becomes the basis of social mobility; human capital is an essential feature in understanding the strength of a society; knowledge is the source of invention and innovation; it creates value-added and increasing returns to scale and is often capital-saving [5].

The most important aspect here is that the post-industrialized society is marked by an increased valuation of education and knowledge.

Therefore, considering the centrality of knowledge in both the knowledge and post-industrial economies, we can confidently assert that education emerges as the paramount factor in its development. In this paradigm shift, education supersedes other factors that held significance in earlier stages of economic evolution.

Furthermore, it's not solely education that emerges prominently, but rather the concept of continuing or lifelong education. It's important to note that various terms are employed to describe this category of education, including «adult education», «continuing education», «further education», «recurrent education», «permanent education», and «lifelong learning», among others. While each term may emphasize different facets of this phenomenon, they collectively underscore the lifelong nature of education for adults [6].

The essence of these terms revolves around the idea that education is an ongoing process that extends beyond traditional schooling. In essence, individuals continually engage in learning activities throughout their lives to adapt to evolving societal needs, technological advancements, and personal development goals. This recognition of the lifelong incompleteness of education for adults emphasizes the necessity of fostering a culture of continuous learning and skill enhancement to navigate the complexities of the modern world effectively.

The modern socio-economic landscape, coupled with the rapid pace of scientific and technological advancement, demographic transformations, and fundamental shifts in the nature of work, underscores the critical importance of lifelong education. These factors, alongside the pressing need to develop key competencies and foster a culture of continuous learning, have significantly amplified the role of education in addressing fundamental human challenges.

The need to address these challenges partly motivated the creation of the National Strategy for the Creation of a Barrier-Free Space in Ukraine for the period up to 2030. This strategy emphasizes the importance of lifelong learning, enabling adults to acquire new skills and relevant knowledge, and, if necessary, quickly change their profession to remain competitive in the labor market.

Central to this strategy is the establishment of a flexible and responsive system of continuous adult education. Such a system is designed to address the evolving
needs of society at large while catering to the specific requirements of various segments of the population. By prioritizing lifelong learning and skill development, Ukraine aims to equip its citizens with the tools and capabilities necessary to navigate the complexities of the contemporary world effectively [7].

According to scientific research, a mere one-year increase in the average duration of education among the adult population can yield significant long-term economic benefits. Specifically, it is estimated to spur a 3.7% rise in economic growth and a 6% increase in income per capita.

Education and training of adults often go beyond the socio-financial sphere, in particular professional development, retraining or career growth [8].

Moreover, lifelong education is designed to increase the level of general knowledge and expand the opportunities for citizens to participate in the country's cultural, social and political activities. It should contribute to the further democratization of society, as well as contribute to the strengthening of a person's position in professional activity.

Awareness of the importance of lifelong learning for human development has led to the correction of European policy in the field of education. The Lisbon summit of the Council of Europe in March 2000 adopted «A Memorandum of Lifelong Learning». The Memorandum emphasizes that lifelong learning must become the guiding principle for provision and participation across the full continuum of learning contexts. All people living in Europe, without exception, should have equal opportunities to adjust to the demands of social and economic change and to participate actively in the shaping of Europe’s future [9].

This leads us to the quite obvious inference - education, learning, and knowledge are a relevant and imperative basis for ensuring sustainable socio-economic advancement. It is also quite obvious that creative potential is of great importance in this context, which means the organization and support of creative processes in the knowledge economy acquires great value.

Economic activity necessitates both rational thought and creative ideas. Conversely, engaging in creative endeavors demands a certain level of rational capacity. Being creative entails employing innovative thinking and abilities. Creativity not only fosters economic growth but also plays a crucial role in entrepreneurial activity. Moreover, there exists a positive correlation between creativity, innovation, competitive advantage, and entrepreneurial growth [10]. Also, there are a number of factors that influence entrepreneurial creativity that in turn lead to economic growth, as well as to capture the way in which entrepreneurial creativity is affected by this procedure. Knowledge, education, and spill-over creativity are among these factors [11].

So, education, lifelong learning, knowledge, creativity are indispensable for both social and economic development, representing fundamental aspects of the contemporary economy.
An essential participant, coordinator, and driving force in the development, production, and dissemination of education and knowledge, as well as the promotion of innovative activity, is the State. In this context, it's noteworthy to mention the Strategy for the Development of Higher Education in Ukraine for 2022-2032, published by the Cabinet of Ministers of Ukraine on April 14, 2022. The document outlines five strategic goals.

1. Enhancing the effectiveness of management in the higher education system.
2. Building trust among citizens, the state, and businesses in the educational, scientific, and innovative activities of higher education institutions.
3. Ensuring high-quality educational and scientific activities, fostering competitive higher education accessible to diverse population groups.
4. Promoting the internationalization of higher education in Ukraine.
5. Enhancing the attractiveness of higher education institutions for study and academic careers [12].

It is evident that achieving this goal hinges largely on educational development, personnel qualifications, and investments in human capital. However, the current Ukrainian education system still reflects characteristics of the industrial era. In view of this, transforming it to support the development of a new economy and foster high-quality human resources for society becomes increasingly critical.

Conclusions. The economy is becoming increasingly knowledge-intensive and education-intensive. This shift is both a condition and a result of innovation and the utilization of new technologies.

Preparing a skilled workforce capable of functioning effectively in the global economy is essential for improving resource productivity. The harnessing of skills, technology, and learning becomes a competitive advantage.

A modern economy cannot thrive without the development of human resources and the high added value of human intelligence. Education plays a paramount role in this regard, serving as a fundamental factor of economic growth.

The concept of the knowledge economy encompasses the production and exchange of ideas and information, with knowledge assuming a central role in driving economic advancement.

Institutional structures, availability of skilled labor and a robust education system, access to information and communication technology, and a vibrant innovation landscape are key factors shaping the knowledge economy.

The success of a knowledge-based economy depends on a culture that values knowledge and continuous learning, intertwined with economic and national development strategies.

The concept of lifelong learning is crucial in the knowledge economy, emphasizing the necessity of continuous education and skill enhancement to adapt to evolving societal needs and technological advancements.
The state plays a significant role in education development, knowledge production, and innovation promotion, as evidenced by strategic plans such as the Ukrainian Strategy for the Development of Higher Education.

Education, and knowledge emerge as the primary drivers of the knowledge economy, serving as crucial strategic resources for both the economy and businesses. The increasing importance of human, intellectual, and social capital, coupled with the growing role of creativity, are pivotal factors for achieving sustainable long-term development.

Therefore, education, and knowledge are indispensable for both social and economic development, constituting fundamental aspects of the contemporary economy.

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