

ISCKMC 2022**International Scientific Congress «KNOWLEDGE, MAN AND CIVILIZATION»****HUMAN CAPITAL DEVELOPMENT IN THE CONTEXT
OF THE KNOWLEDGE-BASED ECONOMY'S KEY TRENDS**

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Abstract

The problem of human capital formation is of great importance for the country's sustainable development in the context of the change in the economic model of its development. It is human capital that is becoming the source of improvement of social and economic systems, the introduction of new scientific knowledge and strategic know-how in the XXI century. In this regard, highlighting the concepts of modern forms of knowledge generation is an urgent problem with the prospects of scientific and practical research. The relevance of the topic is conditioned by: (1) the lack of substantiation, enabling the scientific community of the Russian Federation to define the perspective concept of human capital development in the XXI century; (2) the necessity of development of scientifically grounded approach to personnel reproduction in the context of transition to the knowledge-based economy. In the light of the above, contradictions are seen between: (1) the economy's need for qualified personnel and the lack of scientifically substantiated approaches to human capital development in the context of transition to the knowledge-based economy; (2) the society's need for updated education and the lack of an effective conceptual framework that meets the challenges of the era. To solve the problem posed in the study the authors propose by identifying the concepts of modern forms of knowledge generation, which are relevant to the human capital formation in the context of the knowledge-based economy's key trends.

2357-1330 © 2022 Published by European Publisher.

Keywords: Concept of modern forms of knowledge generation, human capital, knowledge-based economy, methodological approach, trends

1. Introduction

The Russian authorities currently acknowledge human capital development as a top priority in the set of strategic objectives for the fruitful public administration of the Russian economy. During his 2016 Annual Address to the Federal Assembly, the Russian President Vladimir V. Putin declared the importance of preserving people and increasing human capital as the main national wealth in the context of the transition to the knowledge-based economy (Putin, 2016).

In this regard, much importance is attached to the human capital development of the Russian Federation, representing the core of the Russia's Social and Economic Development Strategy until 2024 and with a view to 2035, which outlines a current course for the generation and introduction of knowledge and innovation, with a critical role in ensuring the long-term sustainable development of the country.

Nevertheless, the practical implementation of the stated priorities faces challenges that require their adjustment in the context of the knowledge-based economy's key trends.

2. Problem Statement

Human capital has been the subject of scientific discussions since the middle of the XX century. The main aspects of the issues discussed by researchers are: periodization (Machlup, 1984) and methodological approaches to the study of the development of the concept of human capital (Laptev, 2016; Walsh, 1935); the effectiveness of investment in the training system (Fedorov, 2012), models of development (Leydesdorff, 1998; Urmantsev, 1988).

According to the authors, the problem of formation of quality human capital in the context of the knowledge-based economy's key trends is no less important and acquires a particular relevance for the sustainable development of the country in the XXI century.

However, so far there has been no comprehensive study of human capital in the context of key trends in the knowledge-based economy. This circumstance is due to: insufficient scientific development of issues related to the key trends of the knowledge-based economy.

3. Research Questions

In course of the study the following questions have been raised:

- i. How is "human capital" interpreted in the context of the knowledge-based economy's key trends?
- ii. What key trends generated in the context of the knowledge-based economy influence human capital development?
- iii. What concepts of modern forms of knowledge generation seem relevant to human capital development in the context of the knowledge-based economy's key trends?

4. Purpose of the Study

The purpose of the study is to highlight the major concepts of modern forms of knowledge generation, which are relevant to human capital development in the context of the knowledge-based economy's key trends.

5. Research Methods

The methodological basis of the study is:

- i. systemic approach, allowing to create a unified research space for the study of socio-economic phenomena;
- ii. functional approach, providing for the addition of the conceptual apparatus;
- iii. historical approach, which forms an economic-historical vision, considering the main trends in the development of the knowledge-based economy.

5.1. Human capital: interpretation of the notion in the context of the knowledge-based economy's key trends

The study of domestic and foreign publications regarding the notion of "human capital" has allowed the authors to identify the most prominent representatives of scientific schools (Machlup, 1984; Urmantsev, 1988; Walsh, 1935), and offer an author's interpretation of this notion, considering the temporal dynamics of development.

The analysis of the available methodological approaches to the study of the notion "human capital" has revealed that the interpretations vary from approach to approach in view of the fact that this notion is commonly considered in different senses in accordance with the objectives faced by the representatives of scientific schools.

Within the framework of this study, it seems appropriate for the authors to apply a functional approach to the interpretation of this notion, which allows to focus on the functional interaction of the components of the notion, given the links between the object under study as a certain integrity, and the environment.

From this follows that human capital should be considered not so much as a set of knowledge, abilities, skills possessed by a person, but as a more complex in structure system object of the social and economic research, implying (Laptev, 2016): (1) cumulatively accumulated scope of knowledge, skills, abilities; (2) expediently applied by scope of human abilities, knowledge and skills in each specific situation and sphere of social production, contributing to the productivity and effectiveness of activity; (3) a source of income derived from the results of effective and expedient application of this scope as specific activities; (4) income, which interests and stimulates a person through new investments in education, to increase scope of knowledge, skills, abilities and motivation for their further effective use.

Bearing in mind the position of Laptev and the authors' own considerations, this paper regards human capital as the functional backbone and source of knowledge-based economy development, which

provides the required rate of economic growth and innovation development in the context of the transition to a new technological mode.

5.2. The knowledge-based economy's key trends and human capital development

In the framework of this article, we suggest relying on the definition of the knowledge-based economy, according to which it is a direct result of evolution and the highest stage of development of post-industrial, innovation and information economy, involving a qualitative change in human capital, improved quality of life, knowledge production, high technology, innovation and high-quality services (Serbinovsky & Zakharova, 2010).

Among the key trends characterizing the knowledge-based economy are (Bashmakova & Bondarev, 2021):

1. Transformation of science, accompanied by the transition from science, reduced mainly to technology, production, “mechanical” thinking, to science, supported by a fundamentally new thinking, when the classical science is replaced by non-classical natural science with the principle of indeterminism.

This trend finds its reflection in the paradigmatic nature of the development of science. The paradigm of science development, encouraging polyconceptualism, methodological pluralism, interdisciplinary approach, requires transformation of education at all stages of development.

2. Transformation of education, followed by the transition from an education grounded in the ideas of linear development, to an education based on the ideas of multivariate development, in which the basic principles of the formation of a modern model of education are pluralism and variability.

This trend is manifested in the need for lifelong learning, the development of professional and supra-professional competencies.

3. Intellectualization of activity, the prerequisites of which are the recognition of the paradigmatic and alternative scientific and educational knowledge, which in turn changes the understanding of human activity in science and education.

4. Integration of education, science, and entrepreneurship as the basis of the national innovation system. Acting in their unity, the latter form the innovation process with an emphasis on scientific and educational and entrepreneurial components.

5. The formation of knowledge partnerships between science and business. At the centre of this process is human capital as the functional backbone as well as the source and condition of societal development.

This trend is represented in the interdisciplinary interaction in the educational process, when the basic education is implemented within the framework of higher education programs, where it becomes fundamental through interaction with the academic community, and further filling the gaps in related disciplines found in the integration with business enterprises.

6. Development of knowledge-intensive technologies, accompanied by the inevitable transition from advances in microelectronics, genetic engineering, new types of energy, to breakthrough research in the fields of artificial intelligence systems, global information networks, integrated high-speed transport systems.

This trend is manifested in renewal and export of new technologies, considering fundamentality, interdisciplinarity, and reducing the duration of the scientific and production cycle.

7. Globalization and internationalization as pervasive phenomena of the modern economy. This trend is accomplished through the introduction of high technology in advanced global markets.

8. Emergence of innovative applied directions of research and intellectualization of labor. This trend is reflected in employment in intellectual sectors of the economy.

9. Development of network structures and strategic know-how. This trend is mirrored in the change of organizational horizontal structures from hierarchical vertical to adaptive network structures (e.g., network universities).

The identified trends allow us to specify the definition of knowledge-based economy and interpret the latter as a system of socio-economic relations of innovative and digital type, the key factors of which are human capital, the intensive development of digital technology, knowledge-intensive production, high-tech industries and continuing professional education.

5.3. Major concepts of modern forms of knowledge generation of relevance in the context of the knowledge-based economy's key trends

Relying on the existing theoretical studies of the category “human capital” and systematization of the available achievements of domestic and foreign researchers, it seems possible to identify the main concepts, the basis of which are education, science and innovation.

The first concept emphasizing knowledge generation is the concept of traditional production and traditional delivery of knowledge to users. Formed in the XX century, this concept implies the dissemination of knowledge through traditional channels of education, supported by scientific schools. Meanwhile, it should be noted that some researchers (e.g., Esser and Hollanders) note the inconsistency of this concept, confirming their judgments failures of the labour market (Dynkin, 2004).

The second concept stressing the value of knowledge producing is the concept referred to as “The Second type of knowledge producing”. Established at the end of the XX century, it implies the implementation of transdisciplinary modifications of existing research strategies. The representatives of this concept (Gibson, Limoges, Thurrow, Schwartzman) emphasize the necessity of the interaction in the scheme: university – enterprise – state-market – science – business or the chains of interactions in dyads: university – enterprise; university – state; state – enterprise (Bashmakova & Bondarev, 2021).

The third concept, placing emphasis on the generating of new knowledge, is the concept entitled “The pentaspiral concept”. Emerged in the first half of the XXI century, this concept is rooted in the theory of sustainable systems, designed by scientists Ackoff, Urmantsev and aimed at generation, transfer and use of scientific knowledge in order to develop knowledge-intensive new technology. The core of this concept is an innovative man, i.e., human capital, implementing five types of knowledge generation in the context of flexible structures, interacting according to the scheme: science – education – business – government – civil society (Fedorov, 2012).

The fourth concept, accentuating the generation of new knowledge, is the concept referred to as the “Triple Helix Concept.” Developed at the beginning of the XXI century with the efforts

of Leydesdorff, this concept is focused on the interaction of the university with business, which becomes the centre of the state's efforts to promote innovation activities.

6. Findings

6.1. The interpretation of human capital in the XXI century should be considered with the knowledge-based economy's key trends

Humanity's entry into the third millennium of the current era serves as a prerequisite for further dynamics in the development of human capital, that reflects in the emergence of new interpretations reflecting the specifics of the new stage of its development in the light of contemporary challenges.

In the context of the knowledge-based economy it is advisable to interpret the notion of human capital as a functional basis and source of development of the knowledge-based economy, providing the necessary pace of economic growth in the XXI century.

The theory of human capital research is supplemented by a new interpretation of the notion of "human capital", considering the key trends in the knowledge-based economy.

6.2. The knowledge-based economy's key trends appear to be generated in the context of technological mode transformation and to be equally important for human capital development

The identified trends allow us to specify the definition of knowledge-based economy and interpret the latter as a system of socio-economic relations of innovative and digital type, the key factors of which are human capital, the intensive development of digital technology, knowledge-intensive production, high-tech industries and continuing professional education.

The highlighted trends show that in a knowledge-based economy, human capital, information and knowledge come to the fore.

6.3. The highlighted concepts of modern forms of knowledge generation are likely to be the most relevant for human capital development in the context of the knowledge-based economy's key trends

The highlighted concepts act as key reference points, allowing the scientific community to define a scientifically grounded approach to the reproduction of personnel and the most promising concept of human capital development in the context of the knowledge-based economy's key trends.

Being aimed at the generation, transfer, use of scientific knowledge and development on their basis of knowledge-intensive products and technologies, and focusing on the integration of education, science, entrepreneurship, it is the third concept that seems most responsive to the challenges of the knowledge-based economy.

7. Conclusion

At the current time in the scientific literature there is no uniformity in the questions of definition of human capital and of highlighting concepts of its development in the context of the knowledge-based economy's key trends which indicates the relevance of the issue under study, its scientific and practical importance.

In the course of the study the authors have succeeded in:

- specifying the notion of “human capital”;
- identifying the knowledge-based economy's key trends;
- highlighting concepts of modern forms of knowledge generation, which are relevant to the development of human capital in the XXI century.

In the future, in this subject area one should expect research of an integrative nature, allowing to take into account the previous achievements of science in the light of the improvement of the existing concepts of human capital and the emergence of fundamentally new research in the context of polyparadigmacy.

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