

COGNITIVE RESOURCES OF NEW ECONOMY

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Global experience shows that society has to be focused on the model of new economy and recommendations of cognitology to improve the reliability of the functioning and development of society. Although many publications partially suggest options for solving this problem, complex analysis of the resources for the development of Ukrainian society still lacks methodological and practical substantiation. Thus, this article is aimed at summarizing the prerequisites for the development of theoretical and practical support for the formation of a social pattern within the new economy alongside with the development and utilization of cognitive resources. The article presents analysis of a) the trend to change social patterns, and b) factors that ensure the switch to using new knowledge that can provide designing and implementing successful reforms of society, as a whole and its economic system, in particular. The article proposes a variant of a collective survey hypothesis: "In a steady growth of the role and value of the latest knowledge in the innovative development of the economy, the cognitive capital of the firm, that is, knowledge of how to produce the latest corporate knowledge becomes a critical factor in providing large-scale and continuous innovations and progressive social and economic development of a country, in general." Almost all scientists performing research of resources for the development of new economy have determined that it updates knowledge development. Combining provisions of philosophy, psychology and management presented in various research works, we have formed the theoretical basis for studying the cognitive potential of an employee. The necessity of gradual introduction of a research component into the academic activity of higher school is substantiated. The characteristic of each stage is presented as for the following: the purpose of the educational process, the criteria for assessing its results, the peculiarities of student's academic counselling.

Keywords: new economy, social model, success of reforms, knowledge development, cognition, higher school, students' research potential.

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Хаустова В. Є., Доронін А. В., Дороніна М. С. Когнітивні ресурси неоекономіки

Світовий досвід свідчить, що для підвищення надійності функціонування і розвитку суспільства йому необхідно орієнтуватися на модель неоекономіки і рекомендації когнітології. Хоча в багатьох публікаціях частково надані варіанти вирішення цієї проблеми, все ще залишаються актуальними методологічні та практичні обґрунтування комплексного вивчення резервів розвитку українського суспільства. Метою цієї статті обрано узагальнення передумов розробки теоретико-методичного забезпечення формування неоекономічної моделі суспільства з розвитком і використанням когнітивних ресурсів. У процесі дослідження проаналізовано тенденцію зміни моделей суспільства і чинники, які забезпечують перехід до використання нових знань, які здатні забезпечити програмування і реалізацію успішних реформ суспільства в цілому і його економічної системи зокрема. У статті запропонований варіант гіпотези колективного дослідження: «В умовах неухильного зростання ролі і значення новітніх знань в інноваційному розвитку економіки когнітивний капітал фірми, тобто знання про те, як виробляти новітні корпоративні знання, стає критичним фактором забезпечення масштабних і безперервних інновацій та в цілому прогресивного соціально-економічного розвитку країни». Майже всі вчені, які виконували дослідження резервів розвитку неоекономіки, визначали, що вона актуалізує розвиток знань. За допомогою поєднання наведених у роботах учених положень філософії, психології та менеджменту в статті сформовано теоретичне підґрунтя досліджень когнітивного потенціалу працівника. Обґрунтовано необхідність поетапного введення дослідницького компонента в освітню діяльність вищої школи. Наведено характеристику кожного етапу в координатах: мета навчального процесу, критерії оцінки його результату, особливості педагогічного супроводу учня.

Ключові слова: неоекономіка, моделі суспільства, успішність реформ, розвиток знань, когніція, вища школа, науково-дослідницький потенціал учнів.

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Introduction. Radical changes in human life ambiguously affect the functioning of social models. In the evolution of their latest versions, the following sequence is most often distinguished: industrial, post-industrial, information, knowledge society. Currently, attention is drawn to the cognitive model, the basic resource of which is a person's understanding of their own unique ways of perceiving the world. The ability to develop and use these unique methods makes a person an intellectual capitalist who can either use their abilities at work without notifying the owner of the workplace, or rent them out to this owner under certain conditions.

In parallel with social models, the view on the economic system and its research is developing. Current problems of economics appeared due to the lag in the systematization of a significant amount of economic knowledge and its use in practice. Post-industrial stages of civilization have radically changed the list of productive forces of society, necessitated the humanization of economics, the organization of new ways to track the processes and sources of its development. In the traditional economy, the main investment was spent on the renewal of material capital, but in the knowledge economy it is spent on the renewal of human capital. The efficiency of modern economy is supported by investing in the development of cognitive and intellectual resources of the employee, aiming to produce knowledge that generates new unique knowledge. Economy endowed with such features receives various names, e.g.: information economy, network economy, Internet economy, new economy.

The world is constantly evolving, and the subject area of science is becoming more complicated. This thesis can be fully attributed to economics. Modern publications on the theory of economics and practical recommendations for updating its methodological foundations have not yet systematically reflected the cognitive aspects of its study. The cognitive economic model of society differs from its previous versions fundamentally, in many components, parameters and factors. It encompasses not only traditional components, but also new

ones remaining in the purview of sociology, psychology, social psychology and other humanities. In this regard, a new task appears, namely, that of renewing the ways of development of economic science as it is, and of removing its contradictions, which prevent the problems of its subject area from being solved by proven methods.

Economic, social, and political processes taking place in Ukraine have radically transformed our society. The post-industrial stage of its development gave rise to a qualitatively new production resource, i.e. information and knowledge. The readiness of the population for such changes was and clearly is insufficient. Leading scholars have warned us (and continue doing it) that effective reforms of societies are ensured, firstly, by taking into consideration the peculiarities of the institutions familiar to the population, which organized its components before the reform, i.e.: economy, politics, and culture. Secondly, the readiness of the domestic scientific system to perform unique research, in which ideas can originate not only in traditional logic, but also in the intuition of an individual scientist, being generated by a significant amount of his/her knowledge and courage to experiment.

Analysis of publications. The source material for the article is taken from publications that present scientific view on the following issued: the causes of problems arising in science (M. Dovbenko, N. Mamontova, Ye. Balatsky, V. Polterovich); opportunities to master new economy – a new stage in the development of economic theory and practice (I. Poliubyna, V. Kuznetsov, Ye. Avdokushin, G. Zhuravleva); the ways of using cognitive technologies to enrich the production potential of economic entities (M. Karpenko, M. Zavyalova, O. Baksansky, N. Abdikeev). Domestic scientists studying the prospects and possibilities of developing a cognitive model of society in Ukraine believe that to ensure its implementation it is necessary to organize the publication of new ideas, focus public opinion on the necessity to gain knowledge as for the ways of psychologically influencing human activity and, at the same time, resisting such influence. The state must control these processes

by creating mechanisms for carrying out objective diagnostics and responsible influence on the population's opinions. This influence becomes especially important when it is meant for the part of population capable of developing and using its creative potential for the benefit of the nation [1, p. 47].

The article is aimed at generalizing the prerequisites for the development of methodological support for the formation of a new economic model of society involving the development and use of cognitive resources.

Presentation of the main research materials. The analysis of various research works shows that currently the problem of developing the new economy in Ukraine is growing. The new model of economy is vital for public administration, industrial enterprises, and education. It is this economic model that, together with positive changes in politics and culture, can bring modern society out of crisis.

The theory of new economy already has a certain history behind itself. It is believed that it began to develop actively in the 1960s. Its supporters justified the necessity, first of all, to fill work with creative, intellectual technology, and secondly, to recognize the leading role of knowledge, information, and means of communication in ensuring the viability of society. Implementation of the new economy model can be seen in the accelerated increase in GDP from incomes in such industries as services, science, education, and culture in comparison with incomes in industry and agriculture. The development of society on this basis contributes to the emergence of a new class, whose representatives at the political level can act as experts and consultants for building reliable ways to reform the country.

Many scholars believe that the unsatisfactory state of economics has been one of the reasons for the inefficiency of reforms. This was stated in 1995 by V. Palterovich, a distinguished scientist, in his report at a scientific seminar of the Russian Academy of Sciences entitled «Unknown Economy»: «I believe that a balanced attitude to theory and understanding its true potential could help choose the most rational reform strategy» [2, p. 49].

The profound source for developing the economic system was and still is the person. The person is the main resource of economy, which was enriching in essence and content alongside with the development of civilization. Currently, not only the person's physical and intellectual abilities are used at the workplace, but also its emotions, capability to learn and use new work patterns in practice. Alongside with human development, social models were developing: from the industrial to post-industrial, knowledge, and cognitive society.

During the transition from industrial to post-industrial society, the quantity and quality of various services in human economic activity was increasing. For example, during the transition from post-industrial to information society we saw the increase in the number of services that provide collection, storage, processing, and exchange of information which is the resource base for knowledge. The transition from information society to knowledge society was marked by the increase in the number of technologies used to study situations and of opportunities to capitalize them. The transition from knowledge society to cognitive society is based on the development of intellectual activity aimed at obtaining fundamentally new knowledge, the capability of its rapid implementation into practice.

M. Karpenko, a specialist in this field of knowledge, writes the following: «cognitive society is a new round of society development, its socio-economic formation..., in which cognitive activity is the dominant productive force» [3, p. 38].

Knowledge economy reveals a new role and place of human intelligence in cognitive society. Knowledge today is recognized as a decisive factor in economic development, a tool of innovation. Thanks to it, it is possible to create a competitive economy and to provide a high level of well-being for a society. To ensure the efficiency of working with knowledge, one should distinguish between the nature and purpose of two processes, namely: a) production of knowledge, and b) mastering the human ability to learn and understand how this production is carried out. Knowledge of how knowledge is produced forms the domain of cognitive economy.

Thus, cognitive economy is the basis for creating a knowledge research technology. It is directly related to the production of knowledge on how to create new knowledge. If it is human capital that is the factor of production in knowledge economy, then human capability to capitalize on specific cognitive knowledge and competencies is the factor of production in cognitive economy.

The formation of a cognitive society has led to increased attention to the employees' knowledge, which is a resource for society's intellectual capital. After all, the involvement of such a resource in the reproduction process will develop the intellectual capital of both the employee and the organization.

One of the main problems of cognitive society is the problem of exchanging meanings between employees to replenish the intellectual capital of an enterprise, and the problem of intensifying the implementation of employees' practical knowledge amidst the increased instability of socio-economic conditions. The solution of these problems is possible through improving the quality of educational potential of personnel as an intermediate resource for the formation of their intellectual capital.

The analysis carried out shows that when a cognitive society and, as a consequence, cognitive economy are still in the process of formation, organizations are facing a huge problem in transiting to a mode of providing constant education for their employees.

However, it should be noted that we are already witnessing positive trends in understanding the problems of building a new economy and working out relevant measures. And among such problems is the one of the possibility to analyze development trends.

In 2008, V. Polterovich published the following characteristics of the crisis in the reform strategy: «The results of the «decade of reforms» are difficult to be characterized other than as one of the greatest economic catastrophes of the XX century. In seven years, from 1992 to 1998, the twenty-six transition economies of Eastern Europe and the former Soviet republics lost more than 25 percent of their GDP. Most countries did not return to their pre-reform output even at the end of a ten-year period. The Russian GDP in 2000 was about 70% of the 1991 level, and the Ukrainian GDP was even smaller» [4, p. 7].

In connection with the material given above and additional analysis of other publications on the problem, we suggest that scientific community discuss the following variant of

a hypothesis for collective research: «Given the steady growth of the role and importance of new knowledge in the innovative development of economy, the company's cognitive capital, i.e. knowledge of how to produce the latest corporate knowledge, becomes a critical factor in ensuring large-scale and continuous innovation and progressive socio-economic development».

Many scientists pay attention to clarifying the problems that hinder the formation of the conceptual provisions of the new science. In 2002, V. Kuznetsov defined them as follows: «The main difficulty in studying the processes of the formation of a new economy in Russia is that, despite the growing interest in this problem, there still exists no unified theoretical and methodological approach to determining the content of new economy and its features. There is neither any method of allocating a cluster of branches of the new economy, nor any comprehensive model for developing a new economy in the transformed economic system» [5, p. 3]. The author develops this idea and says, «Among the current problems of the theory of new economy one can name the following: giving the definition for the «new economy» concept, providing the most complete list of features of the new economy in the transformed economic system, choosing methods for identifying branches of the new economy in the transformed economic system». [5, p. 5] As for the essence and content of the new concept, A. Kuznetsov notes that research literature hardly suggests a term that is used as often and at the same time has as vague a definition as the «new economy» [5, p. 6].

This ambiguity still stood in 2011. T. Evtodieva writes about it this way: «Still there is no unity in defining even the name of the new form of economy». Such an economy gets different names depending on what quality the scientist chooses for in-depth research: information economy, network economy, Internet economy, knowledge economy, new economy [6, p. 177].

In 2002, A. Kuznetsov, having analyzed research works on the issue, generalized the options for interpreting the meaning of the new economy. The author concludes that in some technological and journalistic publications the «new economy» is considered as all the sectors of economy directly related to the production and dissemination of information. Here the authors of these publications also include, as a rule, industries that produce computer and communication equipment. There are economists and financiers who understand the «new» economy as the current processes of globalization and global integration, which, on the one hand, change the conditions of each national economy, and require new approaches to choosing national economic policy and policy coordination between countries, on the other [5, p. 7].

In 2005, I. Polyubina similarly failed to find ready-made mutually acceptable versions of interpreting the new economy concept: «In recent years, the problems of the formation and functioning of the new economy (neo-economy) have been actively studied. Its essence, signs and features have yet to be carefully studied [7, p. 14]. However, in the same article the author writes: «The share of the new economy in the economies of advanced countries is 20–25 %, and in the future, obviously, it will grow. The products of the new economy branches often have significant export potential» [7, p. 16–17]. The value of the author's publication for other scientists and for society, in gen-

eral, would increase significantly if it presented methodological support for choosing such products, methods of their advertising, logistical transport routes, and so on.

In 2006, E. Avdokushin tried to specify the essence of the new economy, emphasizing its entrepreneurial features. The author increases the list of the «new economy» imperatives, which consisted of the already recognized information and communication revolution and the financial revolution, adding there revolutions in management and marketing, which in his opinion significantly affect key economic indicators. «New economy» contributes to a significant change in the GDP structure and in all the parameters of socio-economic development, including quality and life expectancy [8, p. 5].

The following year (2007) G. Zhuravleva argued that research works did not present any unity of opinion in defining the characteristics of the new economy, and suggested her view on the new concept: «Today the «new economy» term is understood as synonymous to the post-industrial development stage, where a traditional sector of economy is smoothly intertwined with new elements, giving the whole system a fundamentally new quality» [9, p. 68–69].

T. Evtodieva in 2011 presented her view on the essential characteristics of the new model of economic system. In her opinion, the new economy is an internationalized system of economic relations, which is developing dynamically and is based on innovative telecommunications technologies and network models of controlling the processes that occur in it [6, p. 179].

An attempt to specify the essence of the new concept made by N. Chumachenko in 2014 gave the following result: «A new market economy is the production of goods and services using information technology, and it aims to develop industries that use these technologies. The study of the new economy phenomenon is of great interest because it can provide a key to understanding the mechanisms of economic growth with a qualitatively different content due to the introduction of information technology» [10, p. 38].

The effectiveness of settling any difficult situation depends on understanding the causes and results of its occurrence. I. Polyubina believes that the transition to the new economy is the result of a qualitative transformation of productive forces under the influence of scientific and technological revolution due to a radical change in the physical facilities of production characterized by: a) production automation; b) a huge amount of information resources, which formed an independent branch of knowledge, i.e. the theory of information economy; and c) computer technology with the World Wide Web [7, p. 14]. In our opinion, the scientist's position needs clarification. First, the transition to the new economy is accompanied by changes in the mode of production as a whole, as changes occur not only in productive forces but also in production relations. Secondly, radical changes occur not only in the physical facilities. The characteristics specified by the author refer to both changes and their consequences.

In 2006, E. Avdokushin concluded that the «new economy» contributes to a significant change in the GDP structure and all the parameters of socio-economic development, including life quality and expectancy. This trend is not being denied, but needs empirical confirmation.

V. Kuznetsov's opinion is close to the beliefs of the two previous authors. He writes that «The new economy is an organizational and economic form of development of the technological method of production as a modern stage of productive forces, characterized by a dominant based on the exchange of information resources» [5, p. 11], or, to be more specific, the exchange of information resources in the process of both obtaining (accumulating) and using knowledge.

Almost all the scientists studying the resources of new economy state that it actualizes knowledge development. For example, the annotation to W. Deming's monograph, which is used by all who study new economics, says: «Transformation of the existing system is possible with the help of profound knowledge. The layout of profound knowledge appears here in four parts, all related to each other: appreciation for a system; knowledge about variation; theory of knowledge; psychology» [11, p. 11].

G. Zhuravleva emphasizes the change in the ratio of the nature of intensive resources of the economy: «The formation of a new economy is the process of economy becoming less machine-intensive and more knowledge-intensive. Traditional factors of production, namely, land (i.e. natural resources), labor and capital, have not disappeared, but have become secondary. These resources can be obtained without much effort, if you have the necessary knowledge. Knowledge in its new sense means a real useful force, a means of achieving economic results» [9, p. 72]. In our opinion, it is not yet easy to ensure the development of the knowledge-intensive model of economy. It is necessary that someone possessing knowledge in a subject area, first of all, know how to use it. Then, this person should not hold it back as «know-how». The author also doubts that land (i.e. natural resources), labor and capital can be obtained without much effort.

Still, one can partially agree with another conclusion made by the same researcher: «In the coming decades, those countries and peoples will come to the foreground, who will be able to provide a higher level of education, upbringing, skill in all its manifestations, and not those (as is now thought) who achieved a higher standard of living or even learned to produce better electronics» [9, p. 72]. But one detail should be added here: «A high standard of living becomes a source of educational opportunities, and education in certain conditions can become a source of life quality».

V. Kolpakov campaigns for the development of not any knowledge but scientific knowledge. He believes that its quality is currently ensured by the transition from a single paradigm orientation to a kind of paradigm matrix. Using this orientation, one can get a more realistic model of scientific knowledge development concerning such complex objects as economic systems [12, p. 86]. For new economy, this idea can be concretized as follows: to develop the scientific foundations of new economy, it is necessary not just to move, but to move quickly (sometimes intuitively) to unique combinations of such matrices.

O. Dyachenko has been studying the development trends of the society's economic system for a long time. Already in 2010, he made a meaningful clarification of the new economy resources. The author determined the fact that the most important global trend in the formation of modern society is

the transition from a raw material and industrial economy to a new economy based on knowledge, intellectual resources, knowledge-intensive and information technology. The crucial resource of modern society is not information as a certain substance, but knowledge and intellect, i.e. information assimilated by people and not existing outside their consciousness [13, p. 20]. O. Dyachenko believes that the conscious mastery of knowledge and information is possible by providing the organization of the educational process, which would gradually stimulate such a desire [13, p. 20].

N. Chumachenko in the publication of 2014 makes a reference to another author and agrees with him. Information becomes knowledge when it becomes a productive force. It is not impossible for any knowledge corpus to be applied at any time. The time spent on decision-making increases, which makes timely information extremely important for the subject. The reduction of time (which is important for the competition dynamics) is complemented by the exclusivity of information, as well as the exceptional qualities of the subject capable of using this information (which is important for the nature of competition in markets). Thus, the nature of competition changes; local monopolization arises from the synthesis of a large array of differentiated information and specialization of knowledge. The micro level of the economy is monopolized, and an inter-specific resource, namely, knowledge and an individual specialist become the object of competition [10].

By combining theses of philosophy, psychology and management presented in the works of corresponding scientists, the theoretical basis for the research of the employee's cognitive potential was formed. Fig. 1 presents the peculiarities of two related concepts, *cognition* and *perception*, which are used by scientists in their studies of resources necessary for the effective development of human ability to acquire new knowledge on the peculiarities of a do-or-die situation.

Managing a complex project requires an organization to mobilize all the knowledge and skills, use all the professional skills of the team which was created for this project and is open to the use of new technologies and innovations. In line with the strategic development of an organization, much attention should be paid to the development of such a team, the creation of a common mental space in it, the use of cognitive approaches to increase its competence.

Based on a critical analysis of cognitive doctrines, a variant of forming a cognitive model of the 21st century employee is suggested (Fig. 2).

The success of a project and that of the organization implementing the project today directly depends on such components as knowledge, skills and information of all the team members. Creating a basis for the development of knowledge management system in order to improve individual merits of every participant, the organization makes a significant contribution to its effective operation and increases its level of competitiveness. The state education system should be actively involved in fulfilling this task.

E. Antonenko believes that the weakest link in specialists training by higher education institutions is the development of their intellectual abilities, the formation of skills of independent learning and cognitive activity [14, p. 3]. The methodological basis for such development can be made by cognitive science,

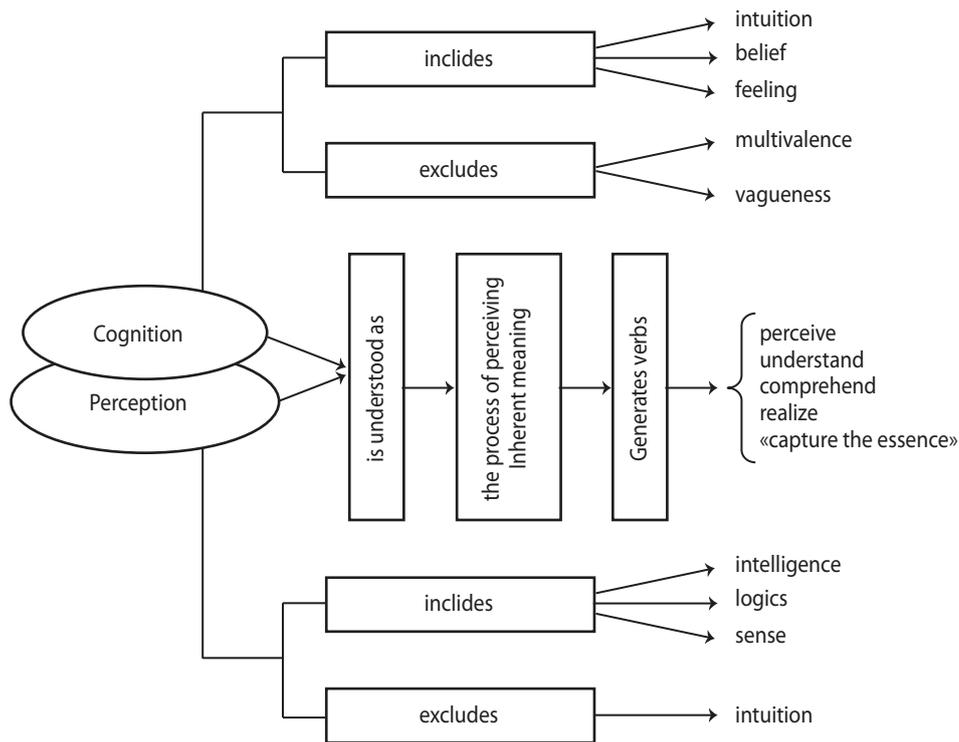


Fig. 1. Conceptual framework of the terms cognition and perception

Source: author development

which has determined its subject to be the content and nature of the functioning of human knowledge.

Yu. Plotinsky, a distinguished scientist in this field of science, analyzing trends in cognitology, defines it as an interdisciplinary study of the processes of acquisition, storage, transformation and use of knowledge and concludes the following:

«The main purpose of cognitology is to study higher-level cognitive processes: thinking, cognition, understanding, explanation, memorization, recognition, learning, decision making and creativity. It is this definition that shows that cognitology should become the scientific basis of knowledge management» [15, p. 43–44]. The use of cognitology to solve socio-economic problems can be considered relevant. This is facilitated by such characteristic features of economy as multidimensionality of processes (economic, social, etc.) occurring in it, their relationship and variability over time, which make it impossible to identify and study individual phenomena – they must all be considered together [16].

Lack of information about economic processes causes the transition to a qualitative cognitive analysis of them. N. Alekseev and his colleagues draw attention to the necessity to introduce a research component in the student's learning activity, which initially should take place under the teacher's guidance. The urgency of fulfilling this task is argued as follows: «Sporadic research accompanies a person throughout life, regardless of their abilities and social status, as a means of mastering reality and interacting with it» [17, p. 14]. In order to organize a learning process, which would produce specialists ready to work in a rapidly developing economic environment, it is necessary to present the formation of their cognitive competence as a certain sequence of complications of its variants. Generalization

of research results on the issue [18] makes it possible to define it as follows: educational, intellectual and cognitive, research, and scientific research competence. In what follows, we suggest a description of each stage in such a framework: the purpose of the learning process, the criteria for assessing its outcome, the features of academic support for the student.

The purpose of the first stage is to help the student master the content and essence of the concepts and categories used in the relevant fields of knowledge. The result is the student's mastering the vocabulary of each field, its technologies for analyzing problems. As a criterion for assessing this stage, one can use the student's ability to create cognitive maps of complex concepts, mental maps of the system of concepts on a particular topic of the field of science. The teacher at this stage should remove the emotional load arising in the process of learning the fundamental tenets of science off the student. The purpose of the second stage is to intensify the students' cognitive activity by combining their efforts with those of the teacher. The result is the students' mastery of methods of extracting knowledge from textbooks and courseware, and methods of taking notes. The criterion for evaluating the result is the students' ability to compare variants of certain concepts, to form their own version of terms. The teacher at this stage helps the students to identify and compare scientific areas that use the same (or different) interpretations of this or that concept. The purpose of the third stage is to form the students' research competence in a specific subject area. The result is the students' mastery of the technology of gradual knowledge acquisition by studying various complicated situations. The criterion for evaluating the result is the students' ability to learn learning something. The teacher acts as a partner in determining the ways to solve a non-standard

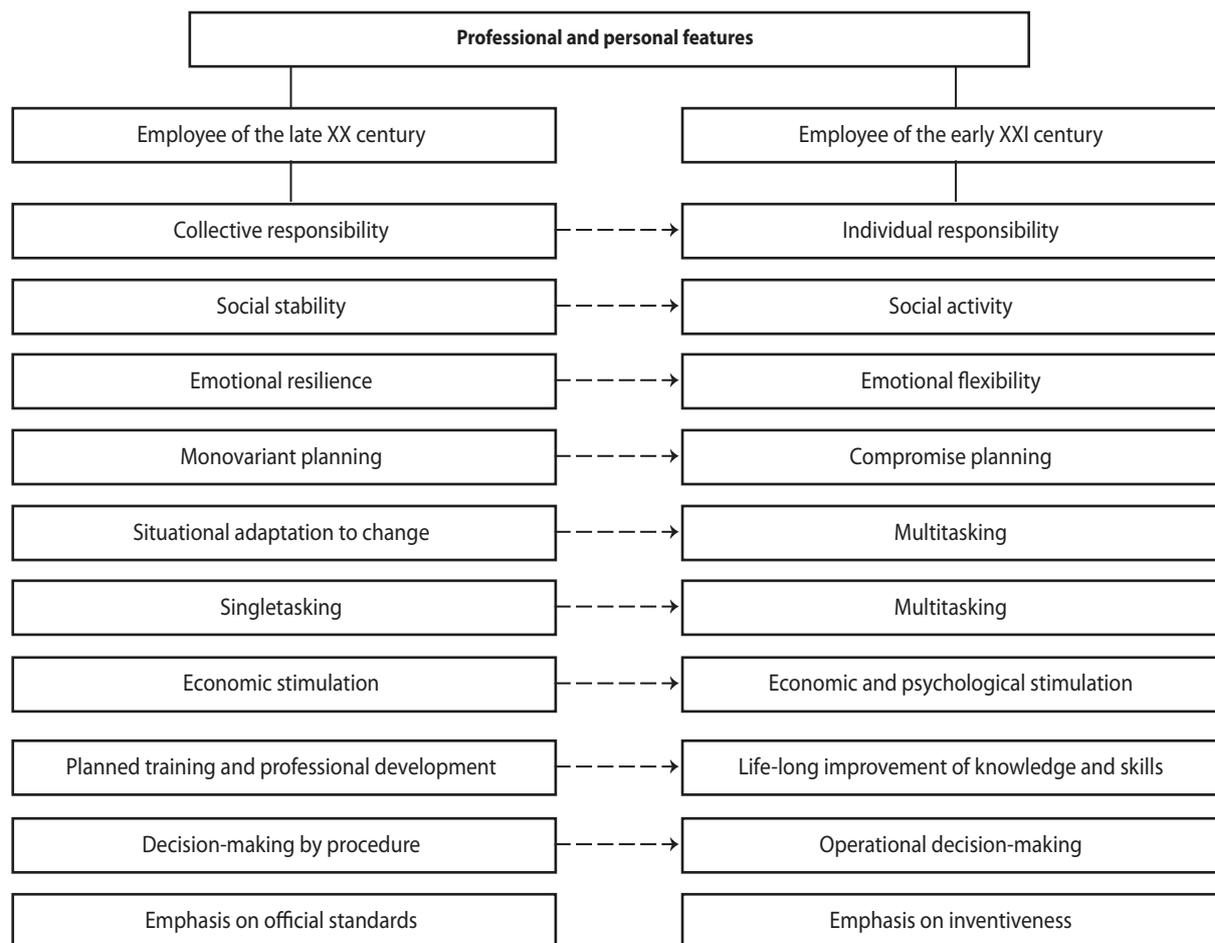


Fig. 2. A variant of forming a cognitive model of the XXI century employee

Source: author development

problem. The fourth stage aims at forming the students' ability to independently develop and supplement knowledge in a specific subject area. The result is the students' ability to formulate a problem or hypothesis, to build a term system using different disciplines, and to create a problem research program. The criterion here is that the students receive scientific results corresponding to the level of a Master's or a PhD (Ukrainian Candidate of sciences) degree. The task of the teacher here is to give the student several aspects of a problem for independent research, to organize the work of a creative project group and support it.

Conclusions. The gradual transition of Ukrainian society to the cognitive model of the new economy, the development and use of the population's cognitive potential can ensure the reliability of its reforms. Domestic schools of thought need to focus on technologies for diagnosing real resources of developing the new economy, and variants of its forms acceptable for Ukraine. The state should take control of the processes of knowledge production and human mastery of the ability to generate unique ideas and use them in practice.

Further research is expected to focus on technologies helping to form social responsibility, harmonize characteristic features of justice and efficiency of society, in general, and its economic system, in particular.

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