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Bessarab N., Danylko M. V., Holovchenko O., Rebryna A., Safonov Yu., Safonova I., Sharova T.

Human capital plays a key role in the development of modern society. Education, healthcare and culture are the main factors of its development. The articles in this Issue present some points of view on the development of human capital and its factors.

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REGULATIONS OF INNOVATION PROCESS IN THE MACROECONOMIC ENVIRONMENT

Oksana Holovchenko

Chief Specialist of the Foreign Courts,
Department of International Disputes,
Ministry of Justice of Ukraine,
Candidate of Economic Sciences,
Kyiv, Ukraine

Safonov Yuriy

Doctor of Economic Sciences,
Deputy Director,
Scientific Institute of
Education Content Modernization,
Professor,
Kyiv, Ukraine

Abstract

Innovation aspects, investment volumes, and growth potential in the national macroeconomic environment should increase significantly if the necessary transformational changes are made, including improving the quality of regulatory institutions, digitalization, regulatory and governance processes, enhancing the protection of private and intellectual property rights, reducing corruption, improving the efficiency of the financial sector, which will contribute to the development of business in the country, etc. The regulation of processes in the macroeconomic environment in conditions of permanent turbulence and under the influence of significant risks has actualized the task of a comprehensive study of the highly complex, turbulent, multilateral and multilevel interdependencies of globalization and state institutional regulation.

Understanding the dynamics of interconnection and interaction is of particular importance for deepening the understanding of current trends in the development of mechanisms and models of state institutional regulation and the theoretical and methodological justification for reforms of institutional intervention in the national environment.

Keywords: innovation, investment, institutional regulation, macroeconomic environment.

The adequacy of the national monetary policy in the context of globalization and the choice of the exchange rate regime on which its effectiveness depends remain among the debatable issues. The "floating" exchange rate regime in the national macroeconomic environment is desirable for the country's economy and stimulates the development of a competitive environment.

It should be noted that the change in theoretical approaches to the study of monetary policy is due to the formation of trends in the international macroeconomic environment under the influence of globalization. Among the main patterns in the socio-economic sphere associated with globalization changes are:

- Integration processes in the international macroeconomic environment;
- Economic system based on the international division of labor and internationalization of economic activity;
- Growth of international capital flows;
- Increase in the volume of various segments of the global financial market (international debt markets, insurance services, international currency markets, etc.);
- Development of innovations in the financial market;
- Increasing interdependence in the international capital market.

Modern research on monetary policy focuses on open economy models that consider monopolistic pricing. Investigating aspects of monetary policy under different exchange rate regimes, C. Engel and Michael P. Devereux developed a stochastic general equilibrium model with two countries and inflexible prices and determined the optimal monetary policy using consumer welfare as a criterion. [2]

It should be noted that the model result was influenced by the pricing currency. As a rule, prices are set in the producer's currency, so when the exchange rate changes, the prices of

imported products change by the same amount.

Another option is to set prices in the currency of consumers. The general conclusion of the scientific study by C. Engel and M. Devereux is that in the case of pricing in the consumer's currency, the optimal monetary policy in response to real shocks is fully consistent with the fixed exchange rate regime [5], but it completely refutes the results of the Mandell-Fleming model - with a fixed exchange rate, the country's monetary policy will be ineffective.

For the national macroeconomic environment, monetary policy should be flexible, reasonable, and consider socioeconomic changes in the country and the international economic environment. Therefore, given the cyclical nature of the national economy, monetary policy should prevent the economy from overheating or minimize the negative consequences. In a period of stagnation, the national monetary policy should provide an impetus for economic growth in the macroeconomic environment of the country.

National monetary policy in the context of globalization should ensure

- Achieving and maintaining price stability in the market;
- Promoting macroeconomic stability;
- Maintaining sustainable dynamic rates of socioeconomic growth in the national environment.

An important vector of monetary policy research was proposed by the American economist John Taylor, who developed the rules of monetary policy.

"The Taylor rule is a way for the national bank to determine the level of the key interest rate, and when inflation is rising, the interest rate should be higher than usual, and when inflation falls below the set parameters, the interest rate should also be lower. The effect on GDP is similar". [4]

According to the Taylor rule, the interest rate set by the national bank is a function of the following parameters

- The equilibrium interest rate within the national economy;
- The deviation of the current inflation rate from certain parameters;
- Deviation of the actual output growth rate from the potential output growth rate.

A prudent national monetary policy, thanks to the monetary and fiscal measures taken after the 2020 recession, will ensure that the national economy will resume growing in the coming periods.

The main determinant that will contribute to socio-economic growth in the country's macroeconomic environment is the flexibility of the inflation targeting regime, i.e., inflation is allowed to deviate from the set parameters and this phenomenon will not prevent its return to the parametric range on the balanced horizon of the macroeconomic policy of the country's state institutions.

The essence of the inflation targeting regime is the public announcement of quantitative inflation targets and the obligation of the national bank to achieve these targets over the medium term. Inflation targeting is a monetary regime that makes the national bank responsible for compliance with the declared value of the official inflation rate (target) over a certain period. [2] Inflation targeting does not require active regulation of the exchange rate, and therefore does not require the national bank to hold large amounts of reserve assets.

We agree with T. Milovanov that "the inflation targeting regime is a pragmatic response to the failures of other monetary regimes. In the case of our country, it is a response to the historical failure of the fixed exchange rate regime in the face of undisciplined fiscal behavior of the government and severe external economic shocks. Historically, Ukraine has tried to maintain a fixed exchange rate. However, political pressure to create economic growth through fiscal stimulus, the provision of public social goods, and economic shocks put pressure on the exchange rate. The result of this policy was periods of stability followed by crises with large devaluations of the hryvnia. In other countries, it is the rejection of money supply regimes due to the instability of demand for money in the current environment of constant financial innovation. [2]

It should also be remembered that a high level or range of inflation does not promote or hinder socioeconomic growth in the macroeconomic environment, and low inflation is a socioeconomic good that protects low-income society.

Therefore, in the field of state institutional regulation of an open economy in modern transformational conditions, questions arise about the policy based on strict laws, principles and standards or discretionary policy, within which decisions on regulatory institutional measures are made depending on the current situation in the national macroeconomic environment.

Adherents of a rigid policy, who emphasize that adherence to pre-established principles and standards allows correcting those negative aspects in the activities of the executive branch, which is prone to spending more resources than state budget revenues allow under public pressure,

which sooner or later leads to the formation of debts that are passed on to future generations. Followers of discretionary policy believe that adherence to established rules and standards does not allow national fiscal policy to respond flexibly to economic imbalances and reduces its effectiveness. Therefore, the basic principles, standards, and norms of national monetary policy should be reasonable, aggregated, and adaptive.

The researchers F. Cudland and E. Prescott proved that the regime of establishing once and for all binding principles and norms is better than the discretionary regime. This point of view on the use of fiscal instruments is shared by economists of the neoclassical school.

The need to apply budgetary rules is increasingly being emphasized in the research of Ukrainian economists: Y. Melnyk, G. Grigoriev, E. Maslennikov, and Y. Safonov, who note that the public finances of most developing and emerging market countries have been characterized by an excess of total expenditures over total revenues for a long period of time. These aspects lead to budget deficits, rising debt, and increasing debt service costs, which negatively affect socioeconomic growth and macroeconomic stability.

Ukraine's financial system has been subject to severe budgetary constraints over the past five years, which should ensure:

- Macroeconomic stability;
- Strengthening the country's financial reliability;
- Confidence of internal and external stakeholders in the country's economic policy.

It should also be noted that the choice of restrictions depends on the goals of socio-economic policy, the institutional organization of the budget process and the methodology of fiscal policy.

The basic principles of budget policy in the system of state institutional regulation of an open economy in modern transformational conditions:

- The principle of a balanced state budget (setting a limit on the country's budget deficit) requires balancing all revenues and expenditures or limiting the budget deficit to a certain share of gross domestic product, for example, in 2019, Ukraine's budget deficit amounted to 1.8% of GDP; loans are made only to finance capital investments;

- Principles of financing loans: prohibition of government loans from domestic sources, from the national bank, or limitation to a certain proportion of government revenues and expenditures

of previous periods;

- The principle of the amount of public debt or reserves, which requires limiting the debt indicator in relation to gross domestic product and the number of public reserves.

Despite the many scientific studies that reveal the methods, directions, and mechanisms of state institutional regulation of an open economy in the current transformational conditions, pragmatic vectors are being implemented in practice. For example, in the European Union, unlike monetary policy, budgetary policy remains decentralized and controlled by the countries that are part of this integration structure, and the debatable issue is ensuring budgetary discipline within the Union and maintaining its flexibility, which will provide instrumental support for combating cyclical downturns in the macroeconomic environment.

The main regularities of state institutional regulation of an open economy in modern transformational conditions:

- Regulation should be carried out under the influence of macroeconomic theory and globalization factors: the independence of national banks has increased; taxation objects are focused on consumption; focusing of economic policy on targeting inflation parameters;

- Transformational changes taking place in the global economy prompt a reassessment of the possibilities and necessity of state institutional intervention, especially in monetary and fiscal instruments;

- Growth of international capital flows;

- Increase in the volume of the global financial market;

- Development of financial innovations;

- Requirements of budget constraints: reduction of budget deficits and reduction of growth rates of public expenditures and debt; reduction of the tax burden on the economy;

- The exchange rate regime is a priority instrument of state institutional regulation of the national economy; with a fixed exchange rate regime, the effectiveness of fiscal policy increases and the role of monetary instruments decreases, and vice versa; with a floating exchange rate, monetary instruments are the priority, and fiscal policy has a secondary impact;

- At a fixed exchange rate, monetary policy is inefficient and has a negative impact on the development of the national economy;

- Monetary policy is aimed at targeting inflation, but it should be remembered that inflation affects cost growth and is a factor of aggregate demand;

- The debatable choice between a policy based on strict principles and norms and a discretionary policy, in which decisions on regulatory measures are made depending on the current socio-economic situation in the macroeconomic environment.

For the national economy, monetary regulation today has the following trends

- Strengthening the independence of the NBU;
- Inflation targeting is envisaged as a vector of state regulation;
- Increased openness of the national macroeconomic environment;
- Resumption of international capital flows and a moderate increase in the volume of various segments of the financial market;
- Development of financial innovations;
- Increased interdependence of the Ukrainian financial market on the international one, with the convergence of global and domestic interest rates;
- The country is abandoning intermediate forms of fixing the exchange rate, as the international capital market is open;
- Macroeconomic parameters of the NBU are planned as part of the monetary policy: refinancing rates, required reserves, money supply growth rate, etc. Based on the results of the analysis, the planning of economic parameters within the framework of monetary regulation in the context of globalization is becoming ineffective, as it is complicated by the modified market mechanisms.

Thus, the author proposes a methodological support for modeling the determinants of the State institutional regulation of an open economy, which is aimed at composite regulation of processes in the macroeconomic environment, considering permanent turbulence, the impact of risks and the highly complex, multilateral and multilevel interdependencies of globalization and State regulation. Modeling the determinants of the state institutional regulation of an open economy provides methodological support for the system of strategic development of the national economy.

The main determinant that will contribute to socio-economic growth in the country's

macroeconomic environment is the flexibility of the inflation targeting regime, i.e., inflation is allowed to deviate from the set parameters and this phenomenon will not prevent its return to the parametric range on the balanced horizon of the macroeconomic policy of the country's state institutions.

It is proved that a significant direction of global shifts is the change of power systems, models and mechanisms that ensure the formation of modern adequate organizational and functional structures of state institutional regulation, for which no stable and dominant definitions have yet been found.

The macroeconomic analysis confirmed that the national economy is constantly in a turbulent state, but there are positive trends in economic growth with a quantitative and qualitative focus on accelerating the development of the national economy. There is a clear upward trend in nominal and real gross domestic product. The main source of economic growth in the country's macroeconomic environment remains private household consumption, which is driven by rising incomes. The investment outlook is also positive. The fluctuations in the consolidated national accounts indicate that the national economy has significant growth potential.

The process of adapting the national economy to the global economic environment should focus on foreign economic activity and domestic consumption. Unfortunately, the current recession in the international economy reduces the export opportunities of the national economy of Ukraine, but the relatively stable pace of socio-economic development and integration processes ensure the intensification of international relations and will contribute to the growth of the national economy. Positive fluctuations in macroeconomic indicators give confidence in the prospective development of the national economy in a globalized environment.

Methodological approaches to modeling indicators of socio-economic growth that affect the national economy have been developed, which provide for a comprehensive multilateral study of the impact of qualitative and quantitative components of the macroeconomic environment, conditions for mobilizing innovative sources of growth and improving the system of economic development indicators based on the identification of typological features and taking into account economic imbalances, which will provide instrumental support for assessing socio-economic processes under the condition of structural

It is proved that modeling is a study of certain processes, structural imbalances, individual

actions, phenomena, integral systems, and factors that affect the level of national economic growth indicators. Modeling in the system of ensuring the growth of the national economy in the context of globalization is accompanied by a systematic analysis of the main components of the country's macroeconomic environment, taking into account current global trends, which makes it possible to formulate the parameters of growth and development of the national economy.

The article offers a methodological support for modeling the determinants of the State institutional regulation of an open economy, aimed at composite regulation of processes in the macroeconomic environment, considering permanent turbulence, the impact of risks and the highly complex, multilateral and multilevel interdependencies of globalization and State regulation. Modeling the determinants of the State institutional regulation of an open economy provides methodological support for the system of strategic development of the national economy. It is proved that a significant direction of global shifts is the change of power systems, models and mechanisms that ensure the formation of modern adequate organizational and functional structures of the State institutional regulation, for which no stable and dominant definitions have yet been found.

References

1. Devereux M., Engel C. (2000) Monetary Policy in the Open Economy Revisited: Price Setting and Exchange Rate Flexibility. *NBER Working Paper, 7665*, p. 3-11.
2. Mylovanov T. (2019) *Tarhetuvannia infliatsii v Ukraini*. [Inflation targeting in Ukraine.] Retrieved from: https://lb.ua/blog/timofey_milovanov/390166_targetuvannya_inflyatsii_ukraini.html [in Ukraine]
3. Rozhko O., Safonov Yu., Bazhenkov Ye., Yemelianenko L., Ye., Brydun Ye. (2021) *Naukovo-metodychnyi pidkhid do otsiniuvannia biudzhetykh dysbalansiv*. [Scientific and methodological approach to the assessment of budget imbalances.] *Financial and credit activity: problems of theory and practice, Vol. 5, No. 40*, p. 99-109. [in Ukraine]
4. (2022) *Tarhetuvannia infliatsii v Ukraini*. [Inflation targeting in Ukraine.] Retrieved from: <https://bank.gov.ua/ua/monetary/about/inflationtargeting> [in Ukraine]

5. Rudan V. Ya. (2014) *Optymalna model hroshovo-kredytnoi polityky Ukrainy*. [The optimal model of monetary policy in Ukraine]. Ternopil, Ukraine: Ternopil National Economic University. [in Ukraine]

6. Orphanides A. (2003) Historical monetary policy analysis and the Taylor rule. *Journal of Monetary Economics*, 50, pp. 983-1022.

**FORMATION OF COMMUNICATION SKILLS IN FIRST-GRADE STUDENTS AT
FOREIGN LANGUAGE LESSONS IN THE NEW UKRAINIAN SCHOOL**

Nataliia Bessarab

Candidate of Pedagogical Sciences,
Institute of Education Content Modernization,
State Scientific Institution,
Kyiv, Ukraine

Abstract

The article highlights the didactic and methodical principles of the organization of competence-oriented teaching of foreign languages to elementary school students. The age characteristics and potential capabilities of primary school students are outlined, the types and forms of educational activities are proposed and substantiated in accordance with the competence, communicative, person-oriented, and cultural approaches to learning, the methods, forms, and ways of organizing the process of learning language material and the formation of foreign language communication skills are characterized.

Keywords: Concept of the New Ukrainian School, modern language education, foreign language learning, speech communication, communicative skills, communicative competence, communicative skills.

Introductions. Modern changes in social and socio-cultural conditions led to the reorientation of the school education system to the formation of life skills in students, which will allow them to learn successfully, navigate in modern society, the information space, the labor market, perform socially important tasks, respond to the needs and challenges of the time. In view of the above, the actual task of the modern school is the implementation of the competence approach, which involves the orientation of the educational process to the formation of key and subject competencies in students. The Concept of the New Ukrainian School aims at the introduction of a competence approach, which states that “knowledge and skills interrelated with the student’s value orientations form his life competencies needed for successful self-realization in life, study,

and work". [4]

Knowledge of foreign languages is the key to success in today's world, where communication in different languages and the assimilation of information are gaining more and more importance. Interest in language learning grows every year. A diversely developed personality has better abilities to learn new things and is more confident when communicating with others. Children who study foreign languages have more original thinking.

The priority of modern language education, which guarantees its high quality, is an education focused on the formation of communication skills in schoolchildren: the ability to communicate, listen and hear a partner, cooperate, express one's point of view freely, clearly and clearly, defend one's position, convince others with arguments, be tolerant of different opinions.

The study of the English language is becoming more and more widespread in the world, therefore an important problem for pedagogical theory and practice remains the issue of diversifying the educational process, activating the cognitive activity of students, expanding the scope of their interests, and forming a positive motivation to study in the concept of the New Ukrainian School. Motivation is important in learning a foreign language. The main task of the teacher is to arouse, preserve and support her in a timely manner. But for this, the teacher needs to clearly see and understand the possible sources of motivation. The most effective methods of forming motivation are integrated lessons using game technologies, visualization, computer support, and involving students in research and search activities. [5]

The formation of communicative competence in primary school students is becoming especially relevant. After all, the younger school age is extremely favorable for mastering communicative skills and abilities, since in children of this age period speech hearing, and articulation are easily formed, they love to learn new words and fixed expressions, master linguistic constructions, show interest and sensitivity to linguistic phenomena, strive for communication and quickly gain speaking experience. The implementation of the competence approach in the process of teaching the Ukrainian language to younger schoolchildren involves clarifying the content and results of learning, selecting effective methods, techniques, and forms of organizing educational interaction, updating the didactic-methodical support of the educational process, introducing new approaches to checking and evaluating the educational achievements of students.

Goal. The need for communication is one of the most important in a person's life, which cannot fully exist and develop without society. Regardless of age, education, social status, or nationality, people constantly search for, store, and transmit certain information, that is, they are actively engaged in communicative activities. Communication is necessary for a person to acquire certain knowledge, skills, methods of activity, and social experience and is one of the most important factors in personality development.

Exercising a purposeful influence on the formation of students' communicative skills, the teacher must understand the essence of such concepts as "communication", "communicative skills", and "communicative competence", which are interconnected. Communication comes from the Latin communication - unity, transfer, connection, and message. This term is related to the verb community - to make common, to inform, to connect, which is derived from community common.

The psychological dictionary defines the concept of "communication" as a fundamental feature of human culture, which consists of intensive interaction between people based on the exchange of various types of information. [7, p. 79-80] Communication in one form or another accompanies every act of life of a social person. It is carried out on the basis of certain sign systems (first of all, language), produced by one or another human community, and recorded in individual and collective memory. A distinctive feature of communicative processes is their continuous quantitative and qualitative growth over time, due to the general progress of mankind, and the constant expansion of their geographical and ideological space, reinforced by the rapid development of technical means of information preservation and transformation.

In the scientific literature, there is no single point of view regarding the definition of the concept of "communication". I. Zimnia considers the concepts of "communication" and "communication" to be synonymous words (I. Zimnia).

The French scientist A. Perre-Clermont characterizes communication as a connection of individual actions in relation to a collective product and the further implementation of this connection in the structure of a new joint action. The process of communication, in his opinion, includes the following stages: planning; establishment of contact; information exchange; reflection. [6]

The communicative approach most fully defines the specifics of a foreign language as an

educational subject in a secondary education institution. This method was defined as a result of a methodical understanding of scientific achievements in the field of linguistics and psychology and the theory of activity, which was reflected in the works of outstanding scientists in psychology and foreign language teaching methods (I. Zimnia, Yu. Passov, S. Shatilov, G. Rogova, and others).

Summarizing the views of modern researchers on the essence and structure of speech communication, we come to the conclusion that communication is the process of exchanging information (facts, ideas, views, emotions, etc.) between two or more people, communication using verbal and non-verbal means for the purpose of transmitting and receiving information, the interaction of communication participants, people's perception and knowledge of each other.

In the process of speech communication, the communication situation plays an important role. In the conditions of the educational process, the situation is set by the teacher. The subject of speech communication are opinions expressed in connection with certain motives within a specific topic. There can be both an internal stimulus to communication (initiated by the need of the person himself) and an external one (initiated by another person). The dynamism of communication depends on the activity of the communicators, their interest in communication, the coincidence of interests, and the attitude of the communicators to each other, in the given situation. A person's ability to communicate is defined in psychological and pedagogical studies as communicativeness. Scientists consider communicativeness as the motivation of any individual action, its implementation on one's own initiative, and not under the influence of external stimulation. [2]

A high level of communication skills ensures the effectiveness of communication with other people in a wide variety of activities. It is important to start forming communication skills at the primary school age because communication activities are one of the main ones for children of this age. The lack of purposeful formation of communication skills in primary school has a negative impact on the disclosure of the child's inner potential and self-realization in education, among peers, and in society. Therefore, the formation of communication skills in younger students is an extremely urgent problem. After all, not only the success of children in education depends on the level of their formation, but also on the process of their socialization and general development. Activating the communicative activity of younger students involves encouraging children to

energetic purposeful communication. Communication is an integral part of any educational activity. Therefore, the formation of students' communication skills contributes to the improvement of the quality of the educational process. Skills, as is known, are formed in the process of the activity. Communicative skills are formed and developed in the process of communication.

N. Poluektova singles out four stages of the formation of communication skills in younger schoolchildren: motivational - involves revealing to students the importance of communication skills to achieve the goal of communication; familiarization – familiarization of students with the content of communication skills; mastering the skill – creating a situation of subject-subject interaction of the participants of the educational process in the learning process with the aim of mastering communication skills; improvement of skills – independent use of communication skills by younger students during communication and performing creative work (Poluektova N.).

To form communicative skills means to teach a primary school student to ask questions and clearly formulate answers to them (that is, to conduct a dialogue), to listen carefully and actively discuss the content of what is heard, to comment on the statements of interlocutors and critically evaluate them, to argue their opinions, to express their empathy to the interlocutor, to adapt own statements for perception by other participants in the communicative process.

Materials and methods. Implementation of the communicative approach in the educational process of a foreign language means that foreign language speaking skills and abilities are formed through (and thanks to) foreign language speech activity of students. Mastering speaking, listening, and writing skills.

Before finding out the essence of the communicative competence of a younger student, we consider it appropriate to define the meaning of the concepts of competence, competence, and communicative competence. According to the academic explanatory dictionary of the Ukrainian language, “competence” is good knowledge of something. Since there is no single view on the definition of the terms - “competence” and “competence”, we will use the term competence in the sense of a social norm, a requirement that covers knowledge, skills, methods of activity, and certain experiences. We consider competence as the ability to apply acquired knowledge, skills, methods of activity, and certain experiences in life situations in order to solve vital tasks or problems. Competence is a personal formation that manifests itself in the process of active

independent actions of a person.

The communicative competence of a junior student is manifested in the ability to communicate with people of different ages and statuses, to understand and reproduce the information received by ear and read, to meaningfully and competently express one's thoughts in oral and written forms, to be fluent in the language in various educational and life situations. Junior school age is a favorable period for engaging children in communicative activities. This age can become favorable for ensuring communicative activity since the leading speech activity of younger students is oral speech. At this age, the initial skills of speech culture are effectively formed, by which we understand the knowledge of the norms of the literary language, the ability to construct expressions in accordance with the purpose of communication, compliance with the rules of communication (one answers - the rest listens), evaluating a classmate's answer after its completion, the rules of cooperation in a group, in pairs. [1]

Modern educational institutions make new demands on children's speech. When answering in class, it should be specific, concise, clear, expressive, and well-constructed. During communication, it is necessary to adhere to ethical norms, and use accepted formulas of speech etiquette (forms of address, words of courtesy). The child must take care of his speech and organize it correctly in order to establish relationships with teachers, peers, and other participants in the educational process. It is usually quite difficult for younger students to organize their speech behavior, and this negatively affects communication with others. The reason is that children of this age have insufficiently formed social and communicative skills, structural components of communication.

The emergence of the latest information technologies has fundamentally changed the attitude of students toward learning. Easy access to various types of information gives rise to the idea of ease of acquiring knowledge. Students who are used to not spending effort on acquiring knowledge, since the answers to all questions are quite easy to find by correctly asking the questions in the search engine, perceive learning as burdensome and unnecessary work. In addition, a constant presence in the virtual space contributes to the accelerated formation of abilities necessary for existence in an artificially created world and delays the development of abilities necessary for the real world. Therefore, the school must learn to perform dual tasks - to use the new abilities of children and to strengthen the traditional ones. As is well known, the

effectiveness of the formation of communicative competence largely depends on taking into account the psychological development and mental abilities of students of each age micro period. In particular, it should be taken into account that in children of 1-2 grades perception is mostly involuntary, and fragmentary. They are characterized by a weak differentiation of perception - they do not notice the essence behind the details, call secondary features instead of the main ones, and often confuse similar, close, but not identical objects and their properties.

It is important for our research that the perception of children of this age is characterized by brightness, sharpness, and readiness to receive new impressions. In the process of forming the components of communicative competence, it should be taken into account that students of grades 1-2 have a visual form of memory. They remember specific information, events, objects, and facts faster than verbal material. In their memory, what is involved in the process of active educational activity, and what their interests and needs are connected with are better preserved. It is equally important to take into account the specific properties of the attention of 6-7-year-old children, which is closely related to children's emotions, feelings, and interests. Its main features are the weakness of the voluntary and the high level of the involuntary.

Pupils of 1-2 grades cannot concentrate on uninteresting, incomprehensible for them, they are easily distracted, and they get tired quickly. The main factor in maintaining their attention is interest, which can be ensured by vivid visuals, game techniques, compelling non-standard tasks, interesting accessible texts of various types, styles, and genres, and interactive forms of organizing educational activities.

However, throughout the entire period of primary school age, qualitative changes occur in the development of student's cognitive processes, which must be taken into account during the formation of communication skills.

Results and discussion. The development of schoolchildren's multilingualism is defined as an aspect of special attention in European educational systems. The principle of communicativeness is a leading methodological principle that contributes to the successful achievement of the main goal of learning a foreign language - to teach students foreign language speech communication within the limits of learning the educational material. The principle of communicativeness involves building the process of learning a foreign language as a model of the process of real communication (Yu. Passov).

An important factor influencing attention is interest. Therefore, in order to awaken and maintain it, it is advisable to use bright visualization, didactic games and game techniques, non-standard tasks, simulation of various educational and life situations, use meaningful and accessible texts, problem questions, various forms of organization of educational activities, interactive teaching methods.

Creative imagination is also intensively formed during this period: new images appear in children based on their own life experience; children's imagination moves to a higher level - from simple arbitrary combination to logically grounded construction of new images; the rate of formation of images increases, as well as children's demands for their own creations. Memory in primary school age develops primarily in the direction of strengthening its arbitrariness; the possibility of conscious management of it increases and the amount of semantic, verbal, and logical memory increases.

Under the influence of education, schoolchildren's thinking develops the ratio of figurative and conceptual, concrete and abstract components changes in favor of the growth of the role of the latter. Thanks to thinking, schoolchildren learn to define the concepts known to them, distinguish general and essential features of objects, solve increasingly complex cognitive and practical tasks, perform the necessary actions and operations and express the results in judgments, concepts, reasoning, and conclusions.

Conclusions. So, the Concept of the New Ukrainian School defines new social requirements for the formation of vital personality qualities. A reorientation of the evaluation of the results of educational activities is being carried out. "It is not enough to give a child only knowledge. It is important to learn how to use them. Knowledge and skills, interconnected with the student's value orientations, form his life competencies, necessary for successful self-realization in life, study, and work" [4].

References

1. Basina A. (2007) *Metodyka vykladannia inozemnoi movy v pochatkovii shkoli*. [Methods of teaching a foreign language in primary school.] Kyiv, Ukraine: Shkilnyi svit. [in Ukrainian]

2. Zakharchenko A. O. (2008) Osoblyvosti orhanizatsii navchannia anhliiskoi movy na rannomu etapi. [Peculiarities of the organization of teaching the English language at an early stage.] *Anhliiska mova u pochatkovii shkoli, 1 (38)*, pp. 28-31. [in Ukrainian]
3. Kovalenko O. Ya. (2008) Formuvannia kompetentnisnoho pidkhodu do vyvchennia inozemnykh mov. [Formation of a competent approach to the learning of foreign languages.] *Inozemni movy v navchalnykh zakladakh, 3*, 32-37. [in Ukrainian]
4. Kremen V. H. (2008) *Entsyklopediia osvity*. [Encyclopedia of education.] Kyiv, Ukraine: Yurinkom Inter, 2008. [in Ukrainian] (2016) *Kontseptualni zasady reformuvannia serednoi osvity*. [Conceptual principles of secondary education reform.] Lviv, Ukraine. [in Ukrainian]
5. (2016) *Nova ukrainska shkola: osnovy Standartu osvity*. [The new Ukrainian school: the basis of the Education Standard.] Lviv, Ukraine. [in Ukrainian]
6. Perre-Klermon A. N. (1991) *Rol sotsyalnykh vzaymodeistvyi v razvytyi yntellekta detei*. [The role of social interactions in the development of children's intelligence.] Moscow, Russia: Pedahohyka. [in Russian]
7. Voitka V. I. (1982) *Psykhologichnyi slovnyk*. [Psychological dictionary.] Kyiv, Ukraine: Vyscha shkola. [in Ukrainian]
8. Dieling H. (1995) *Phonetik lehren und lernen*. [Teaching and learning phonetics.] Berlin, Germany: Langenscheidt. [in German]
9. Kramer K. Wie werde ich ein Sprachgenie? [How do I become a language genius?] *Gehirn & Geist. Heft, 2*, pp. 48-50. [in German]

MOOCS AS AN ALTERNATIVE TOOL FOR PROFESSIONAL DEVELOPMENT OF PEDAGOGICAL WORKERS

Sharova Tetiana

Doctor of Philological Sciences, Professor,
Scientific Institute of
Education Content Modernization,
Kyiv, Ukraine

Safonov Yuriy

Doctor of Economic Sciences, Professor,
Deputy Director,
Scientific Institute of
Education Content Modernization,
Kyiv, Ukraine

Abstract

The article analyses the possibilities of the Ukrainian-language platform Prometheus for professional development of pedagogical workers and their personal development. It is pointed out that mass open online courses are a logical continuation of the development of distance education courses, as they are accessible to users and allow the formation of various competencies in different fields. By improving their qualifications, teachers become more competent in a certain subject or field of knowledge. This allows them to change their own approaches to teaching and better navigate in the digital space.

Keywords: MOOC, pedagogical worker, educational process, professional development, online course.

Formulation of the problem. Every year, according to the Resolution of the Cabinet of Ministers No. 800 dated August 21, 2019 “Some issues of professional development of pedagogical and research-pedagogical workers” [7], teachers must take professional development courses in the amount of no less than 150 hours for five years.

Professional development of pedagogical workers of general secondary education institutions is provided by their founders and the management bodies of the relevant educational institutions in accordance with the legislation. Pedagogical workers have the right to improve their own qualifications, taking into account various forms and types.

The main types of professional development are the involvement of pedagogical workers of general secondary education institutions in seminars, workshops, webinars, trainings, master classes, etc. In accordance with Clause 26 of the Resolution of the Cabinet of Ministers No. 800 dated August 21, 2019 “Some issues of professional development of pedagogical and research-pedagogical workers” “Certain types of activities of teaching and research-pedagogical workers (participation in academic mobility programs, scientific internship, self-education, getting the scientific degree, higher education can be recognized as advanced training” [7]. In this aspect, under the conditions of distance learning in Ukraine, the aspects of self-education become especially relevant, since as of 2023, pedagogical workers will have the opportunity to take online courses in various subjects, thereby improving their own qualifications. We note the fact that deduction of certain types of activities as their professional development by pedagogical workers of general secondary education institutions is determined by the pedagogical council of the educational institution where the worker has full-time employment. Professional development courses, organized by the State Scientific Institution “Institute of Education Content Modernization”, in particular by the Department of Scientific and Methodological Support for Improving the Quality of Education, does not require special recognition and is deducted to pedagogical workers without a special decision of the pedagogical council.

The purpose of the study. The purpose of the article is the analysis of online courses on the Prometheus platform that can be used by teachers as a professional development tool during their self-education.

Introduction. Under conditions of uncertainty, pedagogical workers have a unique opportunity to take professional development courses remotely using new technologies. Mass

open online courses are an alternative tool for professional development of pedagogical workers of general secondary education institutions. Pedagogical workers have the right to choose online courses for their own professional development and take them at a time convenient for them.

Numerous modern scientists consider the problem of professional development of pedagogical workers, including using alternative tools such as mass open online courses on modern platforms. So, for example, Kovalchuk V. considers the issue of professional development of pedagogical workers taking into account the European experience. [3] Yakovenko O. raises the issue of distant forms of professional development as an effective means of training and professional realization of pedagogical workers of a higher education institution in her scientific research. [2] The issue of mass open online courses in the system of informal education has been studied by foreign scientists, which allows us to talk about the relevance of this issue in our time. [1; 4]

Panchenko L. in her scientific publications emphasizes that a mass open online course is an alternative form of professional development of a higher educational institution teacher, as it has many advantages [5]. Open online courses as an innovative form of education are presented in the scientific works of D. Pokryshen, O. Korniets. [6] Shcherbak O. believes that professional development of a pedagogical worker is, first of all, a generalization of the experience of professional skills taking into account the latest achievements of science and technology, deepening and updating knowledge in the field of special disciplines, active methods and new technologies of learning, pedagogy and psychology. [11, p. 19]

Presenting the main material. Under the conditions of martial law in Ukraine, online platforms have become relevant due to the fact that students and teachers can use various online courses and gain new competencies, which is evidence of professional development of those who study. [10, p. 64]

As of today, Ukrainian and English-language platforms can be used in Ukraine. Considering the fact that teaching in Ukraine is carried out in the state language, Ukrainian-language online platforms are convenient for understanding the content, which allows users to get a lot of interesting and useful information. [9, p. 137]

Most often, pedagogical workers use the Prometheus online platform [8, p. 1471] for their professional development. On this platform, users can find the "Professional training of educators" section which presents a selection of courses for people who have a pedagogical

education and plan to improve their knowledge in one or another field of knowledge. A total of 16 free training courses are presented in this section. All of them are different in their length (this criterion is determined in hours), content and the possibility of obtaining a certificate (Table 1).

Table 1

№	Course name	Free	Certificate availability	Length of the course, hours	Number of units or sections
1	School life online	+	+	30	4
2	Professional development of pedagogical workers: new requirements and opportunities	+	+	15	6
3	Science of everyday thinking	+	+	80	12
4	From communal to independent media: a step-by-step guide for editors	+	+	30	4
5	Critical thinking for educators	+	+	30	5
6	School and community for the child	+	+	18	1
7	Successful teaching - simple formulae for every day	+	+	30	3
8	Secrets of successful school principals	+	+	24	2
9	Let's start to a successful school	+	+	30	3
10	Thought and rethought	+	–	15	10
11	Design thinking at school	+	+	30	3
12	Implementation of innovations at schools	+	+	60	6
13	The science of learning: what does a teacher need to know?	+	+	20	4
14	Counteraction and prevention of bullying in educational institutions	+	+	80	5
15	Media literacy for educators	+	+	60	4
16	Educational tools of critical thinking	+	+	60	3

	Total	16	15	612	75
	Average indicators			38.25	4.69

The tabular data shows 16 online courses that can be useful for pedagogical workers for the purpose of their professional development. All of the courses are free (100%). Participants can get certificates at the end of 15 out of 16 courses offered by the developers, which is 93.75% of the total number of courses. The average number of hours that can be provided in certificates is 38, which is 6% of the total number of hours provided by all the courses. 16 online courses provide 75 educational modules, but on average, one course has approximately 4-5 modules or sections, which in turn can be divided into lectures in the form of video materials, test questions, practices, etc. Based on the indicated indicators, we can state the fact that a rather small percentage of courses does not allow teachers to receive a certificate upon completion of the courses. The certificate indicates the sufficient number of hours required by the teacher per year. A full opportunity for the educational process is provided, taking into account the average number of educational modules or sections in the course.

The course entitled “Professional development of pedagogical workers: new requirements and opportunities” deserves special attention of users of the Prometheus online platform. In the description of the course, it is clearly indicated for which target audience the course is created: for pedagogical workers; pedagogical councils; heads and founders (or bodies authorized by them) of secondary comprehensive educational institutions; professional development centres for pedagogical workers; subjects of professional development; State Education Quality Service of Ukraine. The length of the course is 15 hours (0.5 ECTS credits). The course description states that “Course materials comply with the Procedure for Improving the Qualifications of Pedagogical and Scientific Pedagogical Workers (Resolution of the Cabinet of Ministers of Ukraine No. 800 dated August 21, 2019 as amended by Resolution of the Cabinet of Ministers of Ukraine No. 1133 dated December 27, 2019)”. This is evidence that after successful completion of the course (progress 60%) and subsequent receiving a certificate from this course, the professional development course is deducted and does not require recognition by the pedagogical council of the educational institution.

The online course "Professional development of pedagogical workers: new requirements and opportunities" contains general information and can be completed by principals of general secondary education institutions, pedagogical workers, research and teaching staff and other interested persons. At the beginning of the course, participants can familiarize themselves with the features of professional development and its directions, types and forms of work.

The course contains modules marked according to positions: a teacher, a head of an educational institution, a member of the pedagogical council, a subject of providing professional development, a representative of the State Service for the Quality of Education, or the service of the educational ombudsman. We understand that all pedagogical workers have the opportunity to improve their own qualifications, but there is a certain specificity of each staff member at educational institutions. However, this course aims to improve the qualifications of a pedagogical worker and informs about the general trends of modern education, reveals the issue of recognition of the results of advanced training, and also indicates the criteria for quality professional development.

Having scored the minimum threshold number of points, and in this case it is 60% of the total number of 100%, a participant has the right to generate a certificate and download it later to his PC. The generated certificate is automatically uploaded to the training course in the electronic account of the user of the Prometheus online platform, to which the user has personal access. Taking such online courses on the Prometheus platform allows teachers to change their own approaches to teaching and better navigate the digital space.

Orienting themselves in the information space of the Prometheus online platform, pedagogical workers have the opportunity to view not only the "Professional Development for Educators" section. Interesting online courses that will significantly improve competences are available under the headings "For educators" (16 free courses), "IT" (36 courses, 11 of which have paid content), "Humanities" (13 free courses), "Journalism" (11 courses, including 1 paid course), "Psychology" (7 online courses, including 1 paid course), "English" (7 free courses), "Social Sciences" (13 courses, including 1 paid course), "Law" (3 free courses), etc. However, attention should be paid to the fact that certificates obtained in these categories require recognition by the pedagogical council. We emphasize that these sections contain both free and paid courses. Pedagogical workers have the opportunity to improve their own qualifications by participating in

viewing unique content on a free or paid basis.

Conclusions. Under the conditions of martial law, pedagogical workers have a unique opportunity to take professional development courses taking into account their own wishes. An alternative tool for professional development is the Prometheus online platform, which has many advantages: choosing a course according to the teacher's field of activity, the possibility of professional development at any time, regardless of plans, receiving a certificate that does not require recognition by the pedagogical council of the educational institution. That is why a significant number of pedagogical workers are oriented towards choosing the path of professional development on their own, focusing on the regulatory and legislative framework. When choosing a course on the Prometheus platform for further professional development, a pedagogical worker has the option of previewing it, which allows them to continue their studies or unsubscribe from the course.

Systematic work on online platforms with Ukrainian-language content will allow pedagogical workers to upgrade their qualifications and significantly improve their own competences as teachers, mentors, and managers.

References

1. AIDahdouh A., Osorio A. (2016) Planning to Design MOOC? Think First! *The Online Journal of Distance Education and e-Learning*, Vol. 4, Issue 2, pp. 47–57.
2. Iakovenko O. (2021) Dystantsiina forma pidvyshchennia kvalifikatsii yak efektyvnyi zasib navchannia ta profesiinoi realizatsii pedahohichnykh pratsivnykiv ZVO. [Distance form of professional development as an effective means of training and professional realization of pedagogical workers of higher education institutions]. *Pedahohika formuvannia tvorchoi osobystosti u vyshchii i zahalnoosvitnii shkolakh*, 3(75), pp. 165–170. [in Ukrainian]
3. Kovalchuk V. (2015) Pidvyshchennia kvalifikatsii pedahohichnykh pratsivnykiv: yevropeyskyi dosvid. [Improving the qualifications of teaching staff: European experience]. *Porivnialna profesiina pedahohika*, 5 (3), pp. 75–81. [in Ukrainian]

4. Littlejohn A. (2013) *Understanding Massive Open Online Courses*. Retrieved from: <https://oasis.col.org/server/api/core/bitstreams/55423800-3c10-4895-b78d-2a2899d16ddf/content>.
5. Panchenko L. (2013) Masovyi vidkryti onlain-kurs yak alternatyvna forma pidvyshchennia kvalifikatsii vykladacha vyshchoi shkoly. [Massive open online course as an alternative form of higher education teacher training]. *Osvita ta pedahohichna nauka*, 1, pp. 19–28. [in Ukrainian]
6. Pokryshen D., Korniets O. (2015) Vidkryti onlain kursy yak innovatsiina forma navchannia. [Open online courses as an innovative form of education]. *Visnyk Chernihivskoho natsionalnoho pedahohichnoho universytetu. Serii: Pedahohichni nauky*, 132, pp. 111–116. [in Ukrainian]
7. (2019) *Postanova Kabinetu Ministriv «Deiaki pytannia pidvyshchennia kvalifikatsii pedahohichnykh i naukovo-pedahohichnykh pratsivnykiv» vid 21 serpnia 2019 roku №800 (iz zminamy, vnesenymy zghidno z Postanovoiu KM № 1133 vid 27.12.2019)*. [Resolution of the Cabinet of Ministers No. 800 dated August 21, 2019 (as amended in accordance with Resolution of the Cabinet of Ministers No. 1133 of December 27, 2019) «Some issues of improving the qualifications of teaching and research and teaching staff»]. Retrieved from: <https://zakon.rada.gov.ua/laws/show/800-2019-%D0%BF#Text> [in Ukrainian]
8. Sharov S., Liapunova V., Sharova T. (2019) Analysis of the opportunities of the prometheus platform for the professional development of future teachers. *TEM Journal*, 8(4), pp. 1469–1476.
9. Sharova T., Sharov S. (2018) Masovi vidkryti onlain kursy yak mozhlyvist pidvyshchennia konkurentospromozhnosti fakhivtsia. [Mass open online courses as an opportunity to increase the competitiveness of a specialist]. *Molodyi vchenyi*, 9.61.1, pp. 137–140. [in Ukrainian]
10. Sharova T., Zemlianska A. (2023) Osoblyvosti neformalnoho navchannia zasobamy MOOC u zakladakh vyshchoi osvity. [Peculiarities of non-formal learning by means of MOOCs in institutions of higher education]. *Molod i rynek*, 4/212, pp. 64–68. [in Ukrainian]

11. Shcherbak O. (2017) Pidvyshchennia kvalifikatsii pedahohichnykh pratsivnykiv u systemi neperervnoi osvity. [Improving the qualifications of teaching staff in the system of continuous education]. *Pisliadyplomna osvita v Ukraini, 1*, pp. 18–22. [in Ukrainian]

**OPTICAL RESEARCH METHODS AS AN INNOVATION IN THE ART
HISTORICAL EXAMINATION OF THE CROSSES OF ST. MARK PECHERSNYK
AND ST. NICOLAUS**

Safonova Irina

Candidate of Pedagogical Sciences, Associate Professor,
Honored Worker of Education of Ukraine,
Department of Cultural Studies and
Intercultural Communications,
National Academy of Management of Culture and Arts,
Kyiv, Ukraine

Abstract

In his article "Optical Research Methods as an Innovation in the Art Historical Examination of the Crosses of St. Mark Pechersnyk and St. Nicolaus," the author analyzes a number of innovative optical methods that can be used to examine the crosses of St. Mark Pechersnyk and St. Nicolaus, namely the metallographic method and innovative spectroscopy, which are an integral part of the analysis of these relics. The crosses of these saints occupy a special place among ancient Russian religious antiquities and have exceptional sacred significance.

Keywords: "cross", "metallographic method", "innovative spectroscopy", "optical research methods".

The relevance of the study. Optical methods for studying the crosses of St. Mark Pechernik and Nikola Sviatosh include a variety of techniques that use light to analyze and evaluate the properties of metals and alloys. The main purpose of these methods is to study the microstructure, phase composition, defects, and mechanical properties of metallic materials. Below are some of the main optical methods for examining metal products:

1. Metallographic method: This method uses a light microscope to study the microstructure of metals. Metal samples are subjected to special preparation, including cutting, grinding and

polishing, and then examined under a microscope to assess grain structure, phase composition, inclusions and defects.

2. Polarized light optical microscopy: this method allows to study the anisotropy of metals, i.e. their ability to detect changes in the light polarization state under the influence of stress or mechanical stress.

3. Scattered light spectroscopy: used to study the optical properties of metals and their ability to scatter light depending on the wavelength.

4. Fluorescence spectroscopy: it allows to study the fluorescence properties of metals, i.e. the emission of light after its absorption by the input material.

5. Interference microscopy: this method allows you to study the detailed structural features of metal products using the phenomenon of light wave interference.

6. Luminescence microscopy: used to determine the level of impurities or defects in metal materials.

7. Thermal infrared microscopy: this method uses infrared radiation to study the thermal characteristics of metal products.

Optical methods for examining metal products are effective and indestructible techniques that provide valuable information about the structure and properties of materials. They are an important tool for quality control, development and exploration of new materials in various scientific studies, as well as in art history expertise.

Relation of the work to important scientific and practical tasks. Until now, no chemical and technological examination of the alloy used to make the cross of St. Mark the Cave-dweller and the gilded plates used to cover the crosses of St. Nicholas Sviatosh has been conducted, nor has the chemical composition of the enamel used to decorate them been studied. Although the cross of St. Mark does not contain precious metals, and the cross of St. Sviatosha contains only gilded plates, they are of great historical importance, prompting us to clarify the place of their manufacture and chronological characteristics, and that is why a comprehensive scientific analysis is needed, including the very important metallographic method of these sacred objects.

The term "metallographic analysis" is interpreted as a method of studying the micro- and macrostructure of metals and alloys by visual observation at different magnifications. In other

words, metallographic analysis is a set of optical studies of metals and alloys.

The metallographic method is a method of studying metals and alloys that uses light microscopy to examine their microstructure. This method provides detailed information about the grain structure, phase composition, morphology and localization, porosity and other structural features of materials. The main stages of a metallographic study include sample preparation and observation under a microscope.

Below is a general description of these stages:

1. Sample preparation: Metal or alloy samples are typically prepared by cutting, grinding, and polishing. Prior to metallographic analysis, the sample may be coated with special color reagents that allow certain structural details to be highlighted.
2. Detection of macro- and microstructure.
3. Study of macro- and microstructure of materials.
4. Grinding.
5. Polishing.
6. Etching.

The metallographic method of cross-sectional examination is used to study the cross-section of materials. This method is traditionally used to analyze interfaces, layers, structural defects, or layered structures in materials.

The main steps in the metallographic examination of crosses include:

1. Sample preparation: the sample to be examined must be notched or cut in such a way as to obtain a cross section. Abrasive tools, such as dimensional wheels or diamond-coated saws, are usually used to create a flat cross-sectional surface.

The object of the study is Ukrainian medieval sacred art as a phenomenon of human consciousness.

The subject of the study is the crosses of St. Mark Pechersnyk and St. Nicolaus as examples of church utensils of the Kyiv Cave Monastery of the eleventh and early sixteenth centuries.

The purpose of the study is to substantiate optical research methods as a modernization in art historical examination for the detailed characterization of the crosses of St. Mark Pechersnyk and St. Nicolaus Sviatosh.

Analysis of the latest research and publications.

Ukrainian medieval sacred art emerged and developed during the Middle Ages in the history of Ukraine, which is the period from the adoption of Christianity in Kievan Rus (988) to the end of the 16th century, when Renaissance trends in art began to take shape.

Sacred art is defined as "endowed with God's grace. This includes religious faith, sacraments, the church, persons ordained to the priesthood, things and actions related to religious worship. The sacred, unlike the secular, is religiously sanctioned" [1, p.453]. Sacred (holy) art has as its main purpose to serve the spiritual and religious needs of society, to spread the Christian faith and reflect spiritual values. Ukrainian sacred art was painted on icons, embroidered on towels, created in architectural structures and churches, and also reflected in liturgical objects, namely crosses, which are the oldest signs and magical divine symbols.

"Sacred objects are not touched but approached under certain conditions of ritual purity..." [2, p.707]

The main genres of sacred (covenantal) art of the Ukrainian Middle Ages were:

1) Icon painting: an icon is a special form of art that is of great importance in the Orthodox and Greek Catholic churches. Ukrainian icon painters created icons depicting holy images that served as objects of prayer and veneration.

2) Frescoes (mosaics): paintings on the walls and vaults of churches. They often depicted biblical events, festive and other sacred motifs.

3) Church architecture: Ukrainian churches had their own architectural features that reflected regional and historical differences. A typical example is wooden churches with specific humpbacked roofs.

4) Artistic embroidery: Embroidery was a common form of sacred art among Ukrainian women. Embroidered towels and other textiles were used in church rituals and services.

5) Liturgical objects: silver or gold goblets, candlesticks, crosses, and other liturgical objects were often elaborately crafted and decorated with artistic patterns.

It should be noted that one of the optical innovative methods in the art historical examination of crosses and other sacred objects is spectroscopy. Spectroscopy of metal products is a group of optical research methods that can study the interaction of light with metals and their alloys. These

methods help analyze the spectral characteristics of metallic materials, i.e. their interaction with light of different wavelengths. Spectroscopy of metal products is a tool for studying the chemical composition, microstructure, and physical properties of the metals of the crosses of Saints Mark Pechersnyk and Nikola Sviatosh.

Some of the main methods of spectroscopy of metal products include:

1. Atomic emission spectroscopy (AES): This research method measures the spectrum of emission lines of atoms that occur during the reduction of metal by energy light or other external sources. AES allows you to detail the chemical composition of metal products.

Research result.

The vast majority of modern methods of molecular identification of substances include a stage of preliminary mechanical and chemical treatment of samples. This requires significant time and financial costs and often leads to the destruction of the object of study (sacred object) itself. And what if the latter is, for example, a rare museum exhibit - a cross of St. Mark the Cave or St. Nicholas the Great? Fortunately, there are other - innovative "non-contact" - methods of analysis based on physical methods of substance research. The undeniable advantage of many of them is the simplicity of the test, especially when no special sample preparation is required.

An important place among the non-destructive methods of studying matter is occupied by optical methods. They take advantage of the ability of each substance to generate an electromagnetic signal when exposed to light in response to an electromagnetic signal, the spectrum of which is uniquely determined by the atomic and molecular structure of that substance. Based on the spectrum obtained by solving the inverse problem, it is possible to identify the substances that make up the sample under investigation.

One of the most informative optical methods is the so-called Raman spectroscopy, which is based on the effect of inelastic light scattering. This method is based on the Raman effect, discovered by the Indian scientist K. V. Raman in 1928, which involves a change in the energy of light during its interaction with a sample. Such a scattered light signal is usually millions of times weaker than the original one, but with the advent of powerful lasers and highly sensitive photoelectric detectors, it has become possible to obtain detailed information about the molecular structure of almost any substance.

The active development of computer technologies that allow creating databases of reference spectra and developing algorithms for comparing and recognizing spectral elements also helps to solve this problem. The areas of practical application of Raman spectrometry are very diverse. The method is successfully used in art history, forensic science, jewelry, and environmental monitoring, such as a system for controlling harmful impurities in air, water, soil, and agricultural products.

Today, there are a number of domestic and foreign molecular analyzers based on Raman spectrometry. They are usually laboratory spectrometers with a built-in source of monochromatic radiation. This type of equipment is characterized by high measurement accuracy, but it has a significant drawback: to identify a spectral signal, the data is transmitted to an external computer, which must interpret it and bring it into a database format for further comparison. Due to the delays caused by the analyzer's non-autonomy, these devices cannot operate in real time, and they are also very bulky.

If we analyze portable devices with built-in additional equipment, the number of them is small, and most of them use the method of infrared absorption spectroscopy, which usually requires preliminary processing of things. They are designed mainly to solve a narrow range of tasks.

However, such devices are not suitable for determining unknown components of a mixture of substances. In addition, the use of such chemical control equipment is constrained by a high price policy.

The portable molecular analyzer is completely autonomous. A relatively inexpensive semiconductor laser is used as a built-in radiation source. Such lasers are tiny, so the device is very compact and convenient.

Other design features of the instrument, such as the use of a diachronic mirror, also helped to reduce weight. Despite the compactness of the device, its spectral capabilities allow it to accurately recognize most chemical compounds. Spectra obtained on innovative equipment are used as standards. However, the accuracy of optical identification of substances largely depends on computer signal processing algorithms.

The modernized device uses a recognition algorithm based on the so-called wavelet analysis,

which decomposes the spectrum into special non-periodic basis functions limited in amplitude and frequency. This method of data processing is implemented in a specialized computing device built directly into the device, which allows for a radical reduction in identification time.

The prototype of the new device was successfully tested in the laboratory under different lighting conditions: two variants of artificial lighting, daylight, and in a dark room. The duration of the full analytical cycle was less than 2 seconds.

Spectrum-"fingerprint". The phenomenon of elastic (Rayleigh) scattering of light on molecules of matter has been known for a long time; the energy of quanta and wavelength do not change with this type of scattering. At the beginning of the 20th century, the effect of inelastic interaction of a light quantum with a molecule was discovered when it absorbs part of its energy. The amount of energy "taken away" from the quantum is not arbitrary: it is equal to the difference between two different energy levels of the molecule's state. These are all innovative optical methods for studying metal products, namely the crosses of St. Mark the Cave-digger and St. Nicholas the Holy Man as unique relics that have survived to this day.

Conclusions.

Ukrainian medieval sacred art was an important part of the culture and religious life of the population. It reflected Christian traditions and contributed to the spread of Christianity in Ukraine. Many works of sacred art, as well as crosses, are kept in museums and collections and are still a subject of study and admiration for many people.

And optical research methods (metallographic method, innovative spectroscopy) of sacred objects allow us to find out the chemical composition of these things.

Thus, in the scattering spectrum of monochromatic radiation, in addition to the main line at the source wavelength, weaker additional lines appear, shifted to the long-wavelength region of the spectrum. Since each substance has its own specific set of energy levels, which includes the Raman spectrum, it is unique. This kind of "fingerprint" can be taken from almost all organic and inorganic chemical compounds in any aggregate state, as well as from the crosses of St. Mark the Gravedigger and St. Nicholas the Apostle.

Thus, unfortunately, no chemical and technological examination of the alloy used to make the cross of St. Mark Pechersnyk and the gilded plates used to cover the crosses of St. Nicolaus has

been conducted, nor has the chemical composition of the enamel used to decorate them been investigated. Such methods as metallographic and Raman spectroscopy were not used either.

References

1. Kolodnyi A., Lobovyk B. (1996) *Relihiyevnavchyy slovnyk*. [Dictionary of Religious Studies.] Kyiv, Ukraine. [in Ukrainian]
2. Xavier Leon-Dufour. (1992) *Dictionary of Biblical Theology*. Rome, Italy: Missionary.

FORMATION OF HEALTHY LIFESTYLE AMONG TEENAGERS VIA MEANS OF ACTIVE PARKS

Andrii Rebryna

Postgraduate Student,

Khmelnytskyi National University,

Head, "Sport for all",

All-Ukrainian Center of Population's Physical Health,

Kyiv, Ukraine

Abstract

The article emphasizes importance of the formation of healthy lifestyle skills among student youth. It has been stressed that formation of healthy lifestyle skills among children and youth is one of the primary tasks of the state as nation's health is a guarantee of successful development of the whole society. It has been determined that formation of the appropriate attitude among teenagers to healthy lifestyle as a unity of its components: knowledge of the fundamentals of healthy lifestyle, realization of its importance, positive attitude physical culture and sport, formation of the skills necessary for healthy lifestyle, appropriate actions (behavior that is aimed at healthy lifestyle, etc.) is important for implementation of this task.

The issue regarding the use of innovative forms and methods of work has been updated on the example of the social project "Active parks - venues of healthy Ukraine", which is implemented at the level of territorial communities through the creation of centers of motor activity with the aim to preserve health and maintain healthy lifestyle of residents of the territorial community, regardless of age and place of residence.

The algorithm for the implementation of the social project "Active parks - venues of healthy Ukraine" was presented through 10 stages, the observance of which guarantees obtaining appropriate results.

Keywords: health, healthy lifestyle, teenagers, student youth, active parks, physical culture, physical activity.

Problem statement. The importance of the formation of healthy lifestyle skills among adolescents is due to the challenges faced by modern society (in particular, decrease of population, demographic crises, environmental disasters, increasing morbidity, deterioration of physical and mental health of entire population groups, in particular children and youth, reduction of capacity for work, etc.).

The formation and development of a harmoniously developed child's personality is one of the most important tasks of the educational process. The Law of Ukraine "On Education" defines that the purpose of education is the comprehensive development of a person as an individual and the highest value of society, their talents, intellectual, creative and physical abilities, the formation of values and competencies necessary for successful self-realization, education of responsible citizens who are capable of making conscious social choice and directing their activities for the benefit of other people and society, enriching on this basis the intellectual, economic, creative, cultural potential of the Ukrainian people, raising the educational level of citizens in order to ensure the sustainable development of Ukraine and its European choice [3].

Thus, a healthy lifestyle of the population, in particular, of student youth, is a necessary component of the harmonious and progressive development of man and society. Thus, the formation of knowledge, abilities and skills of a healthy lifestyle among student youth and the search for modern forms of work through which these tasks can be implemented becomes relevant.

Analysis of recent research and publications. The phenomenon of health and a healthy lifestyle has been the subject of research in works of many native and foreign authors. The conceptual foundations of a healthy lifestyle have been presented in the works by H. Apanasenko, S. Bondarevsky, S. Kyrylenko, V. Kopa, V. Polesky, K. Edelman, K. Mendel. The scientific analysis of the categories - "health" and "healthy lifestyle" has been analyzed in the studies by Yu. Boyko, E. Bulych, O. Dmitriev, I. Muravov, S. Omelchenko, M. Murray, J. Mackenzie, E. Weil and others. The issue of the formation of a healthy lifestyle by various means has been considered by V. Bilyk, M. Zubalii, I. Karpova, N. Kasich, V. Korchynskyi, O.

Ostapenko, L. Sushchenko, M. Tymchyk, D. Marks, M. Murreita and others.

Analysis of the works by foreign and native researchers on the issue of a healthy lifestyle attests actualization of this issue at the personal and state levels. Creating conditions and incentives for the formation of a healthy lifestyle as a priority task in the education of children and student youth is an important indicator of the well-being of society and the state. A healthy lifestyle is the only way of life that can ensure the restoration, preservation and improvement of the health of the population. [1;2]

The goal of the article is to update the formation of knowledge and healthy lifestyle skills of school youth and justify the need to use modern forms of work through which these tasks can be implemented using the case of active parks.

Results. Formation of healthy lifestyle skills among children and student youth is one of the priority tasks of the state as health of the nation is the key to the successful development of the entire society.

To implement such a task, it is important to form the appropriate attitude of adolescents towards a healthy lifestyle in the unity of its components: knowledge of the basic principles of a healthy lifestyle, awareness of its importance, a positive attitude towards physical education and sports, the formation of the necessary skills and abilities for a healthy lifestyle, appropriate actions (behavior aimed at healthy lifestyle, etc.).

It seems important to use modern and effective forms and methods of work in the formation of healthy lifestyle skills among children and youth. A successful example of such use is the social project "Active parks - venues of healthy Ukraine".

This project has been implemented at the level of territorial communities through the creation of centers of motor activity with the aim to preserve health and maintain a healthy lifestyle of residents of the territorial community, regardless of age and place of residence. Due to the project, people get free access and equal opportunities for sports and the formation of healthy lifestyle skills.

The algorithm for the implementation of the social project "Active parks – venues of healthy Ukraine" is clearly structured and contains 10 stages, the observance of which guarantees the appropriate results (table).

Table: Stage of the implementation of social project “Active parks – venues of healthy”

№ of stage	Name of the stage	Content
Stage I	Start of work	<ul style="list-style-type: none"> • Guidelines and recommendations on work organization; • Tasks of the coordinator for organizing the work of the group in social networks; • Mechanisms of involvement of community residents in groups in social networks; • Tools for adding content to the "Active Park" group in social networks; • Means of attracting participants; • Actualization of physical activity for children; • Requirements regarding physical activity of preschool children; • Specifics of involvement of preschool children in activities;
Stage II	Venue work planning	<ul style="list-style-type: none"> • Plan of events at the "Active Park" venue; • Daily work schedule at the venue; • Methods of disseminating information about events at the "Active Park" venue; • Guidelines on attracting event participants; • General features of working with school-aged children; • Requirements for children's physical activity; • Work algorithm in case the child has low physical activity; • Methods of motivating children and teenagers to engage in physical education and sports; • Peculiarities of working with children of primary-school age (grades 1–4);

Stage III	Search for and engagement of partners	<ul style="list-style-type: none"> • Identification of partners (collective and individual) to organize and hold events; • Identification of sponsors of the social project; • Work schedule of the involved physical culture and sports specialists at the venue; • Methods of disseminating information about events at "active park" venues; • Specifics of physical activity of children of secondary-school age (grades 5–8);
Stage IV	Venue work organization	<ul style="list-style-type: none"> • Involvement of partners in the organization and holding of events; • Ensuring free access to sports facilities and events for all categories and strata of the population, including persons with disabilities; • Methods of disseminating information about events at the "Active Park" venues; • Guidelines on attracting event participants; • Specifics of attracting students aged 14–17 years (grades 9–11); • Types of motor activity for teenagers; • Ways to motivate and interest teenagers in physical education and sports;
Stage V	Work with persons with disabilities	<ul style="list-style-type: none"> • Mechanisms of organizing and conducting physical-culture and health sports and mass events; • Creation and implementation of a program of motor activity for different population groups; • Announcement and coverage of events at the "active park" venue in social networks; • Guidelines on attracting event participants;

		<ul style="list-style-type: none"> • Specifics of working with children with disabilities; • Specifics of working with youth with disabilities; • Specifics of working with elderly disabled persons;
Stage VI	Work with student youth	<ul style="list-style-type: none"> • Mechanisms of organizing and conducting physical culture and health sports and mass events; • Creation and implementation of a program of motor activity for different population groups; • Announcement and coverage of events at the "active park" venue in social networks; • Guidelines on attracting event participants; • Requirements for physical activity of young people; • Mechanisms of partnership with young people in the work of "Active Park"; • Methods of engaging young people in physical activity; • Types of motor activity (sports) for young people;
Stage VII	Health as a lifestyle (of elderly people)	<ul style="list-style-type: none"> • Mechanisms of organizing and conducting physical culture and health sports and mass events; • Creation and implementation of a program of motor activity for different population groups; • Announcement and coverage of events at the "active park" venue in social networks; • Guidelines on involving elderly participants; • Physical activity for the elderly; • Motivation for sports for the elderly; • Types of exercises to improve health; • Specifics of physical exercises for the elderly;
Stage VIII	Work with families	<ul style="list-style-type: none"> • Mechanisms for organizing and conducting physical-culture and health sports and mass events for families;

		<ul style="list-style-type: none"> • Creation and implementation of a program of motor activity for different population groups; • Announcement and coverage of events at the "active park" venue in social networks; • Guidelines on attracting event participants;
Stage IX	Work with engaging war veteran and their families	<ul style="list-style-type: none"> • Mechanisms for organizing and conducting physical culture and health sports and mass events for families; • Creation and implementation of a program of motor activity for different population groups; • Organization of online training; • Organization of work to attract war veterans and their families to participate in the event;
Stage X	Holding of holiday, solemn, physical-culture, and health improving sport events	<ul style="list-style-type: none"> • Holidays and dates to which physical-culture and health and sports and mass events can be timed; • Types and features of mass events of various areas.

Implementation of the project aim is carried out via various activities and events:

- Initiation of new forms of involvement of various population groups, including persons with disabilities and internally displaced persons, in health-improving motor activity in places of mass recreation (formation of orienteering routes; organization of mobile games with sports elements with participation of leading athletes; arrangement of pedestrian and bicycle paths and other types of routes; organization of sports events, quizzes, relays; conducting classes on familiarization with various types of sports and motor activity; conducting workshops and demonstration performances of athletes from various types of sports; performing complexes of moderate-intensity physical exercises for participants without special training; holding of cultural and entertainment programs; organization of online training; organization of sports festivals; holding of all-Ukrainian and local physical-culture and health, informational, and educational

events; demonstration of sports equipment for various types of sports and other means of health-improving motor activity enabling their rental; holding of street festivals cultures, etc.; conducting recreational sports for children with special needs).

- Involvement of specialists in the field of physical culture and sports, leading athletes and other persons in the organization of classes on health-improving motor activity and leisure of citizens (specialists in the field of physical culture and sports, employees of physical culture and sports institutions, specialists of public associations focusing on physical culture and sports, leading athletes, coaches and other specialists in the field of physical culture and sports).
- Assurance of free access for citizens, including persons with disabilities and internally displaced persons, to sports facilities and places for engaging in various types of physical activity, as well as spots for free rental of sports equipment in places of mass recreation.
- Development of programs on types of motor activity for various population groups, including persons with disabilities and internally displaced persons.
- Creation of an online platform of a social project to provide consultations, exchange experience, make offers between specialists in the field of physical culture and sports, athletes, participants of active recreation. [4;5]

Such a wide range of forms of work allows forming healthy lifestyle skills of different categories of citizens. So, for example, for people with disabilities (both children and adults), types of physical activity are organized and carried out taking into account their needs (diseases, restrictions on exercise, features of general motor development, etc.). In this way, conditions are created for improving the quality of a person's active life, preventing diseases, minimizing or overcoming their consequences.

In order to attract students, not only appropriate activities take place, but also the "peer-to-peer" method is implemented. That is, the same teenagers and young people are involved in interaction with young people who, cooperating on an equal basis, create the added social value of forming healthy lifestyle skills for all participants through their involvement in cooperation and education. Such interaction not only promotes the ideas of a healthy and active life among participants, but also engages them at the community level in participation in society and decision-making.

Conclusions. Thus, the vectors of the implementation of the project "Active parks - venues of healthy Ukraine" (innovative forms of work, creation of pedestrian and bicycle routes, organization of sports games and events, programs, festivals, online events, involvement of leading athletes, coaches) contribute to the realization of the idea of a healthy and active lifestyle not only of teenage children, but also of the entire society.

References

1. Biktagirova G. F., Kasimova R. Sh. (2015) Development of University Students' Creative Abilities. *Review of European studies*, 7(5), pp. 101-107
2. Ozen H. (2016). Determining the Factors of Social Phobia Levels of University Students: A Logistic Regression Analysis. *Educational Process: International Journal*, 5(1), pp. 38-53.
3. (2022) *Zakon Ukrayiny "Pro osvitu"*. [The Law of Ukraine "On Education".] Retrieved from: <https://zakon.rada.gov.ua/laws/show/2145-19#Text>. [in Ukrainian]
4. (2022) *Rozporyadzhennya Kabinetu Ministriv Ukrayiny «Pro zatverdzhennya Polozhennya pro sotsial'nyy proekt «Aktyvni parky – maydanchyky zdorovoyi Ukrayiny» vid 07.04.2021 No. 326*. [Decree of the Cabinet of Ministers of Ukraine «On the Approval of Regulation on Social Project “Active Parks – Venues of Healthy Ukraine” of 07.04.2021, No. 326.] Retrieved from: <https://zakon.rada.gov.ua/laws/show/326-2021-%D0%BF#Text> [in Ukrainian]
5. (2020) *Ukaz Prezydenta Ukrayiny "Pro aktyvni parky – maydanchyky zdorovoyi Ukrayiny" vid 17 hrudnya 2020 roku № 574/2020*. [Decree of the President of Ukraine “On Active Parks – venues of healthy Ukraine» of December 17, 2020 No. 574/2020.] Retrieved from: <https://www.president.gov.ua/documents/5742020-36049> [in Ukrainian]
6. Andriuchenko T., Vakulenko O., Volkov V., Dzyuba N., Kolyada V., Komarova N., Piesha I., Tilikina N. (2018) *Formuvannya zdorovoho sposobu zhyttya. Navchal'no-metodychni rekomendatsiyi*. [Formation of healthy lifestyle. Educational and methodological recommendations.] Kyiv, Ukraine: State Institute for Family and Youth Development. [in Ukrainian]

7. (2022) *Tsil'ova kompleksna prohrama "Fizychne vykhovannya – zdorov"ya natsiyi"*.

[Target complex program "Physical education – Nation's Health".] Retrieved from:

<http://zakon0.rada.gov.ua/laws/show/963a/98> [in Ukrainian]

**ROLE OF THE HUMAN CAPITAL IN THE REALIZATION OF THE
DEVELOPMENT STRATEGY OF HEALTH CARE**

Danylko M. V.

Postgraduate,

International Scientific and Technical University

named after Academician Yury Bugai,

Kyiv, Ukraine

Abstract

The article considers the theoretical foundations of human capital in health care and the methodology of strategic planning in healthcare on the criterion of development of human capital and, in particular, health capital. The main stages of strategy formation, methodical approaches to the use of indicators for the assessment of the formation of health capital, its turnover, the potential demand for medical technologies have been specified. The main strategic positions in the formation and preservation of health capital, as well as perspective directions of social and hygienic research are given.

Keywords: health care, human capital, health capital, social capital, strategy of health care, strategic management in health care.

In the current conditions of development of society, the strategy of health care should be determined by the depth of knowledge of the relationship of all elements of the organization of medical assistance with the processes of demographic, economic, social and environmental development. The integral reflection of this interaction of biological, social and economic properties of the population is the nature of formation of human capital. In this regard, a health strategy should focus on human capital formation rather than on the development of selected elements of health care.

The development of strategy in health care with a focus on the human capital seems to us to

consist of 6 main stages:

I – Definition of elements of strategic planning in health care;

II – Assessment of human capital formation, health capital and its losses;

III – Prediction of pathology prevalence among the population;

IV – Determination of potential demand for medical technologies;

V – Implementation of medical and organizational technologies;

VI – Evaluation of the contribution of medical and organizational technologies to human capital formation.

The first stage – Definition of elements of strategic planning in health care – includes the following elements of improving the system of public health protection: conceptual, situational and predictive, strategic planning, structural modelling, legal regulation, functional management, expert and evaluation.

Methodological approaches to estimate the formation of human capital, health capital and its losses include the integration of indicators reflecting demographic, economic and social processes with public health indicators.

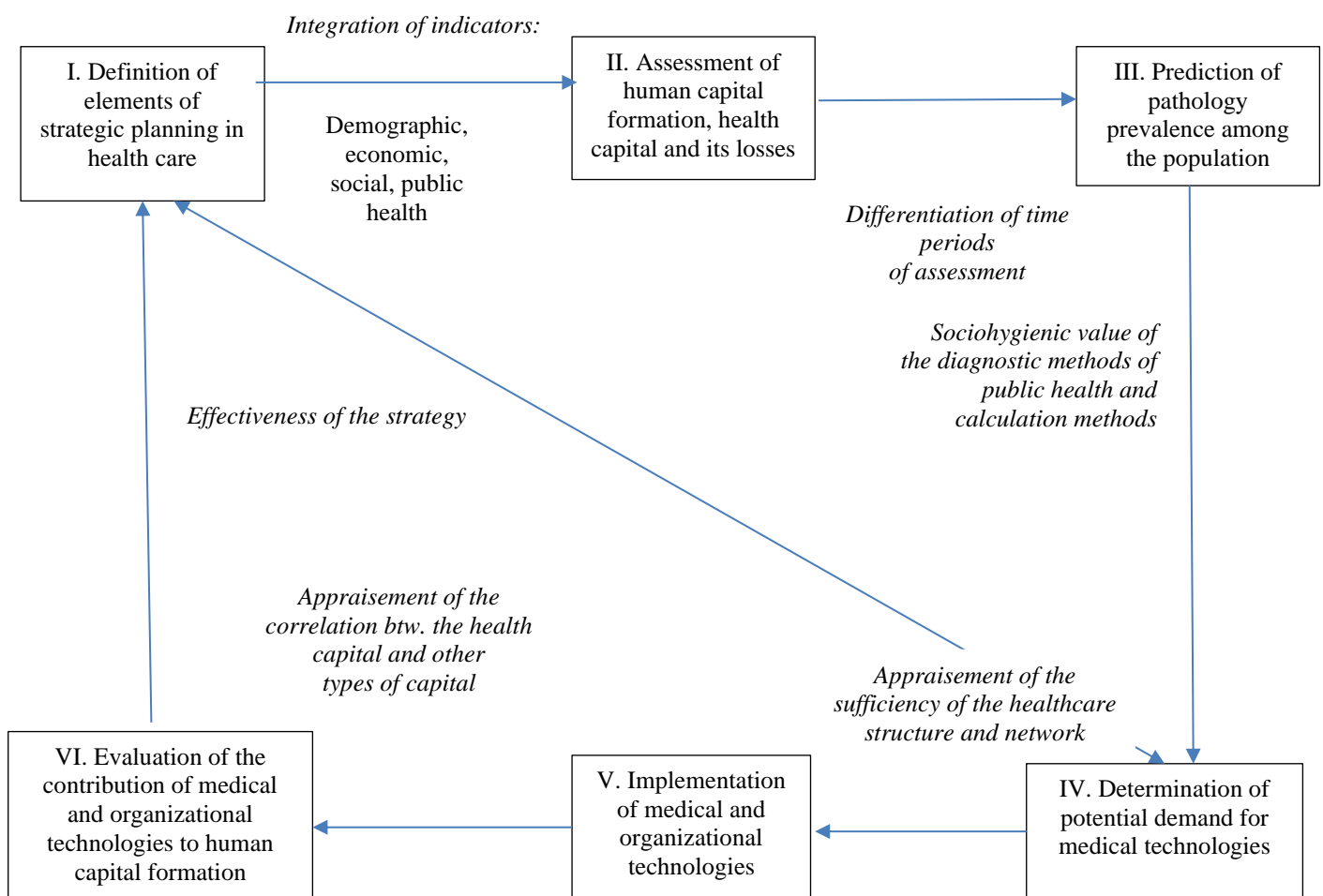
Important criteria of the human capital are indicators of reproduction, formation and loss of life, labor and reproductive potential (quantitative characteristics of generations), as well as indicators of health, education, culture, professional activities etc. (qualitative characteristics of generations).

The qualitative characteristics of the human capital are public health indicators, which are of strategic importance, such as mortality and morbidity. Mortality is characterized by the volume and structure of demographic losses of the population, by the volume and structure of medical and economic losses of the population, and by the demand for medical and social assistance. Morbidity (according to medical requests) reflects the burden on individual health services and the demand for medical care. Morbidity according to medical examinations (individual contingents, collectives, groups), while classifying pathology according to the nosological principle, is a disease; and according to the syndromic principle, is the prevalence of clinical forms of disease and indicates the demand for medical technologies at present.

However, these criteria, which are widely used in socio-hygienic research, do not reflect all

the pathologies of the population and may not adequately indicate the need for certain medical technologies, the need for organizational structural changes in health care.

Figure 1. Stages of the development of strategy in health care with a focus on the human capital



Source: proposed by the author.

In this regard, different approaches and methods of studying the disease of the population are required, allowing to develop effective measures of protection of the health of the population, not only of living people, but also of future generations, which should be based on scientifically based forecasts.

One such criterion is the pathological incidence index, which indicates morphological and functional abnormalities identified by different diagnostic methods. In contrast to morbidity

based on medical treatment requests, pathological incidence is detected actively and often does not lead to referral to a healthcare organization or to the need for compulsory treatment. Pathological incidence is influenced by the environment, and its level depends primarily on the diagnostic capabilities of medicine, rather than on the accessibility of their population and the nature of their treatment. In this regard, pathological incidence index is more adequate in determining the potential demand for medical technologies and contributes to assessing the effectiveness of planning not only diagnostic, but also preventive measures. This is especially true when the incidence of chronic non-specific pathology among causes of morbidity and mortality.

In this system of indicators, the recording of the pathological incidence of the population, detected by various diagnostic methods, allows to make predictions of the prevalence of pathology and diseases among the population, based not only on general official statistics on the number of diseases recorded in the past, but also on information on the initial stages of pathology in the population.

It is necessary scientifically to separate normal, natural, cyclical changes in the processes of development of the human population, individual characteristics, organ, tissue, cellular systems of the human body from the beginning of pathological processes, which will then determine significant health problems in the territory and region. It is important to evaluate not so much the statics of processes as their dynamics, and the greatest value of a dynamic approach in comparison not with the present moment, but with the rate of movement of different processes among themselves.

The application of the pathological incidence indicator is an additional link in the social and hygienic monitoring, when information on the morbidity of the population is used not only in treatment and prevention facilities, medical information and analytical centers, but also clinical diagnostic centers, multidisciplinary hospitals, the bureau of forensic medical examination, pathological and anatomical departments of large hospitals and other organizations, where pathology of the population is sufficiently diagnosed. This should become one of the tasks of these medical organizations, which are the most important information links in the system of assessing and forecasting the health of the population. To do this, it is necessary to assess the social and hygienic significance of individual diagnostic methods, which is determined by their

mass use and sufficient level of detection of pathological conditions and lesions.

Realization of the medical technologies in the future requires appropriate restructuring of the network and structure of health care, which predetermines appropriate realization of medical-organizational technologies.

To assess the adequacy of the forthcoming structural changes will require the development of methods to measure the contribution of medical and organizational technologies in the formation of human capital on the basis of studying the relationship of health capital with other types of capital: physical, financial, social, intellectual, etc.

In general, the effectiveness of the implementation of the strategy will be determined by the nature of the turnover of the human capital, in which three types of turnover are distinguished from social and hygienic points of view: natural, economic and innovative.

In terms of the health capital, our understanding is that natural turnover reflects the cycle of population substitution through natural movement processes (estimation of population reproduction efficiency) social and economic cycle of the quality of life change through the development of elements of the social capital (evaluation of the efficiency of the nature of health capital losses), innovation – cycle of introduction of new technologies of diagnosis, treatment, rehabilitation, prevention and rehabilitation through investment in health, science and education (assessment of the effectiveness of the nature of the prevalence of pathology among the population).

It is therefore necessary to integrate different methods of scientific knowledge. Scientific research should meet the following requirements: complexity - combining methods of learning different disciplines to solve a common problem; hierarchy - knowledge of the problem from the socio-hygienic level to genetic, and the development of solutions - from the individual to the population; informativeness - at each level of knowledge its list of indicator information, capable of early warning of an emerging problem; dynamic - establishing the periodicity of changes of criteria for different objects of research and their interrelationship.

At the same time, social and hygiene research should focus more on assessing the formation of health in different generations of people, with a time cycle of 20-25 years, and how the health of the succeeding generation is related to the health of the previous.

A central part of epidemiological research may be the establishment of pathological cycles appropriate to the age groups of the population. Hygienic research determines the conditions and factors of various elements of the environment, social spheres, positively and negatively affecting the preservation of health of the population (quality of life parameters). Clinicians determine the structure of pathology of the population with the identification of the systems of the body, tissues and organs affected to varying degrees in the existing living conditions in different generations of people (changes in the pattern of pathology prevalence by generation).

In the process of scientific cognition, the cycles of the various pathologies should be determined by linking them to the populations. Then, comparing these cycles with the dynamics of other processes (demographic, economic, social, environmental), it will be possible to adequately predict the formation of health of the population, its loss and, accordingly, to develop the health system, technologies for the organization and provision of medical care.

The most accurate way to determine the effect of investments in health care on the time period of formation of one generation, i.e. 20-25 years, but intermediate intervals are possible to assess the role of the family, education, work process and other components of the social capital.

In reality, today in health care there are different schemes for defining and implementing the strategy. One of them is the reorganization of the hospital and outpatient services, and health care is invested in this. It is difficult to account for the effectiveness of investments, because in such a scheme the operational and tactical option works, and the main task is to distribute and implement financial resources. According to the scheme presented, the whole strategy is to implement phase V.

In another variant, the prospect of the implementation of medical technologies is determined, the organizational structure of the clinic is adjusted for it, with appropriate investment of funds for all stages and elements. The effect in this case can be evaluated. High-quality medical care is becoming available to patients and investments are being made. But this is a narrow part of medical care for certain categories of patients, and the development of the strategy is focused on the implementation of stages IV and V.

When assessing the development of human capital, the main strategic positions in the formation and preservation of health capital are:

- Creation of an adequate system of reproduction of the health of new generations and material and social support for young families;

- Integrating the vital and labor potential of the population into economic processes with the development of health insurance and medical and preventive care;

Improving the organization of medical care and services for the elderly with the development of the gerontological service;

- Implementation of social policy on optimization of sanitary and epidemiological well-being of living environment;

- Development of ideology and implementation of healthy lifestyle programs in accordance with modern conditions of social, economic and information development of the society;

- Development and implementation of programs for rehabilitation (restoration) of health through the system of medical and sanatorium resort organizations;

Improvement of the system of training of medical personnel, taking into account the prospects of demand for medical technologies and appropriate development of the organizational and functional structure of health care;

- The implementation of high-tech medical care on the basis of modern knowledge of medical and biological processes in the human body;

- Medical and social assessment of plans and projects, including strategic development of territories, implementation of social and economic programs, introduction of new production technologies, etc.

The development of these methodological approaches will make it possible to improve the health-care system and the development of medical care in advance, when the nature of the functioning of medical organizations, the training of personnel and the level of medical care improving technologies will keep pace with demographic, social, economic and environmental processes in society, formation of pathology of the population.

The biological, social and economic laws of human development can converge and interpenetrate, increasing the value of preventive health care and making our impact on public health processes real.

References

1. Borshch V., Rudinska O. et al. (2022) Strategic health care management: challenges and realities of emergencies. *Economic Affairs*, Vol. 67, No. 04, pp. 851-857. Retrieved from: <https://repo.odmu.edu.ua/xmlui/bitstream/handle/123456789/12186/Borshch-06.pdf?sequence=1&isAllowed=y>
2. Folland Sh., Rocco L. (2014). *The Economics of Social Capital and Health*. Retrieved from: https://books.google.com.ua/books?id=awG3CgAAQBAJ&pg=PA31&lpg=PA31&dq=health+capital&source=bl&ots=cIjsfkO0mm&sig=ACfU3U1pi8n0Dq5Or_vXNi1DOLq8oZHoNw&hl=ru&sa=X&ved=2ahUKEwjNn_2Kr46AAxXvKBAIHVgTDMQ4ChDoAXoECAQQAw#v=onepage&q=health%20capital&f=false
3. Grossman M. (1972) On the Concept of Health Capital and the Demand for Health. *Journal of Political Economy*, 80(2), pp. 223–255. Retrieved from: <http://www.jstor.org/stable/1830580>
4. (1981) *Health Capital Issues*. Retrieved from: https://books.google.com.ua/books?id=n6OD2S1jHswC&pg=PP13&lpg=PP13&dq=health+capital&source=bl&ots=vvZ-V02Z47&sig=ACfU3U12VI2aQRVzSAHRVxkWr-aktShb_g&hl=ru&sa=X&ved=2ahUKEwi3tLWBro6AAxV1FhAIHfdeBwEQ6AF6BAgaEAM#v=onepage&q=health%20capital&f=false
5. Safonov Yu., Borshch V., Rogachevskyi O. (2021) Health care as a system-creating element of human capital: strategies of its development by the case of Ukraine. *Baltic Journal of Economic Studies*, Vol. 7, No. 4, pp. 176–181. Retrieved from: <https://repo.odmu.edu.ua:443/xmlui/handle/123456789/12226>
6. Schneider-Kamp A. (2021) Health capital: toward a conceptual framework for understanding the construction of individual health. *Social Theory and Health*, Vol. 19(3), pp. 205-219. Retrieved from: <https://link.springer.com/article/10.1057/s41285-020-00145-x>
7. Storozhuk O., Zaiarniuk O. (2020) Estimation of the development of Ukraine regions health capital. *ENECO. Proceedings of Energy Economic Research Center*, Vol. 01, Issue 01, pp. 45-59. Retrieved from: <http://dspace.kntu.kr.ua/jspui/bitstream/123456789/9629/1/01.01.2020-46-50.pdf>
8. Borshch V. (2020) *Upravlinnya zakladamy okhorony zdorov'ya*. [Management of healthcare facilities.] Kherson, Ukraine: OLDI-Plus. [in Ukrainian]

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3401 Townsend Blvd. Suite 204. Jacksonville, FL 32277

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