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IMPACT OF SOCIOECONOMIC FACTOR ON ARCHITECTURAL FORMATION OF BUILDINGS FOR NON-FORMAL EDUCATION IN UKRAINE

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ABSTRACT

The article analyzes the impact of socio-economic factor on development of the architecture of non-formal education institutions. The influence of this factor is considered from a sociological, pedagogical, economic viewpoint. The main components are socio-demographic, socio-professional and socio-territorial problems, which are closely related to the economic component. The main social and pedagogical problem is the socialization of the individual; economic problems are changes in the labour market and the growing role of human capital. The influence of these factors on formation of the architecture of non-formal education institutions is defined. The results of experimental design are presented on the basis of the Department of the Architectural Theory of KNUCA, that demonstrate certain trends in the development of architecture of such educational institutions.

Key words: socioeconomic factor, socio-ethnic structure, socio-demographic structure, socio-professional structure, socio-class and socio-territorial structures, architectural formation of buildings for non-formal education.

1. INTRODUCTION

In the history of modern systems of education the so-called world crisis in education that took place at the end of 1960's would mark the beginning of a gradual shift in the understanding given to adult education, and in more general terms to the actual nature of education itself. In this way, the lifelong education movement that emerges at this time represents a real turning point in thinking about education, both due to its worldwide dimension as well as its socio-political stance [1].

In Ukraine, the existence of non-formal education covers the following areas: out-of-school education; postgraduate and adult education; civic education (diverse activities of public organizations); school and student self-government (due to the possibility of obtaining managerial, organizational, communicative, and other skills) educational initiatives aimed at developing additional skills and abilities (computer and language courses, hobby groups, etc.). Recently, several third age universities have begun providing educational services to senior individuals [10].

The problems of determining and influencing various factors on the development of architecture were taken up by leading Ukrainian scientists and architects. So in the works of the doctor of architecture, professor Yezhov V.I. It is determined that the development of the architecture of public buildings and complexes is influenced by various factors, which are divided into four interrelated groups: society and environment, urban planning, typology and technology. Yezhov V.I. notes that of many factors, some can be classified as the main prerequisites for the formation and development of modern types of public buildings. First of all, these include: social and economic transformations and scientific and technical progress, new urban planning trends and directions, natural climatic environment and local conditions, organization of the public service system, the problem of mass construction [5].

In works by Kovalskaya G. L. the following prerequisites for reforming the educational institutions network are defined: socio-economic, pedagogical and urban factors, socio-demographic conditions, as well as the political direction of development of the educational sector chosen by the country - EU standards [8].

In the scientific works of Merilova I.A., who was engaged in the organization of functional planning of a network of out-of-school education institutions, besides main factors such as demographic, social, pedagogical, economic, historical-cultural, environmental and political, emphasis was placed on the town planning component of this problem. In this regard, Merilova I.A. identifies the following factors: the classification of the settlement, its planning structure, population density [9].

In the work of Tyshkevich O.P. "Architectural and planning organization of the ungraded rural schools" identified and justified the factors of the formation of small educational institutions. These are such factors as: socio-economic (state of social infrastructure, demographic structure of the population), town-planning (features of settlement, form and size of a site), socio-pedagogical (principles of functioning of education in the state, features of the organization of educational process), material and technical (development of the road and transport network, the state of the material and technical base of construction) and natural and climatic (climate, relief, geology)[13].

In order to clarify the peculiarities of development of architecture of non-formal educational institutions in Ukraine, it is proposed to examine the one of main factors influencing the problem. This is the socioeconomic factor. The article proposes to consider components of the indicated factor of influence.

2. SOCIOECONOMIC FACTOR OF INFLUENCE

The Department of Theory of Architecture of KNUCA conducts research in the field of developing the theoretical foundations of the architecture of public buildings and complexes (№67.01.18.0768 / 0117U005420) [3]. To study the significance of all factors of influence, interdisciplinary studies are conducted. In the context of formation of architecture of new-type educational institutions, comprehensive studies cover several branches except architecture, in fact: sociology, pedagogy and andragogy, history, economics and statistics. From other industries, basic concepts are taken concerning impact of factors and prerequisites for the development of institutions of non-formal education, and are analyzed in accordance with the object of study. So in the course of the study it was revealed that one of the most influential external factors is socio-economic. This factor of influence consists of two aspects: social and economic, which, in turn, are respectively determined by groups of concepts. In identifying the impact of social and demographic problems on the development of architecture of non-formal educational institutions, it was found that these two aspects are closely related both to each other and to the economic aspect - their influence is complex. It is further proposed to find out how this factor affects the development of architecture of educational institutions of a new type (Fig. 1).



Fig.1. Socioeconomic factor of influence on development of architecture of non-formal educational institutions. Source: the scheme developed by Iryna L. Kravchenko.

3. BASIC THEORY

The social aspect in the context of this study is determined by the social composition (structure) of society. The social structure of society is a set of interrelated and interacting social groups, communities and institutions, connected with each other by relatively permanent relationships. The social structure of society has two main components: the presence of constituent elements and social ties arising between these elements and consists of the following conceptual subgroups: socio-ethnic structure, socio-demographic structure, socio-professional structure, socio-class and socio-territorial structures [14]. In forming the architecture of institutions of non-formal education, the most important subgroups of this factor are socio-demographic, socio-professional and socio-territorial structures (Fig.2).

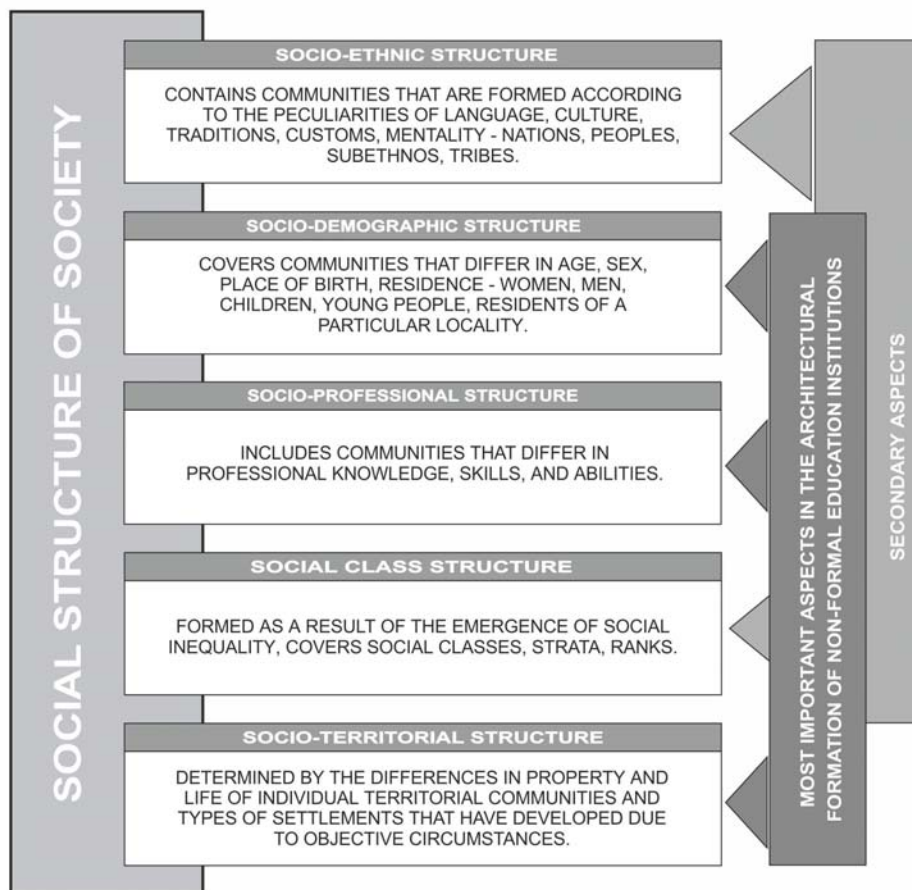


Fig.2. Social structure of society and most important groups influenced development of architecture of non-formal education institutions. Source: the scheme developed by Iryna L. Kravchenko in accordance to [14].

The socio-demographic structure covers communities that differ in age, sex, place of birth, residence - women, men, children, youth, and residents of a particular locality. The socio-professional structure includes communities that differ in professional knowledge, skills, and abilities. The socio-territorial structure is determined by the differences in the property and life of individual territorial communities and types of settlements that have developed due to objective circumstances [14]. Two other groups of concepts are secondary in the context of the study of the formation of the architecture of non-formal educational institutions. The socio-ethnic structure contains communities that are formed

according to the peculiarities of language, culture, traditions, customs, and mentality — nations, peoples, subethnoes, and tribes. Social class structure is formed as a result of emergence of social inequality, covers social classes, strata, and ranks [14]. (see Fig.2).

In our time, each of these conceptual subgroups has certain challenges that directly or indirectly affect the formation of architecture of non-formal education institutions. How, we look further.

The **socio-demographic** component includes the following problems: the population and its location, modern social requirements, an increase in the percentage of adults and the elderly, the age components of the population (see Fig.1 & Fig. 3).

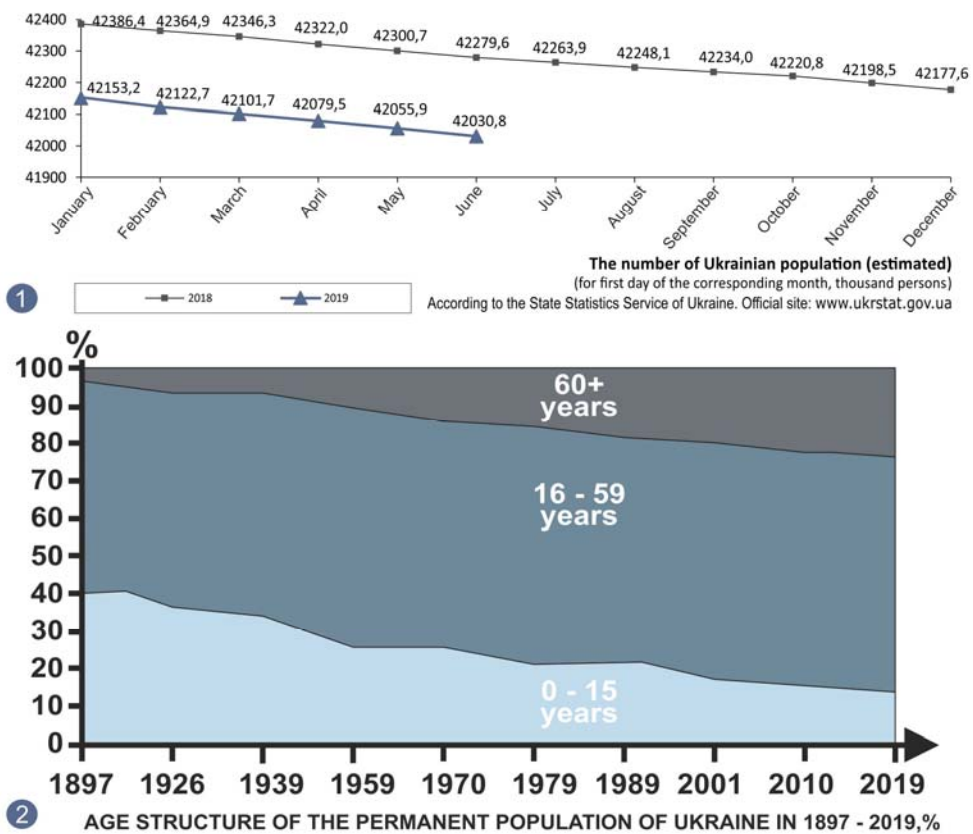


Fig.3. Number of population in Ukraine in 2018 and 2019 (1) and the dynamics of the structure of the constant population of Ukraine (2). Source: the scheme developed by Iryna L. Kravchenko in accordance to [12]

Obviously, along with a decrease in population, the main problem is the increase in percentage of adults and the elderly. Such problem is now inherent not only in Ukraine, but also in other countries, such as the USA, Japan and others. In general, this is one of the weighty problems of the modern civilized world. As a result of civilization, a certain stratum of people from the age of 50 years appeared who, on the one hand, have a lot of experience and are still able to work, on the other hand, they, unfortunately, are not popular with employers because they are not able to integrate into modern working groups. Here the question arises of another aspect of influence - **socio-professional** which, in turn, is closely intertwined with the **economic factor of influence**. Right now, educational concepts defining the concept of "lifelong education" are coming to the forefront and are designed to introduce opportunities for adults and older people to

receive advanced training in their field, to acquire new competencies or to radically change their profession and try themselves in a new field of activity. All this is intended to help the socialization of this population segment. Together with the social and pedagogical problems of this area, of course, the question arises about the reorganization of the system of educational institutions and the improvement of the existing educational material base (existing fund) and the development of new types of educational buildings that should take these aspects into account. The concept of the “phenomenon of human action” by the American sociologist Talcott Parsons, who is a representative of Western sociological modernism, is an internally motivated, external-oriented, and normatively regulated social behaviour. In line with his research, T. Parsons defines the following components of human socialization; he defines them as “agents of socialization” (Fig. 4) [2,11].

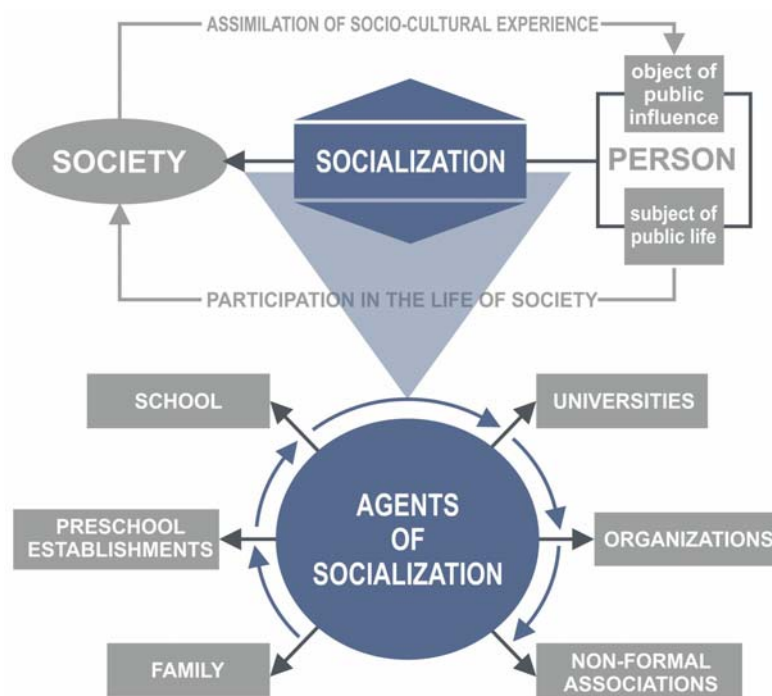


Fig.4. Socialization & “Agents of socialization” according to Talcott Parsons. Source: the scheme developed by Iryna L. Kravchenko in accordance to [2,11].

In the context of development of architecture of non-formal education institutions, this concept can be considered almost literally. As the general concept of education is changing, the requirements for the creation of educational centres for non-formal education should also change. They should possess:

- accessibility, both territorial and age;
- architectural and planning flexibility, including the optimal functional structure for the work of an educational institution for the needs of all age categories
- three-dimensional & spatial convenience and attractiveness.

The requirements for the territorial accessibility of non-formal educational institutions are more flexible than in educational institutions that perform the functions of formal education at all levels. But it is necessary to take into account the following of the main aspects - the **socio-territorial**. A socio-territorial community is a group of people living in a certain territory, between whom social and cultural ties arise due to the homogeneity of

the objective conditions of their life activity. These objective conditions include geographical, climatic, socio-cultural features of human habitation. Socio-territorial communities differ in terms of their size, population density, characteristics of social, economic and cultural development, social and national composition, geographical location and climatic conditions.

Socio-territorial communities are divided into several types: administrative-territorial communities; regional communities; types of settlements (settlement communities)[14].

The objective problems of this group of factors that may influence the formation of the architecture of non-formal education institutions are the concentration of population in large cities, migration and natural movement of the population. The most significant is the impact of the urbanization process. As well as globally, in Ukraine there is a steady upward trend in the proportion of urban population. In 1965, the indicator of urbanization of Ukraine crossed the border of 50%. This is much earlier than in the whole world. In the global dimension, urbanization overcame 50% of the boundary in 2007 [15]. According to the 2001 census, urbanization in Ukraine was characterized by the following figures: urban population was 32574.0 thousand (67.2%), rural population was 15883.0 thousand (32.8%). As of January 1, 2013: the urban population was 31378.6 thousand (68.9%), the rural population was 14174.4 thousand (31.1%). Now the level of urbanization in Ukraine has already reached 70% [12,15].

These indicators, in the context of the problem under study, primarily affect the formation of a new typological range of non-formal educational institutions, including out-of-school ones. This means that the greatest educational potential is concentrated in large cities. A more extensive network of such institutions should be present here: complexes, specialized, integrated into schools, higher educational institutions and community centers. In rural areas and regional centers, non-formal education cells may be part of public buildings, schools, including ungraded rural schools, clubs and entertainment facilities. Such an approach is quite possible given the considerable functional planning and regulatory flexibility of such educational centres.

Socio-ethnic and socio-class processes are a group of factors that influence the formation of modern architecture of new-type educational institutions for the second queue. The main object of the impact of these factors is, in fact, the formation of an order for design. Furthermore, this applies to the functional composition, capacity, purpose and architectural-figurative solution of the object. That is, on the one hand, these two groups are parts of the basic concept of "social factor", which refers to external factors of influence, on the other hand, they appear as internal factors affecting the development of the architecture of non-formal education institutions more substantively.

The economic factor is considered here in connection with the following groups of concepts: changes in the labour market, changes in the requirements for a specialist, the increasing role of human capital, the education financing system, access to education, quantitative and qualitative assessment of labour resources by region, the material basis for creating educational centres of a new type (see figure 1).

With the development of scientific and technological progress towards the development of technology, the labour market and the requirements for a specialist have changed accordingly. However, some professions and specialties have lost their value and economic feasibility. All this has led to the development of the market of educational services and mechanisms for the provision of such services. For young people, for example, it is no longer enough to have one specialty; one must also be fluent in foreign languages and have a more developed palette of qualifications. For adults and older people, this issue is closely related to socialization (see Fig. 4).

The social problems of the elderly population can be viewed in the range from ensuring that older people can actively participate in the social life of society to provide them with the necessary medical care and social care in the event of illness, infirmity and

helplessness. Therefore, the main task of the state social policy is to ensure social stability of the society, its social security. It is the demographic situation that determines the degree of filling of insurance funds and their ability to financially provide high-quality social insurance, the system of which is organically connected with the wage system, tax system, policy, political situation in the country, the state of the labour market, current demographic problems and its development dynamics in the future [6].

Modern changes have significantly influenced the life trajectory of a person and the temporality of main life events: the temporal boundaries between the period of education, work and pension are erased. That is, technological, economic and social progress has led to a change in the traditional model of a person's life path from an alternate three-component structure "education-work-pension" to a mixed one, when these components of a person's life path do not have a certain sequence and duration and are not limited by age: work is combined with education and leisure, and a pension can be a time for leisure, education and work. Note that adult education is mainly related to further a career, the acquisition of new knowledge, competencies or a speciality, and in old age the focus shifts to personal interest: a person seeks to acquire new knowledge or competences in accordance with the sphere of interest [4].

From all this we can make a conclusion about the increasing role of human capital in modern society. Human capital is an intensive productive factor in the development of the economy, society and family, including the educated part of the workforce, knowledge, tools of intellectual and managerial labour, living environment and work activity, ensuring the efficient and rational functioning of human capital as a productive factor of development. In short: human capital is intelligence, knowledge, quality and productive work and quality of life [7].

Along with the fact that in Ukraine there is a place for all the above-mentioned trends in socio-economic development, there is a significant gap in ensuring the quality of human capital. First of all, in the field of adult education, the educational base is being reformed very slowly. While out-of-school education facilities are almost fully functioning, adult education institutions (for example, third-age universities) are now working through volunteers, public associations, social service centres, and, most often, in adapted premises. Regulatory support for the design of such new buildings does not exist.

4. RESULTS AND DISCUSSION

By the method of experimental designing at the Department of Theory of Architecture of KNUCA various projects of institutions for additional education are developed.

The project of qualification level "master", which was performed by Zawertalyuk R. under the guidance of the article author, on the topic "Principles and techniques of designing agro-complexes in the structure of a residential house" introduced the idea of combining two different areas - urban housing of different levels of comfort for the elderly and country life with attributes of a farm. The residential complex will allow retirees to live as if on a farm, work in the garden for their own pleasure (as many hours a day as they like), but remain in the urban environment, surrounded by all the necessary infrastructure, to be part of the urban community. The complex consists of three blocks. Two separate blocks are a vertical farm, that consists of 5 floors, and an office block containing 8 floors. The main unit is a curvilinear 8-storey building with housing and long garden terraces, based on five two-storey podiums grouped around the garden and connected by passages. At various levels of the complex, an agricultural center, a market, a natural products supermarket, health and social welfare centers, a sports center, a library, a trading hall, classrooms, laboratories, and meal units are provided. In the perimeter of the complex there are drainage basins and entries to the underground parking. (Fig. 5).



Fig. 5. The diploma project qualification level "Master" - Principles and techniques of designing agrocomplexes in the structure of a residential building. Compiled with student. ABS-63 Zavertaliuk R.M. Fragment of the project. The Department of Theory of Architecture of KNUCA, Kyiv, 2019. Leader: architect, Ph.D., associate professor Kravchenko I.L. 1 – elevations; 2 - principal appearance of the complex; 3 – scheme of the site plan; 4 – courtyard; 5 – 3d functional scheme. Source: the scheme developed by Iryna L. Kravchenko according to master degree project of Zavertaliuk R.M.

The main functions of the vertical agro-complex in the structure of a residential house for the elderly:

- Production (cultivation of vegetables, herbs, fruits, mushrooms and other plant products);
- Exhibition (demonstration of the potential of modern agricultural technologies);
- Trade (sale to the population of vegetables, fruits, mushrooms, flowers and herbs grown in the agricultural complex);
- Social and recreational functions (food in cafes and restaurants, phyto-bars; tasting of crop products, recreation in the green areas of the agricultural complex);
- Wellness (sports, the presence of the necessary medical staff);
- Educational (provision of educational services to potential residents of the complex and other citizens of the city);
- Living (rooms for the elderly).

The project has solved the following tasks:

- studying the combination of various functions in the structure of the complex and present the optimal structural-functional model.
- studying the features of technological process of the agro-complex;
- developing a space-planning solution in accordance with the composition of the entire agro-complex, as well as taking into account the technological process;
- providing planning of pedestrian and transport links with the territory of the entire agro-complex in a complex with a residential house;
- realizing the environmental focus of the project through energy-efficient design using renewable energy sources (sun, wind, rain, biogas)

- providing a proposal for a comfortable and supportive environment for the employees of the complex, as well as for the permanent or temporary stay of visitors.

Following the global trend of the development of architecture, that manifests in cooperation and a combination of various functions, in this project it was possible to combine various spheres of human activity. First of all, the work on this project was an attempt to ensure, theoretically, the socialization of the elderly while maintaining the indicator of economic feasibility. Designed in the structure of the complex, classrooms, libraries and lecture halls are centres of non-formal education, which are designed to perform not only the social-compensatory function in this facility, but also educational for potential residents of the institution and other visitors.

In another project of qualification level "master", that was done by Khmel M. under the guidance of the article author, on the topic "Methods of forming the center of scientific and technical creativity of youth in the structure of the technopark", the ways of integrating the scientific and technical profile educational premises into the structure of the secondary school are analyzed. The building of the educational centre unites a comprehensive school consisting of three parallel grades and designed for 1008 students. The school has an elementary school, middle and high schools, a scientific and technical unit (laboratories and special classrooms), a sports complex, a canteen, an assembly hall, a media library, administrative premises. Since the building is intended for children and young people, it was decided to give it a scale that is clear to future users.

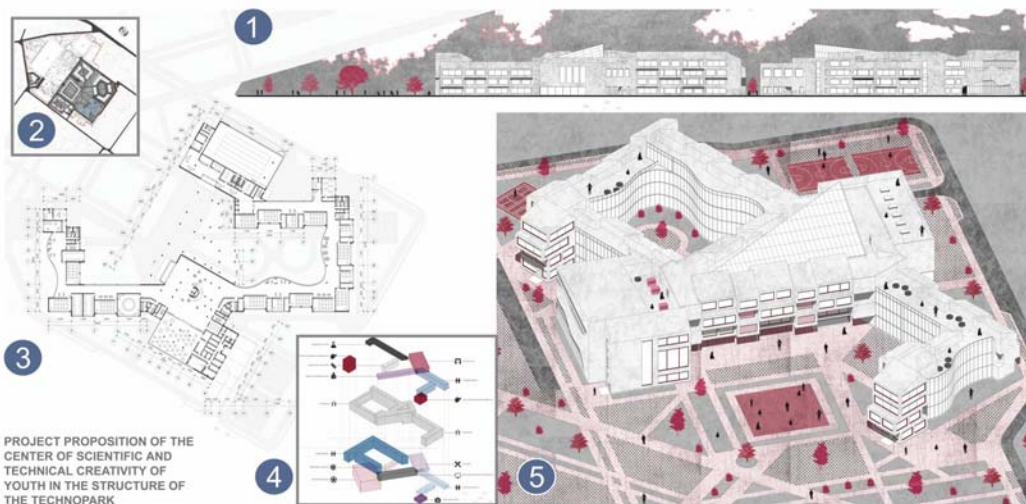


Fig.6. The diploma project qualification level "Master" - Methods of forming the center of scientific and technical creativity of youth in the structure of the technopark. Compiled with student ABS-63 Khmel M.S. Fragment of the project. The Department of Theory of Architecture of KNUCA, Kyiv, 2019. Leader: architect, Ph.D., associate professor Kravchenko I.L. 1 – elevations; 2 – situation scheme; 3 – ground floor plan; 4 – functional scheme; 5 – principal appearance of the complex. Source: the scheme developed by Iryna L. Kravchenko according to master degree project of Khmel M.S.

During the work on the research part of the project, it was determined that one of the main methods for optimizing the architectural space of scientific and technological development centers is the grouping of training cells into modules, then modules into clusters. Such organized groups of educational premises can function both by themselves and included in the structure of buildings, which typologically belong to other units.

The structural-functional scheme of the building is constructed in such a way that the classrooms for the junior, middle and senior classes are grouped into appropriate blocks, which are located around the common atrium hall that performs the communicative function for the whole school, and if necessary can be separated by a door. Such a solution allows introducing an educational scenario even after school hours and providing the opportunity for users to use specialized scientific and technical facilities, a sports unit and a library. In addition, the project implemented such a socio-territorial and socio-professional component, such as the integration of a specialized educational complex into the structure of an innovative technology park.

5. CONCLUSIONS

Analyzing the sociological, pedagogical and economic interpretations of certain positions of the socio-economic factor in the course of the current study revealed a number of major factors of this group of external influences that directly affect the formation and development of the architecture of non-formal education institutions. These factors are:

- socio-demographic, which indicates an increase in the proportion of adults and the elderly in the demographic composition of the population of Ukraine. A special challenge to this question arises against the background of a decline in the total population;
- socio-professional, is closely connected with the problem of socialization of all segments of the working-age population and, especially, the elderly. The factor is most closely related to the economic component;
- socio-territorial, which in fact asserts that the process of urbanization has been intensified and requires the creation of a network of institutions of non-formal education that is branched out by type, location and capacity;
- economic, which, in turn, is closely linked to the other positions listed above and speaks of increasing the role of human capital both in Ukraine and abroad.

At the same time, it should be noted that non-formal education institutions and their cells, as architectural and typological links, have quite flexible possibilities of cooperation with other types of buildings and integration into the structure of educational institutions. On examples of diploma projects of the qualification level “master”, which were developed at the Department of Theory of architecture of KNUCA, one can see certain ways to solve the problem of providing a network of institutions of non-formal education in Ukraine with the teaching-material base. The experimental design method has proved that non-formal education institutions can be combined with a comprehensive school and with such a complex object as housing for the elderly with an agro-complex. The most important in this context is the ratio of functional planning links, which should optimize the architectural and planning structure of the building. Institutions of non-formal education, when integrated into any other structure, should be accessible to users from the outside and not disrupt the functioning of the main facility, thus improving the indicators of socialization and economic feasibility, which are important for all segments of the population.

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