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ECOSYSTEM APPROACH IN EDUCATION: FOREIGN AND RUSSIAN PRACTICES

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ЭКОСИСТЕМНЫЙ ПОДХОД В ОБРАЗОВАНИИ: ЗАРУБЕЖНЫЕ И РОССИЙСКИЕ ПРАКТИКИ

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Abstract. The article is devoted to the current research in the field of ecosystem approach in education. It examines the main characteristics of educational ecosystems and gives examples of existing innovation and educational ecosystems abroad and in Russia.

Аннотация. Статья посвящена актуальным исследованиям в области экосистемного подхода в образовании. Рассмотрены основные характеристики образовательных экосистем, а также приведены примеры действующих инновационных и образовательных экосистем за рубежом и в России.

Keywords: ecosystem approach, educational ecosystem, innovative ecosystem, characteristics of educational ecosystem.

Ключевые слова: экосистемный подход, образовательная экосистема, инновационная экосистема, характеристики образовательной экосистемы.

The ecosystem approach is now a global trend. In the last decade, the idea of the ecosystem approach to the education system has appeared quite often in the pedagogical environment. In 2008, the Moscow School of Management Skolkovo and Global Education Futures published a report in which educational ecosystems were seen as an innovative practice for the future development of the education system.

At the present stage, the ecosystem approach in education is in its infancy, so the notion of an “educational ecosystem” does not have a universally accepted definition.

This study contains a synthesis of ideas about the introduction of the ecosystem approach to education at the present stage.

The following objectives were set for the study:

1. Conduct a brief review of foreign models of educational ecosystems;
2. Identify key features of an ecosystem approach to education;
3. Review existing Russian models of ecosystems in education.

The study is based on a review and analysis of scientific literature, statistics, reports and other sources available on the websites of domestic and foreign scientific digital libraries.

The term “ecosystem approach” has its roots in the partnership practices of technology firms that produce devices for consumer use [5]. As the term was developed in the context of areas such as business, technology and industry — it is just beginning to find application in the education sector. The ecosystem approach is a complex network of collaborations between different stakeholders in a particular industry, whose joint efforts generate new ideas, products and industrial processes. Such a system of cooperation can be equally effective in the education sector — creating educational ecosystems that aim to bring together students and professional communities, which will then lead to the unlocking of the collective and individual potential of all participants.

P. O. Luksha proposes the following definition of the educational system. “The educational ecosystem is primarily a new management paradigm for organising the process of education and training of people. And not only in youth, but throughout life. It will help to ensure maximum realization of each person's potential and, at the same time, maximum demand from society and economy” [3]. The author also notes that “ecosystems are not just a possible future, but the direction of development of the world education system during the XXI century. Without flexible, centralized systems managed by a multitude of players, we will not be able to build social processes effectively. This is the future vector of development, both in our country and around the world” [2].

Communities involved in the formation of educational ecosystems always follow three goals, which can be labelled as “3M” goals: mine, local, global (мои, местные, мировые). The personal level goals (“mine”) include personal growth and one's own prosperity, the local goals are the tasks the ecosystem has to solve at the local level — in a particular region or sector, the global goals include the “mission” of the ecosystem project, its contribution to big civilizational changes related to global and planetary needs and objectives [2].

The authors of the Global Education Futures research cited about 40 examples of ecosystems already in operation. The Moscow School of Management Skolkovo and Global Education Futures conducted a research which looked at educational ecosystems as an emerging practice for the future in education. The research describes in detail how the classical learning system is being transformed and how it will probably change in the future. The ecosystem approach in education, according to the experts, will enable a shift towards networked models of collaborative learning and development [3].

One prominent example of current education ecosystem projects abroad is the American LRNG project in Chicago. The project is designed to facilitate access to education for further career development for people of all ages and appears to be one of the most significant experiments in combining school, extracurricular and online learning. It is implemented through an online platform and a mobile application which present online courses. Course providers include local and national employers, higher education institutions and library networks, while pupils have the opportunity to join their own groups on the platform. The education platform contains both free and paid courses.

Another example is Stanford. A university that has built a large-scale innovation system in the region of its presence. Stanford can be considered as the main subject of the ecosystem, and its other participants are the innovative companies that were created by Stanford graduates and with its assistance. Stanford's uniqueness lies in its integration with the world-known Silicon Valley. Stanford's innovation ecosystem structure includes many partner companies on one side: eBay, Logitech, LinkedIn, Google, Instagram, Yahoo!, Tesla Motor, Atheros Communications, Cypress Semiconductor, E*Trade, Hewlett-Packard, Odwalla, Netflix, SunPower Corp, etc. On the other

hand, the university ecosystem includes research centers — special structural units, laboratories and institutes.

P. Luksha, D. Spencer-Case and D. Kubista have identified a set of factors on which the success of ecosystem projects is based, namely [3]:

- Basic Principles (or the meaning and principle qualities of an ecosystem project);
- Organization (i. e. the set of rules and regulations by which ecosystems are organized)
- Implementation (management methods used to start and develop ecosystems);
- Assets (the resources needed to run and maintain an ecosystem).

The transition to educational ecosystems leads to new ways of learning, based on the principle of interconnection and cooperation. The WISE 2019 report highlighted the following characteristics of educational ecosystems, which can be seen as the emergence of new opportunities in the education sector:

- A variety of learning resources and educational routes for students.
- Active exchange of educational resources and new teaching methods.
- Dynamism in relation to content updates.
- Availability of useful infrastructure.
- Inclusion of both formal and non-formal educational institutions and new participants.
- Distributed control.
- Meeting today's demands and challenges equates to academic achievements [6].

In Russia today, ecosystem shift can be observed in the education system, which is taking place due to the changes caused by the globalization of the economy, the digitalization of education and society, and the complex epidemiological situation that is associated with the COVID-19 pandemic. All these changes make it necessary to find new ways to organize the educational process.

Examples of such already established and functioning ecosystems are the following:

1. The Lenpoligraphmash innovation ecosystem. The purpose of this project is to form a working space for those interested in technological entrepreneurship and technical education. 1.500 residents and 150 companies are the part of the ecosystem of Lenpoligraphmash technopark, who are united by the possibilities of using the technopark infrastructure, services and technological base.

Lenpoligraphmash simultaneously creates new technologies and immediately trains staff who will be able to work with them in the future. The technopark provides opportunities for all stages of training in the chain school-undergraduate-technology entrepreneur (<https://clck.ru/sGMZV>).

2. The ITMO University ecosystem. ITMO University is a state university in St. Petersburg. The university acts as an innovation hub and performs the following roles:

- consulting company;
- scientific and educational institution;
- the owner of the innovation infrastructure organizations;
- manufacturing company [1].

3. The ecosystem of Tomsk Polytechnic University. TPU has built a multi-level system of partnerships with enterprises, which includes many areas of interaction, the main ones being:

-developing, evaluation and implementing of basic and supplementary vocational educational programs;

- targeted training in higher education and postgraduate programs;
- retraining and professional development of staff;
- students' internships with prospects of their employment in partner companies;

-establishment of joint integrated structures (basic departments, laboratories, research and education centres, etc.)

-conducting R&D on orders from partners. Microsoft, SAP, Siemens PLM, Dr. Web, OJSC Siberian Chemical Combine, LLC Tomskneftekhim, OJSC Concern Rosenergoatom, Atomredmetzoloto Uranium Holding, OJSC Tomskneft VNK, OJSC Transneft, CJSC R-Pharm, and others are included in the university partnership system [4].

Based on the above characteristics of the concept "educational ecosystem" and examples of existing Russian and foreign models of educational ecosystems, we can confidently conclude that one of the leading global trends in the education system is the ecosystem transition, which will undoubtedly lead to far-reaching changes in education, as its objective is to produce a certain transformation of the existing education system, making it able to align with the existing needs and challenges of our time.

In Russia, educational ecosystems are capable of creating a greater diversity of educational opportunities than the existing traditional education system and examples of this have been given above. However, it is important to consider that the ecosystem approach in education will not replace existing educational formats, but will only "enrich" the existing educational system with formats and tools for collaboration, leading to unique opportunities for personal and collective education in the future.

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