

RESEARCH DIGEST

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LEARNING ECOSYSTEMS

This digest is prepared by Research Department of Nazarbayev Intellectual Schools AEO.

DEAR COLLEAGUES!

In this issue of the digest, we would like to review the research findings and practices in terms of learning ecosystems.

Understanding the role of an educational organization in the wider community and possible opportunities is crucial for its managers and teachers in the context of everyday interaction with parents of students and school cooperation with local executive bodies, non-governmental organizations and other institutions.

We hope that everyone will find this issue informative.

Sincerely,

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LEARNING ECOSYSTEMS: HISTORY OF DEVELOPMENT AND CHARACTERISTICS

Recently, the concept of ecosystem has been widely used in many areas ranging from the organization of living things in nature to the performance of social institutions, business, economics and technology.

Experts of Global Education Futures (Jessica Spencer-Keyse, Head of Global Research, HundrED; Pavel Luksha, Professor, Moscow School of Management SKOLKOVO; Joshua Cubista, Dean, Social Innovation Institute) argue that people have been experiencing one of the most dynamic periods in the history and facing the consequences of global changes and pressure as a result of certain processes. **Society has been more acutely aware of ecological and biological threats as well as fragility of the social structure.**

We have become hyper connected in the global network of information flow and social media and dependent on the Internet. Digital innovations fundamentally change the labour market and can transform the world economy. High risk and high potential technology (for example, genetic engineering) are becoming a reality and represent a great potential and global threat. Demographic indicators such as urbanization, increased life expectancy, and low birth rate have also changed in a number of regions (Spencer-Keyse, Luksha, Cubista, 2020).

In recent years, English abbreviation VUCA has been used to denote the world complexity and unpredictability. It stands for Volatile, Uncertain, Complex and Ambiguous.

It is obvious that education around the globe does not provide adolescents with the skills to navigate the VUCA world that would correspond to the healthy and sustainable lifestyle prioritized by young people. According to the World Skills report, only 20% of young people (out of 15,000 respondents in 19 different countries) value their education (OECD, 2019). Similarly, according to the HundrEd research report "Every Child to Flourish", 83% of young people do not feel prepared for life in the modern world (Warren & Spencer-Keyse, 2018).

Dr. Bronwen Rees (psychotherapist, Matrix College of Counseling and Psychotherapy) suggests positive alternatives to the VUCA abbreviation. He argues we can qualitatively change overall understanding of the VUCA world:

- Volatility can be substituted for Vision;
- Uncertainty — for Understanding;
- Complexity — for Clarity;
- Ambiguity — for Agility (Rees, 2017).

Spencer-Keyse et al. (2020) states that **it is important to shift from personalized and subject-oriented learning to cooperative holistic one** to solve "ambiguous" problems in the context of school education because supra-subject and "life" skills are becoming increasingly significant. The classical education system forms a "modular person" who is standardized and "built" out of learning modules of knowledge and skills. The innovation system, in turn, forms a "complex person", i.e. a unique personality is brought up by building individual learning trajectories and developing inter-disciplinary skills.

A possible answer to the question how a holistic personality can be developed in the context of secondary education (and not only), experts suggest considering a student as a part of the learning ecosystem.

The term "learning ecosystem" has been used relatively recently. The Virginia Polytechnic Institute Innovation Strategy 2007 notes that the **"learning ecosystem" includes assets and interests of stakeholders** (faculty, students, industries, communities and individuals representing each of these categories) **and aims to achieve synergetic outcomes so that everyone would benefit** (Pearce & McCoy, 2007).

In 2011, Innovation Unit in partnership with CISCO published a report "Developing an Innovation Ecosystem for Education" (Hannon, Patton, & Temperley, 2011) where the concept of "ecosystem" is primarily considered as a "support system for innovations" (including social). Since the ecosystem approach in education is just evolving and it is a complex concept in general, there is currently no single definition of the learning ecosystem.

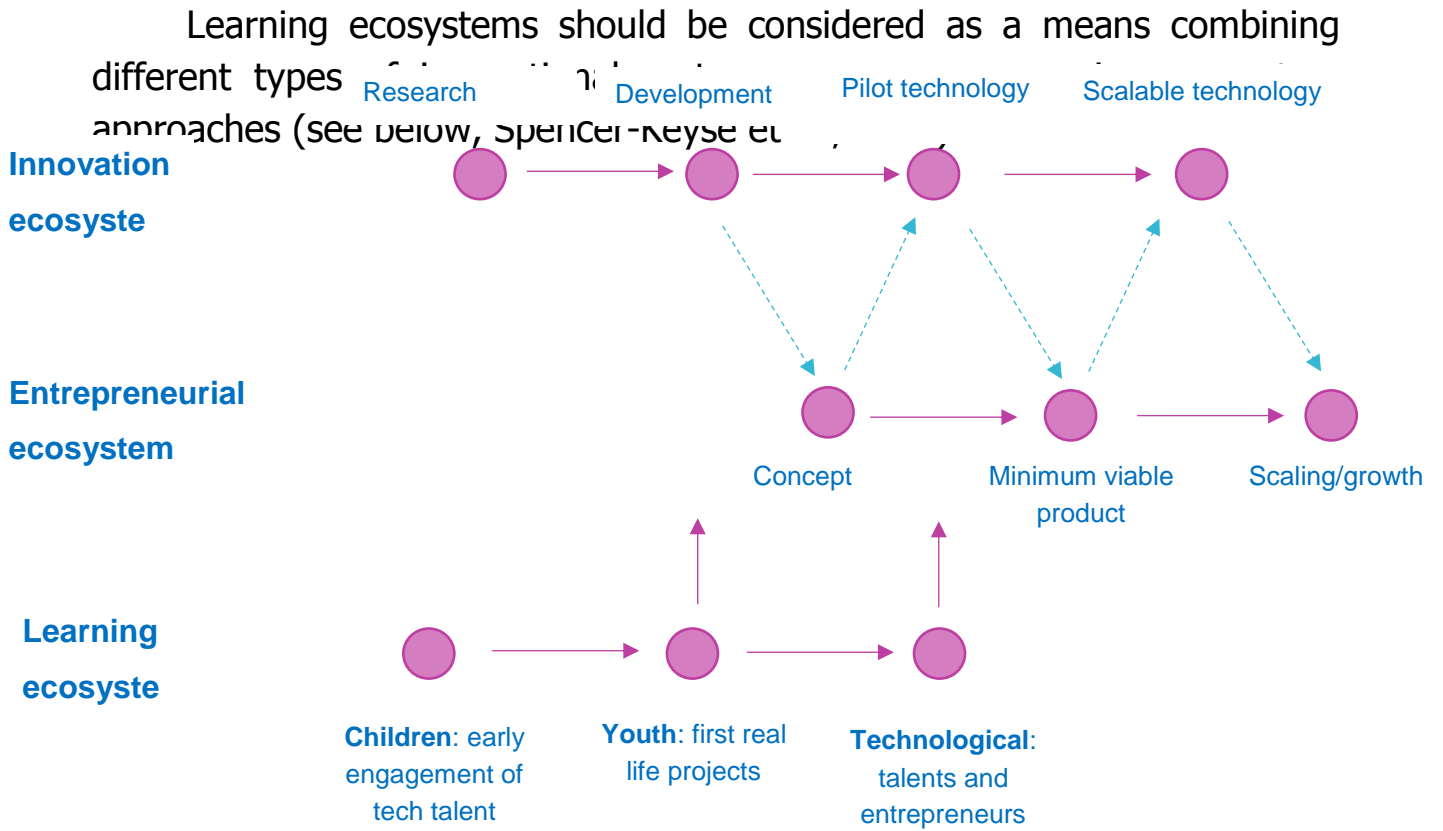


Figure 1. Example of interrelated multi-level ecosystems in entrepreneurship, innovations and education (source: Spencer-Keyse et al., 2020)

Characteristics of a learning ecosystem

Spencer-Keyse et al. (2020) state that the learning ecosystem is **multifaceted, co-created and purposeful**.

Multifaceted means the ecosystem engages different stakeholders in decision-making. They are first liner institutions or educational organizations (schools, universities) and second liner institutions that establish demands and operating constraints for learning providers, yet do not often engage in providing learning experiences themselves (managers, professional communities, banks, parents and the media). It should be noted that learning ecosystems establish relationships to effectively and intentionally build the environment and provide access to available resources.

Another characteristic of learning ecosystem is an opportunity to **co-create**, i.e. stakeholders can collaborate, manage and implement the learning process. This characteristic describes decentralized ecosystem that enables everyone to exchange experience, knowledge and ideas to effectively organize the educational process following the principles of inclusion, diversity and equity.

The last characteristic, **purposefulness** means activities of the learning participants are organized to achieve the main goal – learning. An ecosystem can also refer to other objectives such as social and universal well-being, inner and collective transformation, development and growth, joy of learning or conscious evolution.

Sources:

OECD (2019). Youth Voice for the Future of Work. Retrieved from <https://worldskills.org/what/projects/youth-voice/>

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Hannon V., Patton A., & Temperley J. (2011). Developing an Innovation Ecosystem for Education. *London: Innovation Unit*.

Pearce A., McCoy A. (2007) Creating an Educational Ecosystem for Construction: A Model for Research, Teaching, and Outreach Integration and Synergy. Working paper E14. Myers-Lawson School of Construction, Department of Building Construction, VirginiaTech.

Rees, B. (2017). The Use of Mindfulness in a Traumatic VUCA World. In *Managing VUCA Through Integrative Self-Management* (pp. 193-206). Springer, Cham.

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LEARNING ECOSYSTEMS IN PRACTICE: SUCCESSFUL GLOBAL CASES

Nevertheless, ecosystem is a relatively new phenomenon in education, there are a great many examples of successful implementation of this approach in different countries. Some of them will be given in this section.

Animation studio DA is a Russian charity project that was founded in 2008. It is intended to provide emotional and creative support for and socialize children and adults who found themselves in a difficult situation. The project is an informal association of like-minded people which seeks to expand as they develop. The studio DA initially produced cartoons engaging children with cancer and special needs. It used to be a charity project but now it is a whole system of projects of different sustainability and activities.

All projects support inclusion by developing and utilising various formats of activities including unique ones: inclusive yoga, art therapy, games, and integrated activities. Over the last period, it developed learning materials for volunteers and other relevant communities. Presenters have been using technological solutions and online formats in their activities for a long time such as online courses on cartoon production for parents and teachers.

StriveTogether project was created in 2011, Kentucky (USA) by the Cincinnati Community Leaders. It has expanded into a network of 70 local communities in 29 states and District of Columbia. The major aim of this project is holistic and comprehensive development of children which is not limited to the school curriculum. Participants strive to meet all the needs of children (nutrition, health and social needs) and get them ready for admission to schools after kindergarten and to universities after graduation. Therefore, StriveTogether invites all local communities to build a development trajectory for children "from cradle to career". Distinctive feature of this project is collection and analysis of data on the participation and success of children in different projects. It allows to identify what services children need at a particular stage (for example, tutoring or further education). As a result, children performance in Mathematics

improved, and a share of university graduates and children admitted to kindergarten increased.

OECD experts analyzed European learning ecosystems intended to develop and promote entrepreneurship in educational institutions as part of the **Entrepreneurship360** project (Mueller and Toutain, 2015). The analysis gives examples of successful implementation of learning ecosystems at different levels of education in European countries.

One of them is **ETHAZI**, the Basque project which was launched in 2013-2014. TKNIKA is a Center for Applied Research in VET among 5 private and public colleges in the Basque Country, Spain. The project involves about 100 students and 25 teachers. It aims to promote innovations in VET and the central idea is collaborative learning based on problem solving. ETHAZI also promotes professional development of teachers in such areas as new technologies, creative methods, case studies, analysis and problem-based learning.

The ETHAZI project is considered to be a learning ecosystem due to the following characteristics:

- It actively adapts the learning environment to the student needs and allows to achieve the project goal and encourage students to collaborate.
- Intermodularity which implies the development of the learning process around student practice and introduction to real working conditions and production process at all stages of the college education.
- Teacher autonomy in such aspects as schedule, learning environment, group and individual work.

The French "Mini-enterprise" project of the association *Entreprendre Pour Apprendre* is a learning ecosystem aimed at building communication between educational institutions and entrepreneurs to achieve common goals. It enables schools to network with representatives of local communities. It can be achieved by using the "learning by doing" approach where a team of students work with entrepreneurs, make and sell products and possibly create a fully-fledged business. Children are encouraged to test their products withing the *school* environment.

Learning ecosystems can also be organized in the form of alternative educational institutions embedded in the local environment that would enable students to communicate directly with community representatives. A similar approach is used as part of the **Knowmads** project in the Netherlands. This project brought together students who wanted to create their own learning space. The first graduates of the project defined the learning place which was the former primary school building. Every class of graduates should create a new design for the learning space that encourages them to personalize it. This approach is quite available in terms of resources. It encourages students to actively shape the environment and interact with the local community.

The given examples of ecosystems illustrate that this approach can work at any level of education and does not require large-scale investments. Ecosystems can be organized by educational institutions and individuals. They can help achieve different goals: to promote professional development and entrepreneurship, search for ways to organize the learning space, and to develop inclusive education.

Sources:

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LEADERSHIP IN LEARNING ECOSYSTEM

In addition to the need for funding and stakeholder involvement, transition from industrial education to ecosystem education leads to certain changes in understanding of management. Spencer-Keyse et al. (2020) identified the following leadership characteristics for two types of education:

Contrasting industrial and ecosystem leadership models	
Industrial Leadership	Ecosystem Leadership
Hierarchical, top down power structure and flow. Focus on people being human resources. People rely on linear structure and analytical logic. Communication is typically limited to instructions and transmission of information.	Horizontal/flat networks, ensuring information flow in all directions. People are valued at the individual and collective level, as interdependent contributors. Communication is typically active and deep listening, enabling vulnerability with questions and storytelling.
Command and control with an authoritative approach to relationships. Fear, manipulation and demanding compliance. Aim — to encourage separation and segregation.	In service to life, shared agency and transparent authenticity relationships. Leaders collaborate with the team, act as facilitators, enable the team for self-realization, share knowledge, and build relationships on humor. Aim — to develop culture of integration, empathy, and compassion.
Policy preventing the free flow of information and ideas. Rigid division into winners and losers. Focus on short term planning.	Policy of lifelong learning and recovery cycles. Sharing information and data to improve the quality of creativity and learning. Fostering experimentation, risks and training with a long-term view prioritised. Uses feedback loops.
Homogeneous team	Diversity and inclusion
Mission — to beat competitors by squeezing them out of the industry.	Mission — to establish cooperation based on agreed internal and external interests. Attention is paid to all branches of the system to organise joint work with people sharing common values.

A study on the role of school leaders in creating learning ecosystems through collaboration between schools and local community (DiMartino, 2018) says that they prefer to build partnership which **has a clear aim relevant to school objectives and provides opportunities for students, staff and society**. Moreover, school leaders tend to rely on existing communication structures and channels to maintain partnership. Meanwhile, a significant aspect in establishing collaboration is a **strategy, plans and priorities**.

Along with planning the development of an educational organization jointly with local community, their leaders have to solve management issues.

Spencer-Keyse et al. (2020) note **that a learning ecosystem similarly with any other complex organization goes through four classic stages of the life cycle**: birth, growth, maturity and decline.

A period of **nascence** or birth is characterized by a limited number of founding participants when links between them are weak, the common vision only just begins to emerge and joint activities are scarce. At this stage, leaders should launch the process of creating an ecosystem, identify and engage experts who would take on the role of founders and set common goals for all participants of the ecosystem.

It is followed by a stage of **growth** when many more players start to flow into the system and many more joint projects and initiatives emerge. The main challenge is to achieve critical mass in terms of the ecosystem participants, develop common structures, processes and protocols and to maintain the course through real achievements and initiatives of participants.

At some point, the inflow of new players and opportunities drops, as the system goes into a plateau, or **maturity** stage. Within a mature ecosystem a system of relationships is much more stabilized as its main challenge is to maintain indefinitely the dynamic status quo. Leaders should foster cohesion within the ecosystem and improve the quality of relationships, optimize and rationalize existing processes and encourage the flow of new ideas and projects for sustainable growth inside and outside the ecosystem.

Eventually, some ecosystems can face external disruptions (e.g. the rise of new education technologies or major changes in the economy and job markets) or even serious internal contradictions (e.g. a change in the generation of ecosystem leaders). Then they enter a downwards dynamics of the **decline** or they begin redefining themselves and be reborn or (self-)renewed from within. If a leader finds the ecosystem declining, he should recognize the symptoms of extinction and identify opportunities for transformation.

Thus, one of the main challenges for ecosystem leaders is the need to constantly **rethink the principles of management and interaction**, as well as to develop the required competencies and approaches as the system evolves. High-level leadership is the key to the successful development of the learning ecosystem as a whole.

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Spencer-Keyse, J., Luksha, P., Cubista, J. (2020) *Learning Ecosystems: An Emerging Praxis For The Future Of Education* Moscow School of Management SKOLKOVO and Global Education Futures: Moscow

DiMartino, Lisa, "The Role of School Leaders in Creating a Learning Ecosystem Through School-Community Partnerships" (2018). Educational Studies Dissertations. 141. https://digitalcommons.lesley.edu/education_dissertations/141