ECOLOGICAL APPROACH AS A BASIS FOR A HIGHER EDUCATION ENVIRONMENT

*Marina Troshkova, **Irena Katane**
Latvia University of Life Sciences and Technologies, Latvia
*Corresponding author's email: marina.troshkova@gmail.com

Abstract
Continuous interaction between the student and the higher education environment is becoming increasingly important today. It is now important to use the ecological (environment) approach in education to create learning environment that is inclusive and friendly to students, identifying environment's multiple and diverse dimensions/contexts. The purpose of this study is to offer a theoretical basis for the university environment, given various education trends and dimensions of that environment, based on the ecological approach to education ecology. The following research methods were used: study, analysis and evaluation of scientific literature. The theoretical research highlighted one of the manifestations of the ecological approach: the multidimensional/ multicontextual approach, discussed an appropriate learning environment as a key component to encourage students' professional growth and readiness for professional activities and emphasised continuous interaction between the student and the higher education environment.
Key words: ecological approach to education, higher education environment, multidimensional environment, student-centred approach in universities, sustainability.

Introduction

The pandemic highlighted the problem of providing learning environment (including that of higher education) that supports and encourages students to independently learn and re-train, direct them towards the job market and lifelong education, and help them achieve success in life. Such learning environment integrates learning and work, is fair and inclusive, and focuses on the student's individual learning and competences. It also includes the latest technologies used to improve effectiveness and access (OECD, 2019).

In the context of the spread of the pandemic and the relevance of the problems it caused in education and the economy, the public now expects universities to provide professional training to students with a view to the future, ensuring long-term success and ability to live and work in an ever-changing job market. Higher education has undergone changes because of this, meaning that education becomes certain, accredited and supportive. The main attention is focused on uniting and integrating the job market and universities, making sure that the students can apply what they learn academically in actual professional environment. A few universities have updated their strategies to improve access for working students and underrepresented social groups, at the same time ensuring that all students can be successful. New accreditation forms have sprouted up, including short-term, competence-based and stackable (Klein-Collins & Travers, 2020). A critical role is assigned to creating, maintaining and developing the university environment that promotes self-managed learning by students. This is why the ecological approach to education is currently relevant.

The ecological approach has been present in social sciences, including education sciences, since the 20th century, and is one of the critical components of creating and developing the education environment (Briede & Pēks, 2011; Bronfenbrenner, 1979; Katane & Pēks; 2006; Katane, 2007; Manuĭlov, 1997; Novikova, 2003; Panov, 2004; Peckover, 2012; Popa et al., 2020; Yang & Sanborn, 2021).

The ecological approach is relevant at all levels of education, including higher education (Baltušīte, 2012; Īriste, 2018; Katane, 2007; Ruiz-Mallén & Heras, 2020). In higher education, the ecological approach helps enable the student's general and professional development (Baltušīte, 2012). Students interact with a diverse study environment that is friendly to them which results in a positive study and professional experience that promotes the development of competitiveness in the students (Īriste, 2018).

The aim of this study is to offer a theoretical basis for the university environment, given various education trends and dimensions of that environment, based on the ecological approach to education ecology.

Materials and Methods

The relevance of the ecological approach was pointed out by the 21st century's main trend in education: providing education for sustainable development which is based on the diversity of education including higher education. The diversity of universities is important not only for ensuring the sustainability of higher education, but also in achieving excellence in studies and research (Briede & Pēks, 2011).

The ecological approach to education helps predict changes in environmental context, promoting ecological thinking in individuals and society as a whole, fostering environmentally friendly attitudes and actions, preventing the consequences of reckless actions committed by people, and creating friendly environment, focusing on the development of personalities. In achieving sustainability in

education, it is important to ensure that it is open and accessible, and respects special features of the cultural environment (Katane, 2007).

According to the ecological approach, a critical objective of education is to create a balance between sustainability and continuously rising contradictory and competitive differences, and the flow of information, which often results in imbalance, conflict and stress (Īriste & Katane, 2021).

Green thinking and making the environment green is the predominant global context for sustainability, linking people, the planet and profits. Two additional contexts are minor and regional: 'resilience' and 'alternative'. All of this encourages changes in the organisational culture of higher education, adding sustainability values in strategic planning, and in academic and management activities. A profound and critical representation of the world's views, contradictions and tensions on a global and regional scale is necessary to find common paths towards sustainability (Ruiz-Mallén & Heras, 2020).

The ecological approach to education studies what happens in education using the dimensions of time and space; the development of individuals, society, and education/environment systems interacting with a changing and heterogeneous environment (Yasvin, 2020).

In understanding the ecological approach to higher education, one must start with the definition of environment. The environment of an individual is defined by the interaction of natural and artificial circumstances in which the individual achieves personal development as a natural and social being. These parts are mutually related. A shared space that is directly or indirectly accessible by the individual is a component of the natural environment. The context of the social environment is created by society and social relations that enable the individual to achieve personal fulfilment as a social being (Markovich, 1991).

The theoretical investigation highlighted the multidimensional/multicontextual approach as a basis for the educational environment and research which is one of the manifestations of the ecological approach. Every researcher offers their own vision of the dimension/context of the environment as a basis of diversity (Īriste, 2018; Kalniņa, 2010; Katane, 2005).

The research methods of the current study are as follows: reviewing, analysing and evaluating scientific literature.

Results and Discussion

The theoretical research carried out revealed different views pertaining to the dimensions/contexts of the environment. Researchers often propose their own classifications of the dimensions, contexts or components of the learning environment, associated with the topics of their research and the specific features of the problem they researched. Furthermore, there is no uniformity in the use of terminology: in explaining the ecological approach, the terms 'dimension, context, component, element of the environment' are used as synonyms. This indicates a lack of a generally accepted definition of a higher education environment, and classification of the dimensions/contexts of that environment.

For example, Yasvin (Yasvin, 2020) believes that the structure of the environment consists of a physical, a psychological, and a sociocultural component which describes the conditions and resources for the development of a personality. The structural information model includes the living environment of the individual, consisting of the way the physical and home environment are organised, and relationships among the people with whom the individual grows up and develops physically and mentally. The supportive environment (peers, cultural, ethnic, ideological, information, geographic, economic environments) is analysed. The development environment of an individual includes their psychoemotional, sociocultural, hygienic technical, socioeconomic and demographic environments. A review of family and school environment is carried out. Space is viewed as a physical environment. The personal development environment is based on a tendency to comply with the effective organisation of a specific environment and social components. The social component includes mutual understanding and client relations, dominating positive mood, authority of managers, involvement in the management of the education process, cohesion and awareness, and collaboration in achieving productivity as part of the education process. The component of a specific environment includes the complexity and heterogeneity of the environment, the junctures between the functional zones of the environment, the flexibility and manageability of the environment, the provision of opportunities, and the customisation and the authenticity of the environment. A quality environment that develops personality has high values in the following quantitative system parameters: space, intensity, awareness, generalisation, emotionality, dominant focus, interaction, social activities, structure, mobility, safety and stability.

Other researchers (Artyuhina, 2007; Entwistle, 1991; Īriste & Katane, 2021) emphasise the idea of the higher education environment including professional development of students, as well as their socialisation as future specialists, because the university environment has multiple dimensions/contexts-social environment, cultural environment, ICT environment, professional environment, etc.-interactions with which result in the creation and development of various competences, accumulation of new experience which has an effect

on life and professional situations and becomes the basis of the new thinking, professional activities and general career success of the future specialist. Studies of trends in the development of universities show that the ecological approach is a priority in the activities of universities, as it activates the creative potential, competence and competitiveness of students.

R. Hiemstra (Hiemstra, 1991) defines the university study environment as an environment that consists of physical surroundings, psychological and emotional circumstances, and social and cultural factors, all of which affect the development of an adult. Other researchers (Closs, Mahat, & Imms, 2021) define it slightly differently, believing that it consists of social, physical, psychosocial and teaching components. The study environment is where learning takes place; it affects the attitude and achievements of the students and makes it possible to organically feel the learning experience for students in higher education.

Meanwhile, Australian researchers (Radcliffe, 2008) highlight the physical, teaching and technological components that constantly interact with each other. In the context of the physical component, they mention the spaces that promote collaboration in teaching and learning processes (Collaborative Teaching and Learning Spaces) which include both internal and external features using videoconferencing and accessing network spaces. The design of such spaces is considered to be such that provides the opportunities for teaching and learning not provided by traditional learning spaces and classrooms. The advanced concept teaching space represents the state-of-the-art in which the teaching and learning space, the use of information technologies and the design of the study environment play the central role in teaching. Providing informal study spaces in a university has a positive effect on the student learning process because these spaces enable students to learn independently or in groups, to take breaks or simply spend their time at university with their peers or communicate with their instructors. Fourth-generation libraries also play an important role in creating the university environment, because they currently provide various kinds of services, from printed and digital sources of information to study spaces for individuals and groups.

In terms of the physical environment (Acton, 2018), four design principles are highlighted: student focus, compatibility, flexibility and accessibility.

Generation Z prefers open spaces that promote active learning, as these spaces open up room for students and staff members to move about, creating a shared social space and uniting them.

The teaching environment component includes the activities, tools, resources, methods, strategies and structures that facilitate the teaching of students.

The psychological and social components are closely associated with each other, characterised by personalisation, inclusion, student cohesion, satisfaction, task orientation, innovation, individualisation, investigation, cooperation, student capital and support by instructors (Dorman, 2014).

The learning environment and the individual learning process cannot be separated, as they continuously interact, complementing each other. Between the teaching and learning, there is the student's perception of the teaching and assessment processes (Shum *et al.*, 2021; Vermetten, Vermunt, & Lodewijks, 2002). The perception of the learning environment affects the learning performance of the student.

Universities face various challenges, which highlights the need for improving the study environment (Valtonen *et al.*, 2021). Some of the challenges have to do with the use of a new teaching model, transitioning from the instruction paradigm to the learning paradigm, with the rapid development of education technologies, with the diversity of non-traditional groups of students that need flexible courses, and with rising hopes associated with the skills necessary in current and future professional life. New hopes associated with learning goals arise as well. In addition to the traditional content of education, students are expected to learn twenty-first-century skills or skills for their current or future professional environment. Twenty-first-century skills include creative and critical thinking, cooperation and communication skills, social and/or cultural competences, problem-solving skills, and skills using information and communication technologies (ICT). In order to integrate the learning of these skills into curricula, one must create an environment, in which the students actively learn using ICT, and learn as experts.

Another significant change in higher education involves the use of ICT, which is the core element of twenty-first-century skills, and the main means for supporting modern learning and teaching practice. ICT plays an important role, including such elements as blended learning, massive open online courses, and flipped classroom strategies with online video materials which make higher education more flexible and broadly accessible (Valtonen *et al.*, 2021). This is why it is important to single out the ICT environment dimension/context as part of the higher education environment.

According to the 'Universities Without Walls Vision for 2030' report (European University Association, 2021), future universities will be hybrid in nature and structure. Universities will accommodate equally important physical and virtual environments at the same time. In the future, the physical and digital

learning environment and research environment will be united in a holistic way, to meet diverse social needs and to enable the development of flexible and mixed approaches. The physical environment will continue to have a decisive role in social interaction and dialogue: a place for holding meetings that challenges and at the same time inspires, but also offers quiet spaces for focused learning and research. The virtual environment will make universities omnipresent. It will be created to improve every person's access to research and learning, to improve cooperation, to research new, innovative methods, and to pursue the missions of universities.

This makes it possible to define the university study environment as a multicontextual environment, in which a special role is played by its ICT component.

In order to promote the professional growth of the student and their preparedness for professional activities, the student must have an appropriate study environment (Baltušīte, 2012). The study environment of a university consists of two key components: 1) the environment of the university; 2) the places where its students complete their internships, i.e., professional environments, which when put together constitute the dual nature of the study environment. The dual study environment of a university includes an interdisciplinary cooperation system (between the university and the company providing the internship) and an interpersonal cooperation system (on a level between individuals) (Īriste, 2018).

The value of the study environment of universities, in what pertains to personal growth, is created whenever there is a connection established with the student's personal experience and life (Artyuhina, 2007). A.I. Artjuhina emphasises the influence of a diverse environment on the development of personality and personal growth, the necessity to integrate environmental factors, the diversity of the environment that enables the personal and professional development of the individual, as something that must be taken into account in planning a university study environment geared towards the professional and personal growth of the students. It is important for different types of components of the environment to mutually interact, so that a uniform internal organisation is created that is harmonised, enabling the joining of the educational and professional environments.

Another proposed university environment model for modern conditions (Ng, 2021) distinguishes three components of the virtual environment: the student's individual study environment (which consists of the student's learning activities and devices), the physical environment (at home, in the library, the cafe) where the student is located, and the virtual online environment. In the context of online studies, the learning process is affected not only by the virtual environment, but also by the current physical environment of the student, and its physical and social aspects. The physical aspects can include the indoor air, the room, the ergonomics of the furniture, and the physical infrastructure. The social aspects can include people, events, and rules.

Learning takes place by interaction with the learning content, the experience associated with it, as well as ideas, findings and events during learning (Briede & Pēks, 2011). Thus, the content of studies largely defines the special features of a higher education environment.

A student-centred study environment and student-centred activities within it improve learning, help students gain specialised knowledge, and promote the general development of skills and competences. Participation and involvement can be beneficial to the study process. However, at the same time it puts much responsibility on the students who are expected to manage their learning process on their own, achieving certain study results. The learning process cannot be strictly defined, and one should rather create an environment and provide tools that encourage learning, make learning possible, support, manage and present content and introduce activities that help with the learning process. The study environment creates possibilities for learning. Therefore, in the opinion of the authors, the emphasis should rather be placed on creating a student-centred environment in which the student can use what is available, such as activities, exercises, resources, tools, instructions, etc. (Damsa & de Lange, 2019).

Conclusions

1. The ecological approach has been present in social sciences including education sciences since the 20th century.
2. The ecological approach is one of the critical components of creating and developing the learning environment.
3. The ecological approach is relevant at all levels of education including higher education.
4. The theoretical investigation carried out revealed different views pertaining to the dimensions/ contexts of the environment. Researchers often propose their own classifications of the dimensions, contexts or components of the learning environment, associated with the topics of their research and the specific features of the problem they researched. Furthermore, there is no uniformity in the use of terminology: in explaining the ecological approach, the terms 'dimension, context, component, element of the environment' are used as synonyms. This indicates a lack of a generally accepted definition of a higher education environment, and classification of the dimensions/

contexts of that environment. This makes it possible to define the university study environment as a multicontextual environment, in which a special role is played by its ICT component.

5. In order to promote the professional growth of the student and their preparedness for professional activities, the student must have an appropriate study environment. The study environment of a university consists of two key components:

1) the academic environment of the university;
2) the places where its students complete their internships, i.e., professional environments, which when put together constitute the dual nature of the study environment.

6. A student-centred study environment and student-centred activities within it improve learning, help students gain specialised knowledge, and promote the general development of skills and competences.

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