

# Global cooperation of supporting academic activities of the universities in the context of Sustainable Development Goals

Viktor Zinchenko<sup>1,\*</sup>, Mariia Debych<sup>2</sup>, Mykola Popovych<sup>3</sup>, and Igor Mukhin<sup>4</sup>

<sup>1</sup>Institute of Higher Education of the National Academy of Educational Sciences of Ukraine, 9, Bastionna Street, Kyiv, 01014, Ukraine

<sup>2</sup>Department of Quality Assurance of Higher Education of the Institute of Higher Education of the National Academy of Educational Sciences of Ukraine, 9, Bastionna Street, Kyiv, 01014, Ukraine

<sup>3</sup>State Agrarian and Engineering University in Podilya, Kamianets-Podilskyi, Ukraine

<sup>4</sup>State Tax University, Irpin, Ukraine, Ukraine

**Abstract.** The modern paradigm of education requires a rethinking of the mission of universities and their role for social, economic and knowledge-intensive development of states. The main research is based on fundamental developments in pedagogy, philosophy of education, management of education and educational process, in particular on humanistic pedagogy, effective methodology of educational process, anthropological pedagogy, internationalization and globalization of higher education. Different forms of global cooperation viewed as a standard are vital for the overall thinking, environmental, economic and social dimension. Almost every developed country has extensive experience in building a system of higher education. The results of the analysis of this experience can contribute to the development and enrichment of the domestic education system, avoid the recurrence of mistakes and the opportunity to discover new approaches to solving a number of problems in this area. Universities should be able to go through a smooth, continuous process of change that ensures the effectiveness of the university's research activities and provides resources for teaching and learning. This requires rethinking the idea of change from decision-making to perspective, which perceives change as a new reality and builds an institutional culture based on change.

## 1 Introduction

By 2030, it was planned to develop tools and models that would allow everyone to receive and complete free, fair and quality primary, secondary and higher education, which will lead to appropriate and effective learning outcomes and social development. This proposition however needs concretization because the criteria of social and personal development are quite changeable: even now in terms of pandemic districts one has to revise significantly the understanding of «appropriate» outcomes. So, it is hardly to implement properly the demand to ensure that everyone has access to quality education at all levels, creating appropriate

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\* Corresponding author: [zinchenko.72@gmail.com](mailto:zinchenko.72@gmail.com)

conditions by 2030, which will allow everybody to move successfully to the next levels of education and carry out lifelong learning. On the other hand, domination of distant education simplifies the performing in general several tasks even now, not by 2030: to eliminate gender disparities at all levels of education, to allow all women and men equal and affordable access to high-quality vocational and academic education; to make sure that a much larger number of young people and adults acquire knowledge, skills and abilities related to employment or self-employment. One of such tasks is achieved especially successful – to ensure equal access to all levels of education for all, including people with disabilities, indigenous peoples and children with disabilities. This is due the possibilities of international access of open educational programs provided by internet. That is why it could be common educational programs for different persons, different countries and different kinds of participation.

## **2 Research methodology**

SDG 4 (High Quality Education) nudged also an Education Program of UNESCO (United Nations Educational, Scientific and Cultural Organization that includes 193 member states) – renewed, comprehensive and transformative program “Education 2030. Framework for Action” (11). This program aims to contribute to the achievement of all UN sustainable development goals (15). UNESCO considers education to be an integral and important condition for the promotion of democracy and human rights, the strengthening of global citizenship and sustainable development. UNESCO has developed a framework for action to achieve the global educational goal and supports implementation processes in its member countries.

The OECD (Organisation for Economic Co-operation and Development that includes 37 developed countries) also develops and monitors sustainability targets at the global level of experience. In addition, it is planned to prepare reports on policy coherence, analysis of progress, etc. The integrated program «The Future of Education and Skills Education 2030 – OECD» (19) and «Learning Framework 2030 – OECD» (15) offers the forms, visions and principles that underlie the future of the global education and science system. The training structure was jointly created for the OECD-2030 Education Development Program as a project of government representatives and a growing community of partners, including ideological leaders, experts, educational networks, heads of educational institutions, teachers, scientists, researchers, students and youth groups, parents, universities (and other HEIs), organizations and other social partners.

The new program “OECD’s Education at a Glance” examines annually the phenomenon of global education with help of special OECD Indicators (12). “OECD Indicators in Focus” (EDIF) is a recurring series of briefs that highlight specific indicators in OECD’s Education at a Glance that are of particular interest to policy makers and practitioners recurring series of briefs that highlight specific indicators in OECD’s Education at a Glance that are of particular interest to policy makers and practitioners” (16). It provides data on the development, funding and efficiency of education systems in 37 OECD countries and a number of partner countries.

For the first time, two new indicators provide comparative data on the level of success in higher education and on the criteria for access to higher education. One section is devoted to the educational policy goal of the 2030 Agenda.

Higher academic and professional education remains popular and continues to generate high incomes for both individuals and taxpayers. However, new data show that the differences between individual areas of research are significant. This follows from recent OECD research. The report shows that economics, administrative and legal sciences are the most popular areas in OECD countries.

Every fourth student starts studying in these fields. In contrast, on average, only 16 percent study engineering annually and only 5 percent study computer science, even if the employment rate of these graduates exceeds 90 percent in many countries. In Germany, for example, law and economics are in demand among first-year students, similar to the OECD average. However, the share of students in science and technology is significantly higher than the OECD average (10 and 23% in Germany compared to 6 and 16% on average in the OECD). However, in engineering, women are freshmen with only 22%, who are also underrepresented in the OECD. With an employment rate of about 90%, all three entities reach similar values. In the social sciences and humanities, the employment rate is 84%, but still higher for adults who have only a vocational education or a high school diploma. In general, the economic benefits of higher education remain significant. For example, 88 percent of adults with higher education are employed, and adults with secondary education are 81 percent. The income benefits of an employee with a higher education are on average 66 percent, and he or she is almost five times more likely to be among the top employees than an employee with only a professional qualification (17-18).

In his program report for the next 50 years OECD Secretary-General A. Gurría notes: “Targeted support for the most vulnerable, employment, skills and education to ensure lifelong employability must remain a central focus of our work. We need to address the “E” policy priorities: Employment, Entrepreneurship, Education, Environment and Equality” (14, p. 6).

But this priorities need decades of years to be successfully implemented. Although the chances of high skills are increasing, the employment prospects of less skilled workers are deteriorating. Even in Germany, 13 percent of 25-34-year-olds do not have a professional qualification or a high school diploma. This is lower than the OECD average, but much higher than in other countries with dual vocational training, such as Austria or Switzerland. At 4.3 percent of gross domestic product (GDP), education spending remains well below the OECD average (5.2 percent). In primary education, spending per student is also lower than the OECD average of \$ 8,846. Even in higher education, spending did not keep pace with the increase in the number of students (18).

The European Union seeks to consider the goals of sustainable development in all its forms, as one of the key guiding principles for EU policy. The Council of the European Union states that “a prosperous Union also hinges on an open and fair international economic, financial and trade system and sustainable and equitable access to the global public goods; STRESSES that the SDGs are a cross-cutting dimension of the Global Strategy” (13).

“Agenda 2030” also identifies the educational concepts and models needed for sustainable development: education for sustainable development, education for global citizenship and relevant concepts must teach competencies to help all of us transform our world for collaboration. Comprehensive competencies of this kind can be developed with the help of teaching principles and educational problems of national educational systems.

In the EUA report A. Gover “Evaluation of Learning and Teaching. Thematic Peer Group Report” (1) presents the results of the work of the working group on the evaluation of teaching and learning. Six key issues related to the evaluation of learning and teaching were identified by the group and four recommendations were proposed to address them. Challenges and problems faced by universities: a systematic approach to evaluation processes, balance of trust and autonomy of faculties with centralization, motivation of academic staff to professional development, ensuring student participation in evaluation and program development, promoting accountability at all levels, lack of resources.

Based on the discussion of these challenges, the report offers four general recommendations that universities can consider when developing their approaches to the evaluation of teaching and learning.

- It is necessary to focus on the program as the main reference point around which the evaluation of learning and teaching takes place.
- Have a single institutional policy and framework that outlines a systematic approach to the evaluation of learning and teaching at the program level, setting common goals and expectations.
- Ensure that various stakeholders are involved in defining the objectives of the program and the expected learning outcomes, and then assess whether these objectives have been achieved.
- Evaluate and improve the full range of services that support students in achieving learning outcomes and teachers in conducting high quality teaching.

Thus, we agree that in order to implement these recommendations, it is necessary to pay attention to key factors, namely communication, teamwork, stakeholder involvement, balancing systemic approaches to innovation and flexibility.

L. Norton's article "Assessing student learning" (5) discusses two main elements of student assessment: assessment design and feedback. Assessment design is about pedagogical philosophy, discipline, assessment models, and what we know about student learning methods. In other words, it is a learning impact assessment. Assessment as feedback is more focused on the practice of improving student learning. Another important element of assessment is Authentic assessment, which focuses on the development of skills in the real world, the active construction of creative responses and the integration of the use of diverse skills into a single whole. If we talk about feedback, it is a complex issue that includes the difference between the current assessment (Formative assessment) and the final assessment (Summative assessment). The final evaluation focuses on the final evaluation of the achieved learning outcomes. As a rule, the grade or score is entered in the statement (report).

Current assessment is also known as assessment for learning, it takes place in the learning process, as opposed to the final assessment, which takes place at the end of a topic or cycle of classes.

Ongoing assessment is integrated into the learning process and is ongoing. It can be done using a variety of methods. A key principle of this type of assessment is that by assessing the level of understanding or learning needs, teachers can adapt or change approaches (to learning) in the future. Current assessment is inextricably linked to the feedback that the student receives from the teacher, his peers during the study.

We agree with the author that the assessment of student learning is inextricably linked to the feedback that the student receives throughout the study.

D. Nicol's article "Formative assessment and self-regulated learning: A model and seven principles of good feedback practice" (3) examines current (formative) assessment and feedback to show how processes take place that can help students take control their learning, for example become self-regulated students. The article provides a definition of seven principles of good feedback practice that support student self-regulation. The key argument is that students are already evaluating their work and generating their own feedback, and that higher education should build on this ability.

Seven principles of good feedback practice:

- Helps to clarify what is good performance (goals, criteria, expected standards);
- Promotes the development of self-esteem (reflection) in learning;
- Provides students with high quality information about their studies;
- Encourages teacher-student dialogue around learning;
- Encourages positive motivational beliefs and self-esteem;
- Provides opportunities to reduce the gap between current and desired indicators;
- Provides teachers with information that can be used to plan teaching.

Thus, the importance and necessity of constructive feedback for the maintenance and development of student self-regulation during study is seen.

In D. Parkin's "Leading Learning and Teaching in Higher Education" (9) in the section "Assessment and Feedback" the concept of "constructive alignment" is a certain model of teaching and learning design used to plan teaching activities. Training and assessment tasks related to planned learning outcomes. The author claims that the model is based on the theory of constructivism and student-centrism. Under the planned learning outcomes are selected methods of teaching and learning that attract students to achieve them, the teacher's task is to create a learning environment so that the student can show their abilities and achievements, and the teacher evaluates them according to planned learning outcomes.

T. Jessop and G. Hughes's article "Beyond winners and losers in assessment and feedback" (10) argues that final assessment distorts learning, because formal assessments, artificial exercises, are far from the best way to establish what students understand and can do. The authors of the article are based on research on various strategies for attracting students, returning attention to their own learning through current (formative) assessment. In particular, they consider how student learning can be part of a dialogue with teachers, focus on individual research and personal progress, and not be distracted by competition for final assessment.

We can partially agree with the authors, because, in our opinion, successfully assess the learning outcomes of students we need to combine both formative and final assessment.

Nugent A., Lodge, JM, Carroll, A., Bagraith, R., MacMahon, S., Matthews, KE & Sah, P. "Higher Education Learning Framework: An evidence informed model for university learning" (7) describes the principles of learning in higher education and the theoretical basis of their origin. Let's consider each principle in more detail.

Principles of learning in higher education that affect the assessment of teaching and learning:

- the principle of learning as a formation is lifelong learning through the integration of social, emotional and other competencies;
- the principle of contextual learning is to build the process of acquiring knowledge, skills and other competencies in the relevant contexts of real life, as well as by integrating with the socio-cultural and physical environment of these contexts;
- the principle of interactive learning is to ensure the flexibility of the individual way of learning, built on the teacher-seeker of interaction, regardless of the location of each individual student of higher education and at any time convenient for him;
- the principle of emotions and learning is to provide emotional motivation of the applicant to study on the basis of his involvement in the construction of the content of education and learning activities;
- The principle of the ability to learn and a higher level of thinking is to create conditions in which the higher education student independently forms goals for their studies, plans ways to achieve them, monitors, regulates and evaluates their progress, and is aware of their thinking, attention, readiness problem solving, consideration of alternative solutions and reflection.

Therefore, for successful implementation, evaluation of the quality of teaching and learning, it is necessary to implement all the principles of teaching in higher education to move the student to a higher level of thinking and awareness of the discipline being studied.

### **3 Research results**

The threshold concept is an idea or other view of things that allows us to better understand something in the world; the word "threshold" means an intersection that allows the student to move from superficial knowledge to a deep understanding of the subject. The threshold concept is a concept that changes the perception of the subject of study. The threshold concept

is important for mastering the subject and understanding / perception of graduates of their profession - to become a "scientist" ... to think like a scientist, not just to study science.

G. Cousin's article "An introduction to threshold concepts" (2) notes the tendency among university teachers to fill the educational program with content overloaded with a huge amount of information that students must understand and reproduce in the form of knowledge. Instead, by emphasizing the Threshold concept, teachers make informed decisions about what is necessary to understand the subject they are teaching. This approach in the development of educational programs will mean "less - better."

The threshold concept also underlies the acquisition of knowledge by measuring the moments in which students' understanding and application of knowledge are transformed in a way that opens up a broader, deeper, interconnected and conscious understanding of the subject being studied. The idea is used in educational activities, developing the content of educational programs and evaluating learning outcomes. This concept provides an effective approach to understanding ways to solve the intellectual difficulties that students experience while studying. Because the threshold concept is located at the intersections where students experience the greatest intellectual difficulties.

E. Meyer and R. Land in the article "Overcoming barriers to student understanding: threshold concepts and troublesome knowledge" (6) outline five key characteristics that distinguish the threshold concept from other basic concepts in the educational program:

- Threshold concept is transformative, because understanding of the concept involves: conceptual shift (change of what you know) and ontological shift (change of your sense of being). We are what we know. New insights have entered our biography, becoming part of who we are, what we see and feel.

- Threshold concept is irreversible, if once this concept is understood by the student, it is unlikely to be forgotten in his understanding (this does not preclude further changes or deviations in understanding).

For example, many teachers find it difficult to go back to the days when they avoided understanding the threshold concept in the early stages of their own learning.

- Threshold concept is integrative, as mastering the concept of threshold knowledge often allows the student to establish connections that were previously hidden from view. Thus, the threshold concept reveals the hidden relationship of the phenomenon.

- Threshold concept is conceptually related, because "any conceptual space has the limitations of borders bordering the thresholds in new conceptual areas." An important caveat is the realization that the threshold concept is a form of disciplinary ownership and as such its teaching in the educational program may have a tendency towards outdated perception. The development of a curriculum aimed at a research approach to learning, in which there is always room for doubt about the concept.

- Threshold concept may include troublesome knowledge. Problem knowledge is "knowledge that seems unintuitive, alien (from a different culture or discourse), or seemingly incoherent." Involving students in changes in their intuitive understanding is quite problematic, as such changes can lead to awkward, emotional shifts.

Consequently, in our opinion, the threshold concept is a transition from superficial to deep knowledge by rethinking their previous understanding, existence, meaning and transition to a new level of knowledge acquisition. Such a transition is impossible without learning through research, critical thinking and interaction with others.

In P. Ramsden's article "Leadership for better student experience. What do senior executives need to know?" (8) it is noted that the success of the teacher and the achievement of students' planned learning outcomes depends on the quality of student involvement in the discipline being taught. Such involvement can be superficial, it is also called "surface approach". With this approach, the student receives partial knowledge of the information

provided by the teacher, making minimal effort to obtain a positive assessment of his knowledge.

A graduate who can apply theoretical knowledge to practical problems becomes successful. Such abilities are expected by both the teacher and the employer. This approach to learning requires high-quality, structured learning outcomes. It is called the "deep approach" and it gives students a sense of satisfaction with learning and a deep understanding of the discipline.

We fully agree with P. Ramsden, who argues that the approach to teaching chosen by a university lecturer depends on an understanding of the content of teaching. When the teacher understands that the number of students in the classroom is appropriate, he can use an in-depth approach that focuses on changing students' understanding of his discipline. Applying an in-depth approach to teaching allows you to provoke students' ideas through questions, problems, discussions and presentations. The in-depth approach covers all the skills of teaching techniques. Teachers who use this approach in teaching explain the difference in learning outcomes through the relationship between students and contextual factors (including the role of the teacher).

Thanks to the deep approach in teaching and learning, the student develops the threshold concept, which allows you to rethink your attitude to the subject through intellectual transformations and immerse yourself in knowledge of the subject, which can then be actively applied in life.

However, when the number of students in the classroom is too large, the teacher is likely to apply a surface approach to the transfer of information. The transfer of information content is necessary, but not essential for the development of students' understanding and achievement of learning outcomes. When applying a superficial approach to teaching, the teacher focuses on what he is doing (lesson planning, use of information and communication technologies). This approach is associated with insufficient control over the content of the discipline, imperfect student training and overload of the teacher.

## 4 Conclusions

Systematic review of all kinds of production, and, accordingly, knowledge should be carried out to ensure not by 2030, but for now it is clear that all students acquire the knowledge and skills necessary for sustainable development, including through education for sustainable development, sustainable lifestyles, human rights defense, gender equality, promoting a culture of peace and non-violence, through global civic education and recognition of cultural diversity and the contribution of culture to sustainable development. If we do this now, then we could expect the proper performance of all other tasks of Agenda 2030.

Analysis of research publications shows two main elements of student assessment: assessment design and feedback. Assessment design is about pedagogical philosophy, discipline, assessment models, and what we know about student learning methods. Assessment as feedback is more focused on the practice of improving student learning. In terms of feedback, this is a complex issue that includes the distinction between Summative assessment, which focuses on the final assessment of learning outcomes at the end of a topic or cycle, and ongoing assessment (Formative assessment). Current (formative) assessment is also known as "assessment for learning" and takes place in the learning process.

In the scientific works of foreign researchers there is Constructive alignment - a model of teaching and learning design used for planning activities for teaching and learning and assessment tasks that directly relate to the planned learning outcomes. The model is based on the theory of constructivism and student-centrism. Under the planned learning outcomes, teaching and learning methods are selected to engage the student to achieve them.

The theoretical foundations of evaluation of teaching and learning in higher education include the principles of learning in higher education, including:

- Learning as Becoming.
- Contextual Learning.
- Interactive Learning. During the active era of online learning in a pandemic, there is a trend towards asynchronous learning.
- Emotions and Learning.
- Learning to Learn and Higher Order Thinking.

For successful implementation, evaluation of the quality of teaching and learning, it is necessary to implement all the principles of teaching in higher education to move the student to a higher level of thinking and deep awareness and understanding of the discipline being studied.

The threshold concept, which means the transition from superficial to deep knowledge by rethinking their previous understanding, existence, meaning and transition to a new level of knowledge. Such a transition is impossible without learning through research, critical thinking and interaction with others.

Thus, due to the deep approach in teaching and learning, the student develops the threshold concept, which allows you to rethink your attitude to the subject through intellectual transformations and immerse yourself in knowledge of the subject, which can then be actively applied in life.

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