Studia Periegetica nr 3(23)/2018
DOI: 10.26349/st.per.0023.06

Oleksandra Khalaim*, Tatjana Tambovceva**

ESD Implementation in Universities of Central and Eastern Europe: Common Barriers, Challenges, and Solutions for Kyiv and Riga

Abstract. The paper provides an overview of Education for Sustainable Development (ESD) evolution and implementation barriers in universities of Central and Eastern Europe (CEE), focusing on challenges to the incorporation and institutionalization of ESD in two leading universities: Riga Technical University in Latvia and National University of Kyiv-Mohyla Academy in Ukraine. A generic matrix of options for integrating sustainability in higher education is developed to analyze and extend previous research on ESD for CEE countries. A number of common barriers is indicated and possible solutions proposed for an effective implementation of ESD in university curricula.

Keywords: education for sustainable development, Central and Eastern Europe, educational barriers, sustainable development goals

1. Introduction

As commonly known, thirteen years ago the United Nations (UN) launched the Decade of Education for Sustainable Development (ESD) to enhance the role of education in promoting sustainable development Many international institutions nowadays recognize ESD as an integral part of quality education and a key driver of sustainable development; as stated in the UNESCO Roadmap for Implementing the Global Action Programme on Education for Sustainable Development (2014), "ESD is holistic and transformational education which ad-

* National University of Kyiv-Mohyla Academy, Ukraine, phone: +380 979 342 942, e-mail: ecocenter@ukma.edu.ua, orcid.org/0000-0002-6947-5181.

** Riga Technical University, Latvia, e-mail: tatjana.tambovceva@rtu.lv, phone: +371 294 927 24, orcid.org/0000-0002-9516-1530.

dresses learning content and outcomes, pedagogy and the learning environment" [UNESCO 2014].

The 2030 Agenda for Sustainable Development, adopted by UN in 2015, with 17 SDGs and 169 associated targets, serves as a continuation of ESD enforcement and further dissemination. It is not only formulated as a stand-alone goal – Sustainable Development Goal 4, but also incorporated in numerous education related targets and indicators of other Sustainable Development Goals [UNESCO 2017].

Although universities and other institutions of higher education are regarded as drivers of sustainable development, many of them are tackling sustainability issues in a compartmentalized manner, adding ESD related topics to specific courses, hardly trying to link ESD to university and campus operations by adopting a "whole-of-university" approach to sustainability [Mcmillin & Dyball 2009]. Adomßent et al. [2014] analyzed two hands-on examples from the Czech Republic and Bulgaria on ESD and concluded that the incorporation of ESD into CEE curricula is poorly documented. Dlouha, Mally and Dlouhy [2017] analyzed ESD principles in higher education from a perspective of Central and Eastern European (CEE) countries. They found that "opportunities for educators' competence development are lower and less diverse in the CEE region than in other parts of Europe." They claim this is due to historical reasons and the policy context, which may contribute to a delay in ESD inclusion to curricula, highlighting as the most important factor a low level of financing in this sector. Organization for Economic Co-operation and Development (OECD) shows significant underspending on tertiary education in many CEE countries both as a percentage of Gross Domestic Product (GDP) and annual expenditure per student in comparison to OECD average [Barton & Dlouhá 2014]. Latvia spent 5.34% of its GDP on education in 2015 according to UNESCO SDG database [2018]. At the same time, Ukraine spends 6 percent of GDP on education, which is one of the highest rates of public spending on education in the world [World Bank 2018]. Nevertheless, as Satu Kahkonen states in his article about the poor sustainability of Ukrainian education, "both the approaches towards teaching and towards learning are out of date... Lessons are overburdened with theoretical knowledge and lacking in practical application, while textbooks are academically dry and overburdened with secondary factual materials – dampening motivation and curiosity among students" [Kahkonen 2018].

The other common problem faced by Eastern European universities, especially in the formerly socialist states, which are at the same stage of transformation of their educational systems, is that ESD is often associated with environmental protection, ecology or environmental education and is not regarded as a "three pillar" concept with a broader sense [Barton & Dlouhá 2014].

In this paper, we try to analyze common barriers and challenges to ESD incorporation and institutionalization in universities of Central and Eastern Europe, as well as key necessities and possible solutions for the region, with a specific focus on the Ukrainian and Latvian situation. An importance of a systemic approach in ESD implementation for students – economists is also shown using the example of two highly recognized universities of Latvia and Ukraine: Riga Technical University and National University of Kyiv-Mohyla Academy.

2. Materials and methods

To analyze and extend previous empirical and conceptual research on the inclusion of ESD in higher education of CEE countries, we developed a generic matrix of options for integrating sustainability in higher education (SHE) according to the methodology proposed by Rusinko [2010]. The matrix includes four different options or scenarios for integrating ESD in universities (Fig. 1). These options are based on delivery and focus of sustainability in higher education; the matrix shows advantages and disadvantages of each option.

To compare the situation and achievements of Riga Technical University (Latvia) and National University of Kyiv-Mohyla Academy (Ukraine) with other universities in CEE countries, we have placed in the generic matrix some recent

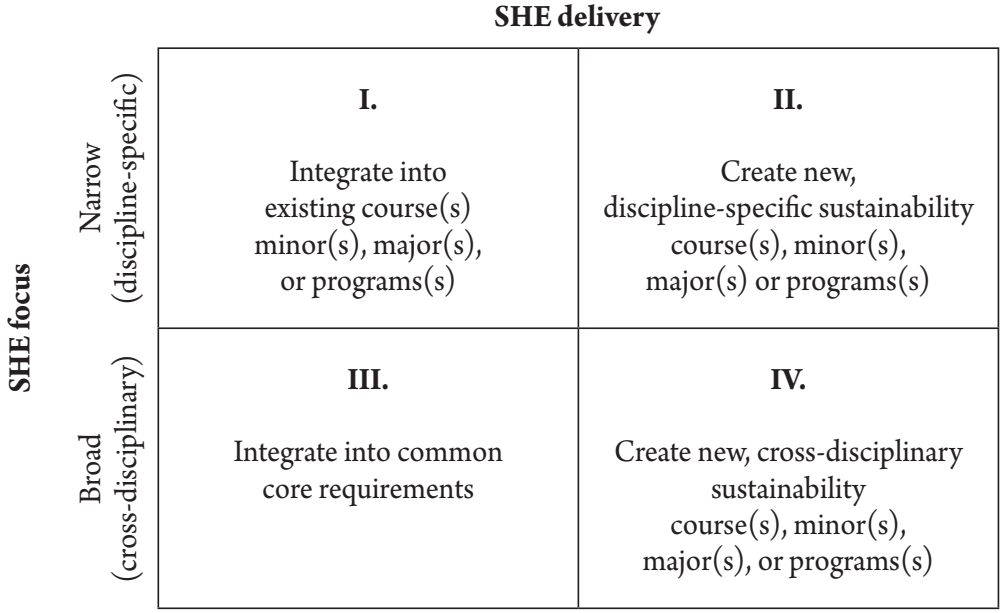

Figure 1. A generic matrix of options for integrating sustainability in higher education

Source: Rusinko 2010.

examples of ESD practices observed according to relevant literature sources [Bogoliubov 2016; Barton & Dlouhá 2014; Filho 2010; Pidlisnyuk 2010].

In order to estimate if ESD is either mentioned or incorporated into curricula and programmes of Riga Technical University and National University of Kyiv-Mohyla Academy, the strategic documents of both universities were analysed. We reviewed four open sources of information regarding each university. The documents analyzed in this paper are presented in Table 1.

Table 1. Strategic university documents for KMA and RTU

National University of Kyiv-Mohyla Academy (KMA), Ukraine	Riga Technical University (RTU), Latvia
KMA development strategy for 2015-2025	RTU Satversme
Curricula for KMA Faculty of Economy study programs	RTU strategy for 2014-2020
Curricula for KMA Faculty of Natural Sciences study programs	RTU quality policy, RTU study regulations
Official web-site with study programs description, www.ukma.edu.ua/eng	Official web-site with study programs description, www.rtu.lv/en

Source: own elaboration.

Finally, we formulated common barriers and challenges to the implementation of ESD in both universities, and tried to list and discuss possible solutions.

3. Results and discussion

3.1. Common barriers and challenges to the inclusion of ESD in CEE universities

Today education systems are currently undergoing significant changes brought about by the ongoing reform in pedagogy and technology. Many of the advances in education will be brought by further integration of personalized learning in the smart learning environment, such as ubiquitous access to technology through continuously shifting mobile devices and mobile platforms, cloud-based services, big data, and dispersed learning environments will further emphasize the advantages of learning technologies. These changes are also affected by broader trends including population shifts, economy, employment, and other societal shifts [Price 2015].

Universities can change study courses or curricula to include more information about different sustainability issues, to shift the strategic approach to edu-

cation in terms of quality, not quantity. Lecturers can also change pedagogical approaches, methods, and tools which focus less on merely providing students with ready knowledge and more on involving them in the informational flow according to ESD principles.

SHE focus \ **SHE delivery**		
Narrow (discipline-specific)	**Option I.** Integrate into existing course(s) or programs(s) Ukraine: Kyiv National University proposed a discipline Economics of Sustainable Development for the Master Programme "Environmental Business." Kyiv-Mohyla Academy has a number of specific courses related to sustainability for the Master Programme "Ecology and Environmental Protection." National Technical University of Ukraine "KPI" introduced the course "Fundamentals of sustainable development" [Bogoliubov 2016]. Latvia: Riga Technical University, Faculty of Engineering Economics and Management provide courses related to sustainability.	**Option II.** Create new, discipline-specific sustainability course(s) or programs(s) Poland: Sustainability courses are offered in Warsaw University, Adam Mickiewicz University in Poznan, Jagiellonian University in Krakow, and Wroclaw University [Barton & Dlouhá 2014]. Latvia: Riga Technical University, Institute of Energy Systems and Environment developed a course "Sustainable Regional Energy Supply" and other.
Broad (cross-disciplinary)	**Option III.** Integrate into common core requirements Poland: Technical University of Lodz has incorporated sustainability elements across its whole programme both in further education and in conventional graduate training [Filho 2010]. Slovenia: Four public universities (Ljubljana, Maribor, Primorska, and Nova Gorica) have integrated sustainability principles into their curricula [Barton & Dlouhá 2014].	**Option IV.** Create new, cross-disciplinary sustainability course(s) or programs(s) Ukraine: National Agricultural University and Kyiv National University developed a compulsory course "Environmental aspects of Sustainable Development" for all Master students [Pidlisnyuk 2010]. National University of Life and Environmental Sciences introduced the course "Strategy for the sustainable development of nature and society" for all Master students [Bogoliubov 2016]. Czech Republic: Charles University in Prague (Charles University Environment Center) established an ESD beachhead in the wider tertiary education sector [Barton & Dlouhá 2014].

Figure 1. A generic matrix of integrating sustainability in higher education in CEE universities

Source: own elaboration.

Facing the problem of SD inclusion in university strategic documents and curricula, various universities in CEE countries have already tried to integrate sustainable development in their activities in a systemic way in the last ten years. We compiled some examples of different options of sustainability incorporation in higher education in the form of a generic matrix (Fig. 2), including the cases of Ukrainian and Latvian universities.

According to Rusinko [2010], a major advantage to Option I is that "it does not require review, coordination, or support beyond that of the involved faculty member(s), and resource demands are relatively modest." In the Ukrainian and Latvian cases presented in the first quadrant of Fig. 2 we see the course proposed by faculty members for a specific Master Programme. It is easily achievable; but at the same time, the initiative is limited to the scale of a faculty or a programme.

Cases of faculties developing discipline-specific sustainability courses are presented in the second quadrant. For example, the Institute of Energy Systems and Environment of Riga Technical University developed a number of specific, but sustainability related courses, as Sustainable Regional Energy Supply, Environmental Protection and Recycling Processes, Life Cycle Analysis and other. Here learners are involved in awareness raising and real changes in consumption through the inclusion of different questions regarding chemical products used in households and their impact on the environment [Dimante et al. 2016].

The advantage of the options from the third quadrant is that "sustainability is integrated across multiple disciplines, or across the entire curriculum, and a larger number (or all students) are exposed to sustainability" [Rusinko 2010]. This is what happens in a number of Polish and Slovenian universities, which have incorporated sustainability elements across their entire programmes both in further education and in conventional graduate training, with sustainability principles integrated in their curricula [Fig. 2].

The option in the fourth quadrant requires more effort, time investment and resources. Nevertheless, it is quite popular in Ukraine nowadays to develop new cross-disciplinary sustainability courses in the leading state institutions of higher education. A comparative analysis of curricula and working programs from the ESD perspective offered by top universities in Ukraine shows that they significantly differ in structure and content due to the lack of a single standard that would reflect the composition and amount of knowledge required by professionals in this area at the Master level [Bogoliubov 2016].

Other studies also support the importance of sharing and processing experiences, mental models and interpretations concerning concepts, ideas, perspectives and new input within the group integrating ESD in higher education curricula [Cincera et al. 2018]. The study of Grienson and Munro [2018] finds that "within the sustainable education programme, both the courses and modules that have an SD focus exhibit the greatest longevity over the study period and are

selected by students significantly more often than other courses and modules." It demonstrates the programme's aspirations towards increased interdisciplinarity in postgraduate ESD.

In 2010, Walter Leal Filho tried to classify European countries according to the status of ESD and its inclusion in educational programmes, provisions for pre- and in-service education, existence of organizations that support the implementation of ESD and public awareness [Filho 2010]. Thus, in 2010, Ukraine was classified as being at Stage II (intermediary: ESD is progressively being included as part of educational programmes; training of multiplicators available but rather limited; public awareness is not often fostered). Latvia was at Stage 3 (advanced: ESD is already part of educational programmes, including pre- and in-service education, in and out of schools; there are many organisations and associations which pursue or support the implementation of ESD; public awareness is actively fostered).

It not has been changed much since 2010 for Ukraine: the regulatory framework regarding ESD has been implemented, but there are no standards or detailed provisions for further ESD implementation at the local level. The new Ukrainian law on higher education defines the principles of promoting ESD by means of lifelong learning, but again without any action planning provided to ensure the integration of ESD in institutions of higher education [Isaienko 2017].

Moreover, the analysis of government strategies and public policy on implementing the 2030 Sustainable Development Goals in Ukraine [2017] shows that SDG 4 "Quality education" has a medium level of SDG integration – 54%. The evaluation of the incorporation of the SDG targets into all Government Strategic Policy Papers across all areas was based on four criteria: (1) Availability of target implementation plan; (2) Availability of agreed target indicators and target dates; (3) Scale of the programme; (4) The extent to which the programme targets meet the SDG targets.

It is important to take this context into consideration while analyzing the ESD achievements and failures of Ukrainian universities, and Kyiv-Mohyla Academy in particular.

3.2. National University of Kyiv-Mohyla Academy analysis: basic info, history, position in Ukrainian academic field, analysis of strategic documents

National University of Kyiv-Mohyla Academy (KMA) was established in 1615, then closed, and re-opened in 1991. In XVII-XVIII centuries, KMA "considerably influenced the intellectual, scientific, educational, cultural and spiritual life of Ukraine" [Jarosewich, Farion & Khanas 2014].

In 1992 the first class of undergraduates was admitted after a second KMA establishment. In 20 years, the number of graduates rose from 151 in 1996 to more than 4,000. The university offers undergraduate, masters and doctoral programs both in English and Ukrainian. 32 departments, 22 Bachelor programs, 28 Master programs, 15 PhD programs, 8 experimental PhD programs, and 31 scientific centers meet the modern requirements to a higher education.

As stated Vyacheslav Bryukhovetsky, Honorary President of KMA, "Kyiv Mohyla Academy is guided by a vision that began 400 years ago. Petro Mohyla, our university's founder, understood that his people must adapt to a changing world, that new leaders must be educated with new methods. Four hundred years later, when Ukraine chose independence, we too needed to adapt to a changing world" [Jarosewich, Farion & Khanas 2014]. Kyiv-Mohyla Academy is among the three leading universities in Ukraine according to the Top 50 Universities by the Employers' Choice List made by the Focus Journal (focus.ua) in 2017.

Among KMA subdivision centers dealing with SD, the Center for Innovations Development (CID) should be mentioned. It was created in 2013 and has three goals: (1) Reform Support and E-Democracy development; (2) Educational Projects focusing on Theological Club and Academic E-Governance; and (3) Sustainable Technologies. Another one, Center for Ecosystem Studies, Climate Change and Sustainable Development is functioning since 2008. It deals with "research in the fields of natural and artificial ecosystems, phytocenology, plant ecology, landscape ecology, global climate change, sustainable development, as well as technical, informational and methodological support for the curriculum and for the research work of the students of BA, MA and PhD programs in ecology."[1]

As to activities related to SD, there is a number of related events. One of the most recent was held on December, 7th 2017: the conference "The role of education in implementation of the Sustainable Development Goals (SDGs) till 2030 in Ukraine." The conference was held in partnership with the UNDP Office in Ukraine, and KMA was represented by the Department of Ecology. One of the main topics of the conference was the analysis of the best practices for integrating the paradigm of the Sustainable Development Goals into educational programs. It has been indicated that Kyiv-Mohyla Academy is a part of this process.

To look more broadly, KMA development strategy for 2015-2025 indicates the main strategic goals of university in five domains: education, science, international cooperation, administration, and finances. Under its vision, KMA is a leader in innovations and actively influences the future of Ukrainian society combines scientific activity, educational process and acquisition of practical skills, and is a prestigious, internationally recognized academic community, research univer-

[1] Official KMA web-site: www.ukma.edu.ua/eng/index.php/research/centres/centre-for-studies-of-ecosystems-climate-change-and-sustainable-development.

sity. Values strategically supported in KMA community include Personality; Humanism; Creativity - Liberal Arts; Leadership; Quality; National consciousness; Democracy; and Active civic position [KMA strategy 2015].

Despite the fact that the strategy of KMA is a profound and progressive document, it does not have any ESD components and does not even mention the concept of sustainability. The faculties act without a synergetic collaboration, strictly within their specializations. In KMA there is no SD department or coordination unit; the SD concept is mostly familiar to students of the Faculty of Natural Sciences, but not to Law and Economy students, who can be regarded as future "agents of change" for the Ukrainian society. The level of educational quality and innovativeness varies between different faculties with no systemic / complex vision of the ecological and economical systems in a one picture.

3.3. Riga Technical University analysis: basic info, history, position in Latvian academic field, analysis of strategic documents

Riga Technical University (RTU) is the leading technical higher education and science institution in Latvia. It is international, highly recognized university and the biggest one in Latvia. There are almost 15 thousand students in all levels of education.

RTU was founded on October 14, 1862 and is the first higher education institution in Latvia. At first it was founded as Riga Polytechnic and later became Riga Polytechnic Institute. In the middle of the 19th century Riga Polytechnicum was closely linked to economic and political changes in Europe. His current name - Riga Technical University - was awarded on March 19, 1990. Since then, the higher education institution has been reorganizing the study process, ensuring academic and higher professional education in the sectors characteristic of the national economy of Latvia [RTU history 2018].

The goal of RTU is to become a third generation university. The values of Riga Technical University are quality, academic freedom, sustainable development, honesty, cooperation and stability. RTU has nine faculties, including 33 institutes. Students in engineering and in social sciences and humanities receive high quality education, can do research and practically implement scientific discoveries. All RTU study programs are officially accredited and highly evaluated by students, business society and international experts [RTU 2018]. The Satversme is the basic law of the University (RTU Satversme 2014) and University carries out its activities on the basis of the Satversme.

RTU also has own strategy for 2014-2020. The vision of Riga Technical University is to "become the leading science and innovation university in the Bal-

tic States by 2020." To implement this setting, "the RTU strategy defines three university goals – a qualitative study process, excellent research, as well as sustainable innovation and commercialization activities." For these three purposes, specific performance indicators have been defined that will enable the RTU to implement its vision by 2020 (RTU strategy for 2014-2020). Five main priorities of the University have been defined: internationalization, interdisciplinarity, organizational, financial, and infrastructure efficiency (Fig. 3).

Figure 3. RTU strategy elements

Source: RTU strategy for 2014-2020, 2018.

RTU has quality department and quality policy. The university's quality policy is aligned with the standards and guidelines of the European Association for Quality Assurance in Higher Education (ENQA) and the standard ISO 9001: 2015 (RTU quality policy 2017). The Quality Policy of the RTU focuses on the implementation of the RTU mission and the achievement of strategic objectives – the achievement of scientific activities, studies, infrastructure, organization excellence and visibility.

In its work, RTU takes into account United Nations 17 Sustainable Development Goals (SGD) with the most important proclaimed as following (RTU goals 2018):

– Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;

– Goal 6. Ensure availability and sustainable management of water and sanitation for all;

– Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all;

– Goal 9. Build a sustainable infrastructure, promote inclusive and sustainable industrialization and foster innovation;
– Goal 12. Ensure sustainable consumption and production patterns;
– Goal 17. Revitalize the global partnership for sustainable development.

Many study programs in RTU include different study courses connected with sustainable development issues. The most "environmental oriented" is RTU Institute of Energy Systems and Environment (IESE). Now it provides Bachelor, Master and Doctoral program of Environmental Science. It also provides "material, technical and scientific basis for the development of Latvian science in the fields of energy and environmental sciences, carrying out scientific research, development of products and services with high added value with purpose to use them for the national economy and also approbate their commercialization on the market of innovative technologies" (RTU IESE 2018).

The IESE provides a number of the study courses related to sustainability: Sustainable Development of Energy Supply, Sustainable Regional Energy Supply, Environmental Protection and Recycling Processes, Life Cycle Analysis, Eco-management, Eco-design etc.

Other faculties programs do not include many courses connected with sustainable development and mostly cover specific topics of study programme. On the other hand, different study programs in Faculty of Engineering Economics and Management provide courses related to sustainability in a broad sense, such as Sustainable Economic Development, Management of Ecological Systems, Management of Ecology, Energy Efficiency in House and Building Management, Corporate Social Responsibility etc.

All of the above show that RTU is on a positive development vector and has a good basis for further development of ESD at the university.

3.4. Analysis and recommendations for KMA and RTU

In general, many separate questions and topics connected to SD have been included in study programs and courses in RTU and KMA recently. During the common discussions with the administrative staff of both universities, some common barriers to enhancing ESD were indicated:

– low transparency and participatory levels of the decision-making process of university administration;
– inefficient communication of university principles to staff and students;
– lack of communication between teachers of different departments and faculties;

– competitive rather than cooperative character of the relationship between departments and faculties.

One of the possible solutions in ESD enhancement could be to develop a course covering different SD questions for Bachelor study programs at the Faculty of Engineering Economics and Management of RTU or the Faculty of Economics of KMA, to enhance a systemic approach and broader vision of future economists. For that, a number of specific steps need to be taken, such as an audit of existing courses at each faculty, curricula improvement or development of a new course on SD covering different SD questions for Bachelor study programs at each Faculty. Also some project based learning should be introduced in order to improve teaching tools and materials, with real-life problem-based cases to be used together with cross and multi-disciplinary cases. It will help to improve curricula and to include modern and necessary topic in the study program, as a result to have more competitive study programs.

As regards a new study course on SD for KMA economists, it will mean an incorporation of components of disciplines of Ecology Department: Ecological Economics, Management of Natural Resources, Principles and Concepts of Sustainable Development, as well as a cooperation with Kyiv-Mohyla Business-School and Faculty of Economics. Like in the case of RTU, a number of steps are necessary:

– analysis of strategic documents and educational programs of Faculty of Economics of NaUKMA;
– screening and identifying of the ESD component;
– individual meetings with administration;
– cross-departmental meetings (Faculties of Natural Sciences and of Economics) on ESD issues;
– development of a facultative study course program and its inclusion in the curricula.

In order to make the discussion more practical, we formulated a list of suggestions on current teaching and learning transformation in order to respond to sustainability challenges. Firstly, it is necessity to shift from fixed knowledge to flexible components, which can be modified and updated easily in order to face the rapidly changing informational environment, in university studies. More attention should be paid to providing tools and instruments rather than ready solutions for students, who potentially can be regarded as future decision-makers for our society. In addition, modern pedagogical skills should be introduced by involving more interactive and practically oriented methods of education, like simulation games, debates, and case studies. Key competencies for sustainability should be actively promoted for university integration, which include systems and critical thinking, collaboration, self-awareness, integrated problem-solving, as well as anticipatory, normative, and strategic competencies (according to

UNESCO Education for Sustainable Development Goals: Learning Objectives, 2017). Thus, key necessities and possible solutions for the incorporation of ESD in the university strategic activities include:

– re-analysis and regarding academic institutions as at complex systems working with or without a ESD context;

– a dialogue with a "new ESD language" with our colleagues;

– more collaboration and a broader vision to ensure ESD principles in a university work;

– a "teachers sharing" practice across different departments / faculties;

– renewed strategic documents of the university in a participatory and transparent way.

4. Conclusions

The above analysis of some examples of integrating sustainability in higher education in universities from Poland, Slovenia, Czech Republic, Ukraine, and Latvia shows different ways in which ESD is implemented in the CEE region, both across disciplines and discipline-specific applications. ESD delivery is being realized both in the form of its integration into existing courses/programs or university common core requirements and development new sustainability courses/programs.

The barriers to ESD incorporation for both Kyiv-Mohyla Academy and Riga Technical University are faced by many universities in the CEE region. In the period of the educational reform in an Eastern European country like Ukraine, ESD is often associated with ecology or environmental education; sustainability courses focus mostly on ecological problems. Also owing to the lack of resources and proper understanding, ESD is often not prioritized at the level of strategic development of the university and is presented in the form of separate study courses. Here a range of the internal communicational problems between administration and faculties occur on ESD importance for its inclusion in curricula. As a result, a multidisciplinarity of the topic presented in many non-harmonized disciplines of different faculties leads to the overlapping of the study course content. This conclusion can be supported by other estimations of Ukraine being at the intermediary stage, when ESD is progressively being included as part of educational programmes and public awareness is not often fostered.

Among possible ways of more effective ESD presence in higher education in CEE region, we can mention a necessity to re-analyze and regard academic institutions as at complex systems working with an ESD context. A dialogue with a "new ESD language" should be established, bringing more collaboration

and a broader vision to ensure ESD principles in the work of the university. The idea of "teachers sharing" (an internal guest lecturing) practice across different departments / faculties within a university could eliminate communication and information exchange problems. Key competencies for sustainability should be actively promoted for university integration, which include systems and critical thinking, collaboration, self-awareness, integrated problem-solving, as well as anticipatory, normative, and strategic competencies.

References

Adomßent M., Fischer D., Godemann J., Otte I., Rieckmann M., Timm J.-M., Herzig C., 2014, Emerging Areas in Research on Higher Education for Sustainable Development: Management education, sustainable consumption and perspectives from Central and Eastern Europe, *Journal of Cleaner Production*, 62(1), 1-7.

Barton A., Dlouhá J., 2014, Examining the Transition Toward Sustainability in Higher Education in Central Europe, in *Current Challenges of Central Europe: Society and Environment*, eds J. Vávra, M. Lapka, Praha: UK, Filosofická fakulta.

Bogoliubov V.M. et al., 2016, Providing environmental training in the context of Ukraine's transition to sustainable development, *Annals of Agrarian Science*, 14, 292-294.

Cincera J., Biberhofer P., Binka B., Boman J., Mindt L., Rieckmann M., 2018, Designing a sustainability-driven entrepreneurship curriculum as a social learning process: A case study from an international knowledge alliance project, *Journal of Cleaner Production*, 172, 4357-4366.

Dimante D., Benders J., Atstaja D., Tambovceva T., 2016, *Development of business education for circular economy in Latvia*, International conference "New Challenges of Economic and Business Development – 2016. Society, Innovations and Collaborative Economy" proceedings, May 12-14, 2016, Riga, University of Latvia.

Dimante D., Tambovceva T., Atstaja D., 2016, Raising environmental awareness through education, *International Journal of Continuing Engineering Education and Life Long Learning*, 26(3), 259-272.

Dlouha J., Mally K.V., Dlouhy J., 2017, ESD principles in higher education from a perspective of Central and Eastern European countries, *International Journal of Sustainability in Higher Education*, 18(6), 822-840.

Grierson D., Munro K., 2018, Transformative Learning Methods in Interdisciplinary Postgraduate Education for Sustainable Development (ESD), *International Journal of Architectural Research*, 12(1), 209-227.

Filho W.L., 2010, An Overview of ESD in European Countries: What is the Role of National Governments? *Global Environmental Research*, 14, 119-124.

Isaienko V., 2017, Challenges of today in Ukraine: education for sustainable development, *Intercultural Communication*, 1(2), 108-122.

Implementing the 2030 Sustainable Development Goals in Ukraine: analysis of government strategies and public policy: Executive Summary of the Analytical Study, 2017, Kyiv: Institute for Social and Economic Research.

Jarosewich I., Farion M., Khanas O. (eds), *Kyiv Mohyla Academy: four centuries of achievement*, 2014, http://kmfoundation.org/wp-content/uploads/2014/10/KMA400--Book.pdf [access: 20.04.2018].

Kahkonen S., 2018, *Why Ukraine's Education System is Not Sustainable*, World Bank, www.worldbank.org/en/news/opinion/2018/09/12/why-ukraines-education--system-is-not-sustainable [access: 19.11.2018].

KMA development strategy for 2015-2025, http://ekmair.ukma.edu.ua/handle/123456789/6249 [access: 25.05.2018].

Mcmillin J., Dyball R., 2009, Developing a Whole-of-University Approach to Educating for Sustainability: Linking Curriculum, Research and Sustainable Campus Operations, *Journal of Education for Sustainable Development*, 3(1), 55-64.

Price J.K., 2015, Transforming learning for the smart learning environment: lessons learned from the Intel education initiatives, *Smart Learning Environments*, 2-16.

Pidlisnyuk V., 2010, Education in Sustainable Development: the role of universities. *Economic and Environmental Studies,* 10 (1): 59-70.

RTU, 2018, www.rtu.lv/en/university [access: 20.04.2018].

RTU goals, 2017, www.rtu.lv/en/university/strategy/sustainable-development/rtu-goals [access: 20.04.2018].

RTU history, 2018, www.rtu.lv/en/university/history [access: 20.04.2018].

RTU IESE, 2018, https://videszinatne.rtu.lv/en/about-us/institute/ [access: 20.04. 2018].

RTU quality policy, 2017, www.rtu.lv/lv/universitate/dokumenti/kvalitates-politika [access: 20.04.2018].

RTU Satversme, 2014, www.rtu.lv/lv/universitate/dokumenti/satversme [access: 20.04. 2018].

RTU strategy for 2014-2020, 2018, www.rtu.lv/writable/public_files/RTU_rtu_strategija2014.2020._g..pdf [access: 20.04.2018].

UNESCO SDG database, http://uis.unesco.org [access: 19.11.2018].

UNESCO Education for Sustainable Development Goals: Learning Objectives, 2017, http://unesdoc.unesco.org/images/0024/002474/247444e.pdf [access: 25.05.2018].

UNESCO Roadmap for Implementing the Global Action Programme on Education for Sustainable Development, 2014, http://unesdoc.unesco.org/images/0023/002305/230514e.pdf [access: 25.05.2018].

Wdrażanie edukacji na rzecz zrównoważonego rozwoju na uniwersytetach Europy Środkowej i Wschodniej: bariery, wyzwania i rozwiązania dla Kijowa i Rygi

Streszczenie. Artykuł stanowi przegląd ewolucji koncepcji edukacji na rzecz zrównoważonego rozwoju oraz barier napotykanych podczas jej wdrażania na uniwersytetach Europy Środkowej i Wschodniej, ze szczególnym naciskiem na wyzwania związane z instytucjonalny włączaniem

zasad edukacji na rzecz zrównoważonego rozwoju na dwóch wiodących uczelniach: Ryskim Uniwersytecie Technicznym na Litwie oraz Narodowym Uniwersytecie Akademii Kijowsko-Mohylańskiej na Ukrainie. Autorzy przedstawiają zestaw możliwości integracji zasad zrównoważonego rozwoju w szkolnictwie wyższym w celu przeanalizowania i rozszerzenia zakresu dotychczasowych badań prowadzonych w tej dziedzinie w krajach Europy Środkowej i Wschodniej. Ponadto wskazują wiele wspólnych barier i możliwe sposoby ich pokonywania w celu skutecznego wdrażania zasad edukacji na rzecz zrównoważonego rozwoju w programach nauczania.

Słowa kluczowe: edukacja na rzecz zrównoważonego rozwoju, Europa Środkowa i Wschodnia, bariery edukacyjne, cele zrównoważonego rozwoju