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The relevance of open educational resources for post-soviet higher education in the digital age

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ABSTRACT

The digital era has seen the rise of innovations such as online training platforms and digital toolkits for teaching and learning whilst at the same time open access initiatives are losing the attention of educators. The problem under consideration in this paper is the replacement of open educational resources (OER) with digital innovations in higher education (HE). The purpose of this study is to identify the relevance of OER to post-Soviet HE in the digital age. The research employed methods of descriptive analytics to process data on users' activities extracted from OER repositories with web-analytic apps. The survey was conducted among 441 lecturers to elucidate their request for access to and patterns of usage of digital OER. The findings confirmed the relevance of OER in contemporary education through the similarity of lecturers' experience worldwide. During the urgent transition to remote learning owing to the COVID-19 pandemic, OER helped lecturers access informed digital practices through appropriate methods and content. OER has thus retained its relevance against the backdrop of the emergence of digital innovations in HE. The international comparison of findings demonstrates the existence of a shared awareness of the importance of OER and similar drivers for OER production and usage.

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Open education; open access; lecturer practice; e-learning; Creative commons

Introduction

Owing to the distress associated with the COVID-19 pandemic, many educators turned their attention to OER to maintain learning activities (Bozkurt et al., 2020; Tang, 2021). The pandemic pushed universities to use an e-learning component despite ongoing discussions on the special requirements this entailed (Chiappe & Lee, 2017). Lecturers were challenged with new tasks of transferring to online educational content and methodology. For many it was a new, and often intimidating, experience. OER provided 'first aid' to the faculty-level teaching process to help instructors cope with the accelerated, and often enforced, transition to remote teaching (Tang, 2021). Meanwhile, the efforts of educational management initially focused on tasks connected with IT-support (Huang et al., 2020).

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OER offers a variety of high-quality educational materials to the educational community, which are available for free of charge to institutions, lecturers, and students. UNESCO (2002, p. 34) defines OER as 'the open provision of educational resources, enabled by information and communication technologies, for consultation, use, and adaptation by a community of users for non-commercial purposes'. The use of an open licence is the key indicator of OER with regard to intellectual property rights. The open licence provides permission granting public rights to access, re-use, re-purpose, adapt, and redistribute educational materials (Huang et al., 2020). However open licences are rarely provided for content accessible online. Content posted in the public domain does not usually contain instructions for its free use. OER also includes open access content available on websites, blogs, social media, and messenger apps (Huang et al., 2020). Similar findings from researchers of OER experience and application in South Africa (de Hart et al., 2015) and India (Midha & Kumar, 2022), note that lecturers often confuse and interchange the terms open access, public domain, and open licence.

Open educational resources (OER) have been losing their popularity as a research topic in the academic community over the past ten years since MOOCs began to penetrate the educational market (Bozkurt et al., 2017). The purpose of this study is to identify the relevance of OER to higher education (HE) in post-Soviet countries in the digital age.

Currently universities face a dilemma between OER and MOOC development. Russian universities have mostly made the decision to focus on MOOC promotion (Dneprovskaya & Shevtsova, 2019). However, OER and MOOCs are not interchangeable because they are aiming for different goals. OER aims for the free flow of knowledge driven by lecturers. MOOCs aim for the open learning of students on a large scale.

The deep penetration of IT in global academia has provided excellent facilities for the evolution of OER over the past 20 years. The ability for knowledge to flow freely was a basic assumption for the development of the Internet from the beginning (Himanen, 2001). OER increased access to educational materials prepared by lecturers and has been recognised by educators around the world (Luo et al., 2020). Public authorities have adapted OER to the strategic objectives of national educational development in Australia (Stagg et al., 2018), the UK (Pitt et al., 2020), Vietnam (Truong et al., 2021), and other countries. The post-Soviet educational space was also affected by the emergence of this concept (UNESCO, 2011).

Today, OER is one affordable online educational resource along with educational digital platforms and social media, taking into account copyright restrictions (Dneprovskaya & Shevtsova, 2020; Machado et al., 2016). Relying on lecturers' experience and repository statistics we can analyse the relevance of OER for HE. The consideration of national educational system specifics is necessary to explore the relevance of OER, because of significant differentiation among countries. Currently researchers do not cover Russian OER initiatives and universities.

The Commonwealth of Independent States (CIS), consisting of the former Soviet republics, capitalises on OER to intensify inter-state collaboration between lecturers and universities (UNESCO, 2011). Traditions of HE in these countries are similar because they have the same roots of HE in CIS. In some countries, Russian speaking educational programmes in the national universities are popular among students and employers (Aref'ev, 2014). OER allows HE to overcome the institutional differences between national HE curricula. The trend towards OER across the post-Soviet space is embodied in a set of

educational resources repositories (Kachan et al., 2018). There are OER repositories in Azerbaijan, Armenia, Belarus, Kazakhstan, Uzbekistan, Moldova, Russia, and Ukraine (UNESCO, 2011). In Russia, OER was supported by the government and included in the strategy for HE development in 2005, but was replaced by MOOCs in 2015 (Dneprovskaya & Shevtsova, 2019). The comparison of OER practice among nations shows whether common patterns in OER implementation or national specificities are dominant in HE.

This study addresses the following research questions, based on the 20-year worldwide experience of OER:

(1) Does OER remain relevant for post-Soviet HE in contemporary academia?
(2) How do lecturers create, disseminate, and use OER in today's post-Soviet HE?
(3) Does the experience of lecturers differ from that of their colleagues in other countries?

OER has to be updated for there to be coherent development in HE. The theoretical importance of exploring these issues lies in actualising OER in the context of lecturers' activities and motives in the digital age. The findings of the research will offer a way for further OER development. The practical significance of the study is to justify lecturers' demand for OER repositories, channels, and services.

Literature review

OER has been driven by a common understanding of its benefits for students, lecturers, and society (Hoosen & Bucher, 2019; McGreal, 2017). International and national support has promoted this concept in HE. As a result, many institutions and individuals have gained experience in OER, forming a basis for empirical research into OER from different perspectives. Some studies focus on the technical side of OER, i.e. the means of creation, storage, and retrieval of OER (Corbi & Burgos, 2017; Huang et al., 2020), others research the methodological side of applying OER (Masterman, 2016), and creating new learning activities for students (Funk, 2021; Hodgkinson-Williams & Paskevicius, 2012).

The researchers of OER have found that institutional policy has significantly affected the acceptance of the concept of OER by society at large (Karunanayaka & Naidu, 2018; Luo et al., 2020; Richter & McPherson, 2012; Stagg et al., 2018). Universities attract internet users by the quality and validity of their educational content, and authors by the respectful treatment of their rights and appropriate use of content. The research into OER experiences in developed countries, including the UK (Nikoi & Armellini, 2012) and Australia (Stagg et al., 2018), highlights the importance of institutional policies for lecturers' activities. In the developing world, a combination of institutional and national policies is the driver of OER in HE, e. g. Vietnam (Truong et al., 2021) and Rwanda (Nkuyubwatsi, 2017).

Other issues of faculty practice in OER implementation are considered in the national context in Australia (Stagg et al., 2018), China (Chen & Panda, 2013), India (Mishra & Singh, 2017), South Africa (Cox & Trotter, 2017; de Hart et al., 2015), Tanzania (Mtebe & Raisamo, 2014), Turkey (Kursun et al., 2014), and the UK (Masterman, 2016; Nikoi & Armellini, 2012; Pitt et al., 2020; Weller et al., 2015). The national view on OER development allows for, and takes into account, the specificity, definition of terms and national peculiarities of

students' and lecturers' cultures. Differences between countries in the governance, funding and development of OER in HE have been identified. However, a general conclusion can be reached on the global patterns lecturers have used in the production and application of OER, based on the above noted studies. Lecturers are the first conduits of OER penetration: they search, select, prepare educational content and offer it to students. They make a choice on the type of OER, its source, and a proper way to implement it into teaching (Pitt et al., 2020). The main reason for turning to OER is to access the best global teaching practices and to take inspiration from new ideas on how to improve courses (Anderson et al., 2017; Law & Perryman, 2017; Midha & Kumar, 2022). When lecturers produce open access learning material, they do that primarily to support their students (Nikoi & Armellini, 2012). Barriers for the promotion of OER consist of a lack of understanding of how to use content released under an open licence (Chen & Panda, 2013;); a lack time and financial resources (de Hart et al., 2015; Mtebe & Raisamo, 2014; Murphy, 2013; Nagashima & Hrach, 2021); the absence of a university policy on OER (Rodés et al., 2019).

A variety of studies have been based on surveys conducted among faculty staff in different countries (Chen & Panda, 2013; de Hart et al., 2015; Kursun et al., 2014; Masterman, 2016; Mishra & Singh, 2017; Stagg et al., 2018). These studies on lecturers' practice with OER allow for a comparison of these experiences across different countries. The review of literature (Koseoglu & Bozkurt, 2018; Luo et al., 2020) demonstrates common features of lecturers' practice using OER, despite national differentiations in HE.

However the available studies on OER do not cover the experience of post-Soviet HE. Moreover, national HE experiences in Belarus, Russia, and Uzbekistan can be extrapolated and applied to the post-Soviet space because of the demand for education conducted in Russian in the former Soviet countries (Aref'ev, 2014). Besides, knowing the existing drivers and barriers to OER implementation in the national practice provides insights on the integration of Russian language OER into international academia.

Methods and materials

The methodology of the study relies on three approaches to solving the research questions. The answer to the first question (Does OER remain relevant for post-Soviet HE in contemporary academia?) is based on factual data on the usage and demand of internet users for OER repositories (Stepik, Open Window, OER Collection). Data about top OER services were extracted with the help of the web-analytics cloud service 'Yandex Metrica'. This mostly covers the Russian language internet space and provides transparent data on users' activities. During the processes of informatization in Russia, a set of repositories was launched for OER, which were classified by educational levels and subjects. Data on visitors, views, and downloaded files are available directly from the repositories or accessible through web analytics. Methods of data visualisation are applied to estimate the relevance of OER to the digital era through a set of numerical indicators of requests and frequency of access to the OER repositories. An additional data source was development programmes, which are designed and adopted by many universities. Content analysis of the universities' programmes examines and determines institutional attitudes to the OER concept and policy. For this purpose, the development programmes of 67 universities were extracted from the system of legal papers entitled 'Consultant Plus'

Table 1. Representation of HE faculty structure in the survey sample.

	Survey sample (number of respondents)				
Lecturers	Russia	Belarus	Uzbekistan	Survey sample (share %)	Share (%) in national HE
Associate Professors	26	13	10	11.2	14.1
Assistant Professors	147	73	59	63.4	54.7
Professors and Senior Lecturers	59	30	24	25.4	31.2
Total	232	116	93	100	100

(http://www.consultant.ru/), meaning that approximately 10 % of Russian universities were covered by the analysis. The web-services for content analysis were applied to the texts of the analysed programmes.

The second question of the study (How do lecturers create, disseminate, and use OER in today's post-Soviet HE?) relies on a survey of lecturers on their OER practice and understanding. Lecturers with different scientific backgrounds from Belarus, Russia, and Uzbekistan answered the survey online. The sample for the survey corresponds to the structure of the general population of HE teachers (Gokhberg et al., 2021) (Table 1). The main parameters of the survey confirm the statistical significance of the sample and the admissibility of conclusions. The responses were loaded to the BI-platform and processed with descriptive analytics methods to find measures of central tendency and dispersion.

The third question of the study is a comparison of OER practices in post-Soviet HE with those of other countries. A variety of surveys are presented for Australia (Stagg et al., 2018), China (Chen & Panda, 2013), India (Midha & Kumar, 2022), Rwanda (Nkuyubwatsi, 2017), South Africa (de Hart et al., 2015), Tanzania (Mtebe & Raisamo, 2014), Turkey (Kursun et al., 2014), the UK (Law & Perryman, 2017; Murphy, 2013; Pitt et al., 2020), USA (Anderson et al., 2017), and Vietnam (Truong et al., 2021). The similarity of patterns, motives, and barriers in OER practice could provide common ground for international collaboration to support and promote OER.

Findings and discussion

To address the dilemma of the replacement of OER with digital innovation, the research questions were examined consequentially. First, the state of the art of OER in HE was evaluated relying on political and factual data. The consideration of national initiatives in OER in Russia, Belarus, and Uzbekistan revealed the disappearance of OER from the current HE policy agenda. Meanwhile, the increasing number of requests to the OER repositories confirms the importance of OER. Second, the survey of lecturers' practice was conducted to define the drivers, patterns, and barriers in OER usage. Third, the comparison of lecturers' OER practice between countries showed a common perspective to collaboration in OER promotion and development.

Relevance of OER to HE in Belarus, Russia, and Uzbekistan

In the 2010s, a set of web repositories for online content in the post-Soviet space was built upon the strategy of HE informatization (UNESCO, 2011). These repositories store textbooks, learning scenarios, presentations, assignments, etc., provided by universities and

individual authors, and which are available for access and download. The data gathered with the web analytics services show that this way of accessing educational materials increased during the COVID-19 pandemic (Figure 1). 'Window to OER' is a repository for textbooks, workbooks, presentations, and multimedia materials uploaded by HE organisations to ensure open access for internet users. It was created on the initiative of the Russian Government in 2005, and is still in high demand among lecturers. The web analytics demonstrate that Window to OER is popular, and it has the highest number of external web links compared to other OER repositories. 'Stepik', a new generation of OER, shows the highest increase in visitor numbers. Stepik is an online educational platform launched by a private company, and it uses the 'Creative Commons' licence for open training courses and their components.

The analysis of content providers for web repositories demonstrates that universities are the main contributors to OER repositories in terms of downloading and upgrading content. Window to OER requires university approval from authors to ensure the quality of content. Educational management is a driver for progress among repositories of learning content. The university OER policy influences the lecturers' activities, and their readiness and desire to join the OER community. A university policy covers the issues of open licences, technologies, and methods for creating and publishing OER by staff. OER was actively supported by national governments (UNESCO, 2011) during the period from 2005 till 2015.

At the institutional level, universities were involved in promoting the concept of OER for 10 years (UNESCO, 2011). However, recently, OER has been missing from the educational agenda in HE institutions. As a result, the content analysis performed in 2021 on 67 universities' development programmes did not show any goals or activities linked to OER. The reason for this change could be found in the shift from OER to MOOCs (Cormier, 2008).

MOOCs were systematically promoted by the institutional leaders in HE, such as Harvard and Stanford (Reich & Ruipérez-Valiente, 2019). Despite different types of MOOCs, the general concept that unites them is in facilitating large numbers to learn together on a common digital platform (Bozkurt et al., 2017) across nation-states and geographic boundaries. In the current research on HE (Huang et al., 2020; Stagg et al., 2018), OER and MOOC often appear in the same context as open courseware.

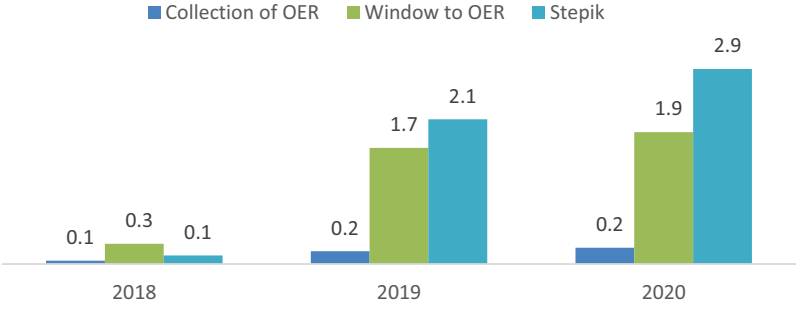

Figure 1. Visitors in millions for October 2018, 2019, and 2020.

The development of educational content corresponds with IT progress, which offers new tools to produce and consume educational content. First came e-libraries, then OER, and MOOCs are the latest newcomers. All these ways to create and promote content in education complement each other, although they differ in terms of legislation, and lecturers' and students' activities.

The key advantage of OER is its ability to be used in any type of learning, including blended, open, social, e-learning, etc (Huang et al., 2020). A lecturer can select, use, and modify OER taking into account the specifics of curricula, students, and campus facilities. OER does not restrict any lecturers' activities with content, and it sustains their teaching process creativity. MOOCs provide students with online training according to an established curriculum based on fixed content. Students can download the content of the MOOC to their devices for their convenience, but have to follow the copyright requirements when working with content. The content of a MOOC cannot be accessed before enrolment and popular search engines cannot access the MOOC content. Today, the attention of post-Soviet HE institutions is solely devoted to MOOCs, while lecturers continue creating and disseminating their own OER on the web.

The analysis of users' activities in OER repositories shows that they are in demand, and their popularity is increasing despite the arrival of new types of digital resources and platforms. OER occupies its niche in the digital environment of HE to allow users to download, extract, modify, and disseminate educational content. The universities' initiatives to make digital services affordable for lecturers are complemented by the free of charge OER repositories.

Lecturers' practice of applying OER

The survey was conducted among Belarusian, Russian, and Uzbekistan lecturers to identify the motives for using and producing OER, and ways to access and disseminate OER. Lecturers filled in the questionnaire on their OER activities and universities' attitude to these practices. The analysis of responses demonstrates the homogeneity of OER practice in Belarus, Russia, and Uzbekistan.

A similar rate of use of OER (87% of lecturers) is found within groups of lecturers belonging to different age groups, regions, and university career positions, scientific degrees, and work experience. The differences in OER usage are manifested in accordance with the academic discipline. For instance, 93% of lecturers in humanities use OER. However, only 84% of lecturers in science subjects use OER. The 9% gap can be explained by the fact that OER is in demand in areas with an extensive theoretical and methodological content.

Popular ways to use OER are for class preparation, retrieval of educational materials, and providing references to OER as additional reading for students. The frequency analysis of the uses are presented in Table 2.

Including OER as additional reading is an effective way to introduce educational materials from other universities to students and demonstrate opportunities for further self-learning. Respondents rarely embed OER into their own materials without modifying it. Using OER requires the redesign of its content, adapting it to specific courses to correspond to learning objectives and facilities.

Table 2. How lecturers used OER.

Ways to use OER	Number of answers[a]	Share (%) of respondents
Preparation for classes	238	63
Search	250	57
Providing OER references for the training course	220	50
Inclusion of OER in educational and methodological materials	178	41
Research	144	33
Access to educational materials of leading foreign universities	68	16
Do not use OER	55	13

[a]Respondents could give more than one answer.

The analysis of the responses provides insights into the volume and variety of OER resources used by lecturers. A common practice is to use at least one OER per course; two OER are implemented by 22% of lecturers, and three OERs are consistently used by 8% of the respondents. The volume of OER used is restricted by the fact that the lecturers have to thoroughly study, redesign, and modify the resources. OER is diverse and scattered across the web. In some cases, a user has to create an account or download an application to access educational resources. The usage of one or two OER per course is reasonable to avoid information overload for students. An increase of the volume of information in teaching activities increases the time cost for students.

Four groups of resources were designated as popular for working with OER. These are OER repositories, social media, universities' websites, and other websites (Table 3). The survey shows the high dispersion of the lecturers' preferences pertaining to the use of OER. The most popular repository, named by 10% of the lecturers, is Window to OER. Disturbingly, 6% of the lecturers identified MOOC platforms as the OER resource they use. The analysis of the lecturers' practices confirms the availability of a huge variety of OER.

The lecturers' assessment of OER relevance is presented in the form of a normalised graph with a vertical axis separating negative and positive responses (see Figure 2). The negative assessment includes options 'not relevant' and 'mostly not relevant' positioned on the left side of the graph with the minus sign. The positive assessment includes options 'relevant' and mostly relevant' on the right side of the graph. The responses are mostly on the right side, as the OER activity 'search' yielded an 86% positive score with 'creating OER' only 65%. All OER activities are considered by the lecturers as important for their duties. However, the importance is lower for 'create OER' in comparison to 'search OER'.

From an international perspective, universities are the main providers of OER (Hoosen & Bucher, 2019). Our survey showed that only 9% of the lecturers use the universities' websites to access OER. This indirectly confirms the lack of coherent university policies in creating and disseminating OER at the national and institutional levels.

In the post-Soviet space, the initiative to create and use OER belongs to lecturers. Only 12% of lecturers follow the universities' requirements, 49% produce OER for their own

Table 3. The preferred resources to access OER.

The type of resource	Share (%) of respondents
OER repository	98
Social media	25
Websites of universities	9
Other websites	5

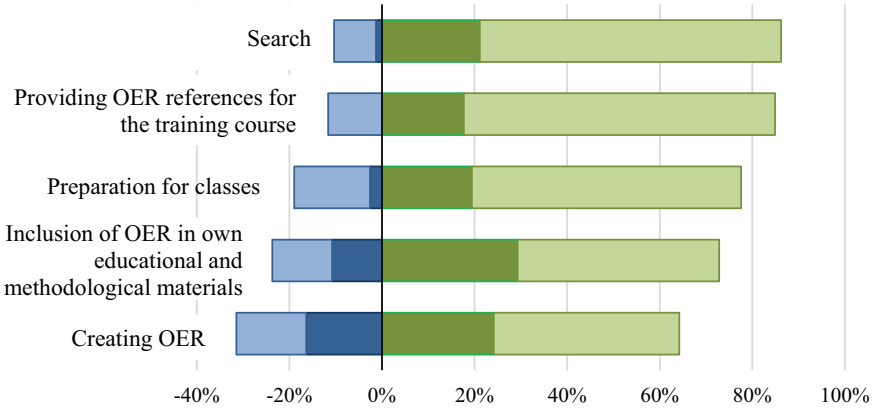

Figure 2. Lecturers' assessment of OER relevance.

teaching purposes, and 39% do not produce OER. Further analysis sheds light on the lecturers' motives to produce OER. Table 4 demonstrates that the main reason for OER creation is the students' rather than the lecturers' convenience.

Lecturers often produce OER to improve their courses rather than to meet universities' requirements. Lecturers intend to improve their and students' learning experience in the digital age by enhancing the content already available online (Adedoyin & Altinay, 2023). The digital generation of students has already prioritised the web as a primary source of information, so they prefer online access to educational materials instead of printed books (Akçayýr et al., 2016). A survey among students (Denisov & Koretskaya, 2019) showed that they prefer to rely on the lecturers' choice of OER and avoid self-search for OER. Lecturers use different channels for OER production and dissemination via author blogs, training course websites, the community feature in social networks or messenger, and video hosting to provide a range of options for their students.

There are no specific requirements for tools and the means of creating and disseminating educational content. OER covers a range of formats from a digital copy of a textbook to an online course in a cloud. The survey shows there are many IT solutions and IT-services for OER used by lecturers, such as slideshows, videos, tweets, Kanban boards, AR application to assignments, etc. Media services allow students to share their opinions on topics, post a comment, and participate in a discussion with experts. OER presented on interactive platforms welcome students into communities of practice, where a variety of cases may be considered, and urgent issues discussed. This is a way to reach course

Table 4. Motives for OER production.

Motive	Share (%) of respondents
Do not create OER	39
Create OER	61
including motives:	
Students' convenience	28
Lecturers' convenience	21
Universities' requirements	12
Total respondents	100

objectives, such as students' reflection on course topics. Lecturers can connect between the theoretical and practical parts of the course on social media.

During the survey, the lecturers shared their opinions on barriers to promoting OER in HE within their regions. Eighty percent of the lecturers worry about their rights to the content published as OER. Despite the existence of comprehensive copyright rules in national legislation, they are afraid that OER content can be used for commercial purposes. Meanwhile, the majority of lecturers advocate free publication of, and open access to, educational and scientific content because of its high societal value.

Comparison of post-Soviet and foreign practice

The international comparison of the survey results confirms that the OER experience for lecturers is quite similar in different countries across the world. The differences are in the experience of OER production and national political support for OER.

The majority of lecturers use OER, including 93% of lecturers in Belarus, Russia, and Uzbekistan, 92.8% in India (Midha & Kumar, 2022), 79.2% in the UK (Pitt et al., 2020), 74.1% in South Africa (de Hart et al., 2015), and 65% of Australian universities (Stagg et al., 2018). A main motive for accessing OER is for class preparation and to look for new ideas to inspire learning experiences. This motive was revealed by researchers from India (Midha & Kumar, 2022), the UK (Law & Perryman, 2017), Turkey (Kursun et al., 2014), and the USA (Anderson et al., 2017).

Many lecturers found it difficult to interpret the legislation regarding copyright and intellectual property in OER production and usage. The same worries about misunderstanding open licence requirements are demonstrated by the lectures from Russia, the USA (Anderson et al., 2017), China (Chen & Panda, 2013), Vietnam (Truong et al., 2021), Rwanda (Nkuyubwatsi, 2017), and Latin America (Rodés et al., 2019). National OER production is supported by 42.5% of Australian universities (Stagg et al., 2018). Meanwhile, in other countries, lecturers usually create OER relying on their own reasoning and students' expectations. In post-Soviet regions, 61% of lecturers produce OER, 31% in South Africa (de Hart et al., 2015), and 23.2% in Turkey (Kursun et al., 2014). The particular feature of OER as educational content is the open licence for transferring a part of the copyright to the community (UNESCO, 2011). The author or rightsholder can specify a volume of transferred copyright and the available activities for users, i.e. using, sharing, or modifying the content (Hilton et al., 2010). Thus, an open licence is a way for regulating issues related to intellectual property in academia. National initiatives to promote OER include a legal aspect (Truong et al., 2021).

In developed countries, universities can take advantage of institutional OER production, i.e. promoting a university brand, increasing enrolment for courses, and facilitating e-learning (Henderson & Ostashewski, 2018; Nikoi & Armellini, 2012; Pitt et al., 2020). In developing countries, the main driver to produce OER is the improvement of the students' learning experience and to help students achieve learning outcomes (Kursun et al., 2014; Midha & Kumar, 2022). Lecturers in Belarus, Russia, Uzbekistan, Tanzania (Mtebe & Raisamo, 2014), and the UK (Murphy, 2013) find OER production time consuming. Thus, extra time costs should be accounted for in the lecturers' activities. South African lecturers mentioned the lack of adequate IT infrastructure for OER production and access (de Hart et al., 2015).

The acceptance of OER by universities and government supports and encourages teachers to use an open licence for their materials published on the web (Nikoi & Armellini, 2012). Institutional policies ensure OER goals and objectives for university and staff activities in open access content (Nikoi & Armellini, 2012; Stagg et al., 2018). Such policies shed light on aspects which overcome the teachers' worries about intellectual property issues, reward and recognition, and quality standards for OER development and usage.

Despite the importance of institutional policies for OER, only a few universities have them. For instance, only 25% of Australian universities have a policy for OER activities (Stagg et al., 2018). One reason for this can be the lack of a business model elucidating how the university can realise a return on its investment in OER production (Annand, 2015; Mishra, 2017). McGreal (2017) and Nikoi and Armellini (2012) have produced evidence of the contribution of OER to sustainable societal development at large and of its economic value to industry, yet OER remains a non-profit endeavour, whilst MOOCs generate new revenue streams for universities. The question of the OER business model is not generally raised within the volume of research questions pertaining to the study of OER practice (Luo et al., 2020).

There are benefits to lecturers from the lack of institutional regulation for OER, e.g. the choice of suitable IT, web-services, and the quality and quantity of educational materials posted as open access (Henderson & Ostashewski, 2018; Huang et al., 2020). The considerable volume of information sources enables academic freedom for course design and teaching. Students need a teacher who is well oriented in OER. Because of the information explosion, fast circulation of knowledge, and technology renewal, students are often confused by information overload (Ko & Zhadko, 2019).

Conclusion

OER remains relevant in post-Soviet academia. The sudden online transition during the pandemic increased the problem of providing content for students. OER, as affordable online educational content, supported many lecturers during the forced move to remote teaching. The relevance of OER is also confirmed by the increasing popularity of its repositories. Common OER practice for lecturers includes using educational content in a specific field, finding motivation and resources to improve the learning process, and selecting content as additional reading for students. The majority of lecturers (61%) create learning materials in an online format following the students' preferences. The lecturers share educational content via popular web channels, such as social media, video hosting, messenger, etc. The research findings demonstrate that lecturers are involved in OER activities despite the lack of policy in the area. The international comparison of findings shows that the patterns of usage and production of OER are quite common around the world. There are differences in OER approaches between countries as regards languages used and specific national HE contexts but the compatibility of the international OER experience means international collaboration can improve and promote OER.

One limitation of this research is its focus on HE in which lecturers are responsible for course content whilst school teachers usually have to follow the recommendations approved

by the authorities. Also, in the study we have considered OER in the digital environment only whereas OER originally included hard and soft copies of educational content.

The research findings show that the theoretical provision of OER is changing. At the inception of OER, there was an assumption that affordable educational content was scarce for students and lecturers. National and international initiatives were aimed at overcoming this scarcity of learning materials on the internet. As a result of the digital evolution this scarcity has been replaced with a redundancy of available content, and students now need lecturers' support to find appropriate OER. The digital era has extended affordable facilities for lecturers and students to operate with OER and this should be reflected in HE development strategies.

The practical implication of the findings is limited by the focus on the post-Soviet area, because of the specificity of HE regulations and traditions. OER provides a way to extend the accessibility of content bypassing technology, politics, and geography. Academia is not supposed to be involved in politics, but the influence of the political agenda on academia is always noticeable. Software developers and providers of cloud services can forbid some HE institutions to use their services for any purpose. Currently, 'Zoom' restricts Russian universities, and MOOC platforms have banned Russian providers of online courses. Against this background, the advantages of OER include being outside economics and politics. Further research directions include the application of the research results to knowledge management in academia from the lecturer, institutional, national, and global perspectives.

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