“Reforming the education system to prevent labor migration”

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REFORMING THE EDUCATION SYSTEM TO PREVENT LABOR MIGRATION

Abstract

The world economy is in an unprecedented situation, caused by the COVID-19 pandemic and the health care crisis. It's currently difficult to predict all the consequences, but there are undoubtful changes in migration flows, unemployment and poverty increase, and their impact on national economies and globally. The paper aimed at analyzing the cases of educational reforms in different countries, revealing new trends in education and learning that may prevent labor migration or mitigate it.

To support feasibility of the study, a bibliometric analysis was implemented on the basis of Scopus tools and VOSviewer software. In this paper, the content analysis of several cases in a sphere of educational reform was performed, namely educational systems of some EU countries and their former members (UK, France, Finland) as well as the most developed world economies (USA, China, and Japan). The distance learning is considered as fundamentally necessary in today's conditions and a milestone of the global educational system development. The paper investigates the essence and distribution of mass online courses as a typical type of distance learning. The case of virtual exchange that was managed and organized by several institutions within the COIL initiative was also analyzed the alternative to traditional learning. The recommendations about the further development of educational systems were made, as well as suggestions about the competitiveness of national economies due to the migration process.

Keywords reform, labor migration, "brain drain", online learning, virtual exchange, bibliometric analysis, global virtual class

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INTRODUCTION

Nowadays the problems of migration and its impact on host and home communities have recently become extremely relevant urgent. Above all, this is linked to the extraordinary increase in the influx of refugees to Europe and North America. Cross-border labor migration has increased in all regions of the world, and in some regions of Asia, the growth rate of labor migration is particularly high. The processes of reforming the migration systems of the main host countries are primarily related to changes in the labor markets of these countries, changes in the requirements for the proposed foreign labor force, the criteria for selecting the required categories of migrant workers (both permanent and temporary). The problem of creating a reserve of labor, which is associated with demographic processes, is gradually receding into the background, moving into the field of attracting foreign students to local educational institutions, which facilitates and simplifies the process of initial adaptation of foreigners to local conditions and national labor markets.

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The impact of the national education system on labor migration is one of the most influential. The systems of secondary, vocational and higher education are designed to form specialists' professional qualities while helping to realize themselves in various spheres of social life. It is the education system that is responsible for the retraining of specialists during the crisis and the organization of educational reforms aimed at maximizing the involvement of local specialists in economic, industrial, and intellectual activities in their own country. Considering the general economic efficiency, in countries where labor and non-labor migrants are trained and retrained according to market needs, the level of competitiveness of industrial enterprises is growing. It takes place due to the improvements in labor force, economies of scale, and productivity curve effect (Kotenko & Shvindina, 2018).

Because of the imperfection of the education system and the lack of reforms in the field of education, such a term as "brain drain" appeared. It was described in the early 1950s in Britain when the mass relocation of British scientists to the United States took place. As part of this study, the experience of different countries and new opportunities in reforming the education system to prevent labor migration were analyzed. It is offered to study changes in the educational systems of some European Union countries and its' former members (UK, France, Finland) and the most advanced economies of the world (the USA, People's Republic of China, and Japan).

1. LITERATURE REVIEW AND ANALYSIS

The study of the reform of the education system has become widespread in academic works due to the high importance of the chosen topic, and increasing attention is observed through various periods. To demonstrate it, the bibliometric toolbox was chosen as a research method.

According the SCOPUS database, filtered search with the keywords "reforming" and "education" revealed 983 papers including technical and medical scientific articles, and with the keywords "education" and "migration" – 5680 articles. The dynamics of the publication activity in this field is shown in Figure 1.

According to Figure 1, education in the context of migration is a fairly popular field of research among scholars, which is especially evident since 2005, when the number of works began to grow rapidly and in 2020, their number was 491 articles. It should be noted that at search que-

Source: Generalized by authors using "Analyze search results" of Scopus Database (2020).

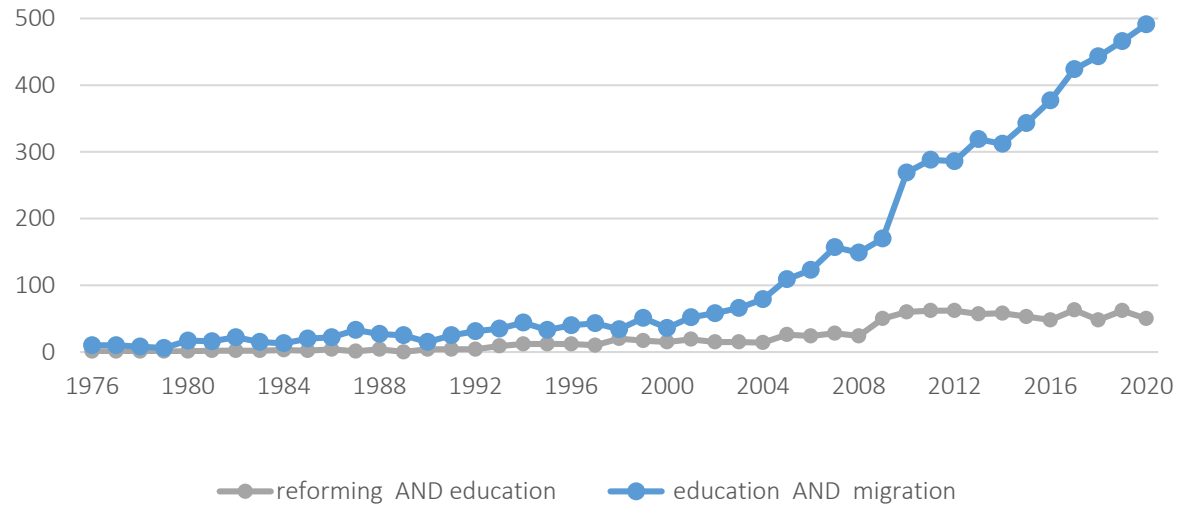

Figure 1. Dynamics of publications in the field, according to the search with different combinations of the keywords, "reforming" and "education", "education" and "migration", 1976–2020

Source: Generalized by authors using "Analyze search results" of Scopus Database (2020).

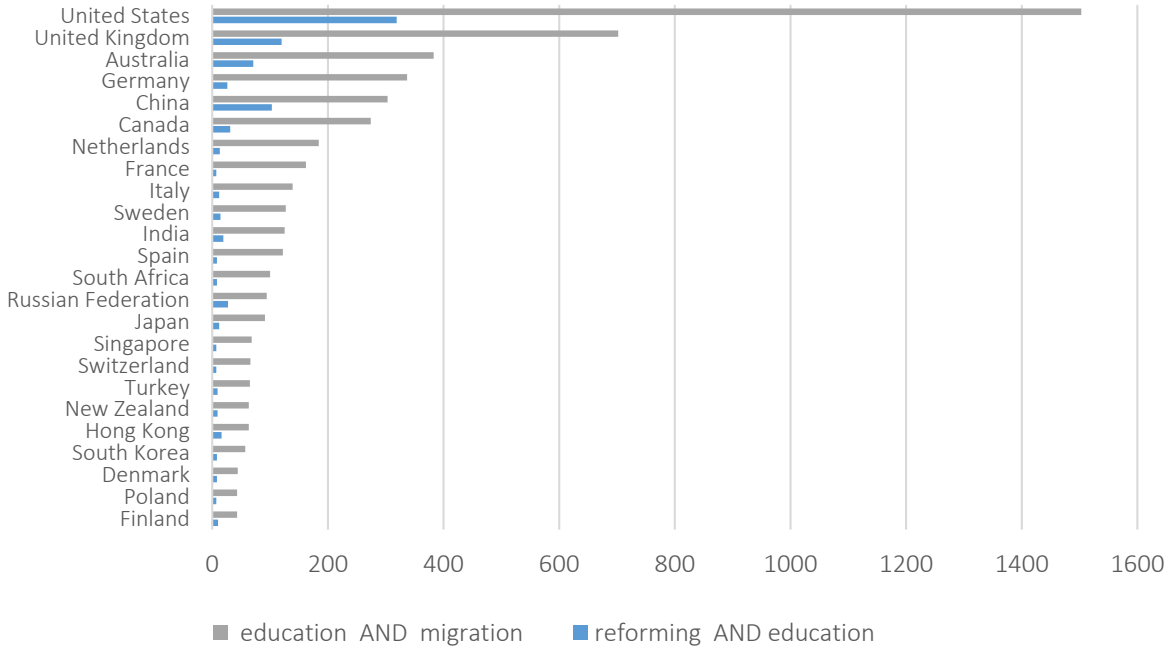

Figure 2. The geographic origin of the papers in the field, according to the search with different combinations of the keywords, 1976–2020

ry "education" AND "labor migration" gives out 441 works for all period. Regarding the issue of education reform, according to the analyzed data, in 2020 the total number of works devoted to this issue was 50 units, the indicator in this area reached its maximum in 2017 (63 scientific works).

It's important to analyze the geography of the papers in the dataset. As it's demonstrated in Figure 2, the topic became widely disseminated in the USA, United Kingdom, Australia and China.

To form the clusters of academic flows related to the study, the VOSviewer software was used to analyze the co-occurrence of keywords. As a result, the map of co-occurrence and density map is presented in figures below (please see Figures 3 and 4).

In a process of analyzing the map of co-occurrence of the keywords (Figure 3, initial search query of the keywords "reforming" AND "education") there are 4 clusters revealed which included 88 items with 749 links. Generalizing the data, it's quite fair to suggest that these four clusters are distributed as follows:

- 1st cluster (red, 27 items) is related to the human-centered issues in the educational process, administrating and managing in the educational sphere with focusing on problem-based learning.
- 2nd cluster (green, 24 items) embraces the studies in educational policy and main directions of the reforming the system (decentralization, human-centered).
- 3rd cluster (blue, 19 items) includes the works about educational services at the level of providers, the main methods and technologies in teaching and learning.
- 4th cluster (yellow, 18 items) is about the reforming the educational system towards bologna process and modern tendencies.

As for the Figure 4 (initial search query of the keywords "education" AND "migration") four other clusters are revealed that based on 832 items and

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Source: Developed by the authors using VOSviewer 2.1.

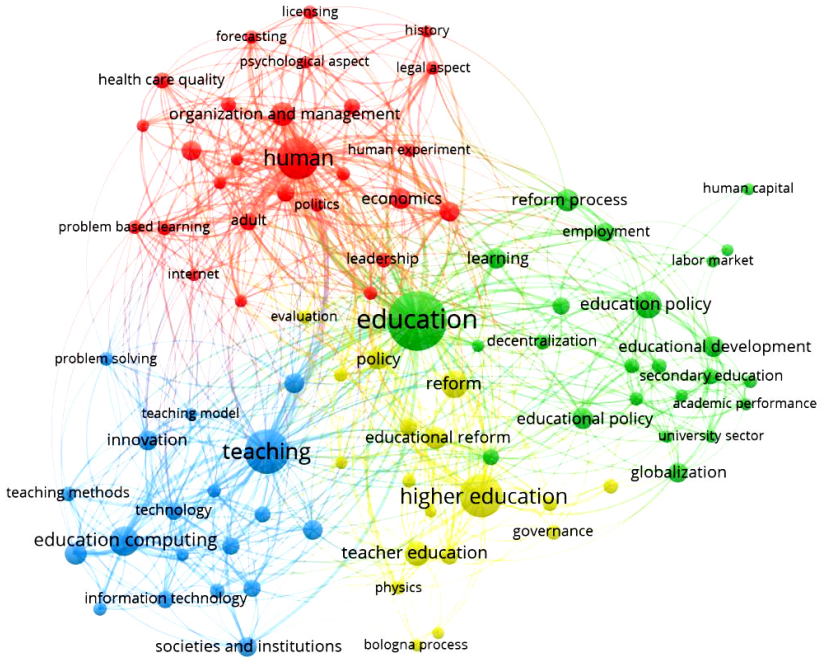

Figure 3. The visualizing map of co-occurrence of the keywords in papers of a dataset (initial search query of the keywords “reforming” AND “education”)

Source: Developed by the authors using VOSviewer 2.1.

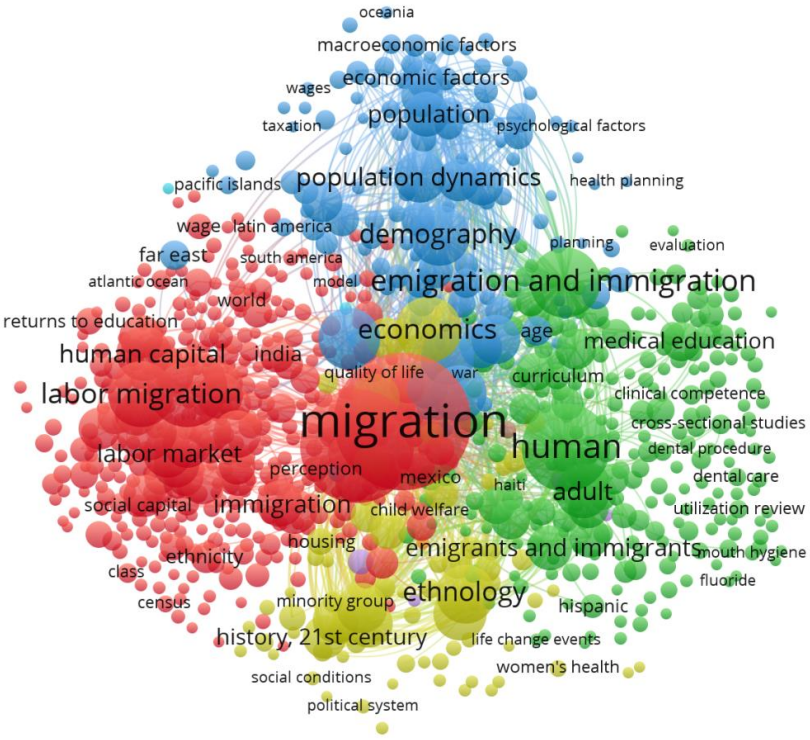

Figure 4. The visualizing map of co-occurrence of the keywords in papers of a dataset (initial search query of the keywords “education” AND “migration”)

51,447 links in total. It can be assumed that they are interconnected as follows:

- 1st cluster (red, 50 items) is devoted to the general issues of the migration, and educational antecedences of migration appearance.
- 2nd cluster (green, 11 items) is related with multidisciplinary studies and migration causes detection (political, social, psychological causes etc.).
- 3rd cluster (blue, 16 items) includes papers in a sphere of demographic factors of migration.
- 4th cluster (yellow, 18 items) is devoted to historical overviews of migration.

The bibliometric analysis results are the base for the more detailed content analysis of the most seminal and most specific scientific works in the sphere of reforming the educational system to prevent and mitigate labor migration. The transformation of education towards the lifelong learning concept is one of the newest trends of the XXI century and is one of the Sustainable Development Goals requirements. Thus, these aspects are investigated in the papers of Pryima et al. (2018), Vorontsova et al. (2018, 2020). At the same time, many studies are devoted to the educational system reforming aimed at efficiency increasing of a system (Al-Jaghoub et al., 2019; Kotenko et al., 2018), and especially in the context of the labor market dynamics (Elamir, 2020). Education, as one of the factors of migration, is considered in the paper of Shymanska et al. (2017).

To accomplish the main goal of the study, it's crucial to analyze the experience of the leading countries in a sphere of reforms of educational systems, and therefore in migration prevention, for instance, in UK (Kogan, 1992; Tapper & Salter, 2004; Leisyte, 2007), France (LeMonde, 1994; Caillot, 2010), Finland (Huusco & Korepanova, 2010; Karpenko & Demida, 2014), China (Modern China, 1972; Li Lanqing, 2005), Japan (Shimahara, 1992; Vinnichuk, 2016) and the US (Cross, 1979; Chickering et al., 1981).

Despite numerous studies, they are fragmented, and generalization of the experience of reforming the educational system is needed to form the ways of prevention of labor migration.

2. GENERALIZATION OF THE MAIN STATEMENTS

2.1. Theoretical background: experience on reforming the education system to prevent labor emigration

For all the EU countries, the Europe 2020 strategy is the agenda for inclusive and sustainable growth and has targets in five areas: employment, research & development, climate change & energy, education, poverty, and social exclusion. Education is one of the five pillars, and it considers "reducing early leavers of education and training and increasing the tertiary educational attainment" towards improving the employability, innovative and sustained growth of the countries (Europe Commission, 2020).

One of the first countries which started reforming education at the country level to reduce labor migration was UK. The first wave of educational reforms has started after the Industrial revolution. The universities should have been operating as the center of civic science. The second wave has started in 1960-ties and was related to the mass implementation of vocational education. The third wave was linked to the equalization of the status of the former polytechnical colleges and universities (1988) that ended the binary high education system (Leišyte, 2007).

The situation had changed when Britain society changed the attitude to education, considering it more mass than for the elite. Education itself became inextricably linked with the social and economic production, and a new government strategy perceived education as the base for the training of the graduates who will develop the national economy; therefore, the government should control universities in their operating activities. As a result, the state implemented tighten control over the higher education system to reduce the level of

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labor migration of young professionals and specialists in order to increase the total number of people with higher education. There is evidence that this time the government started managing the educational system with many interventions, and the governance of British higher education was fundamentally changed; it operated in a manner that fully incorporated the principle of peer review (Tapper & Salter, 2003).

Formed at the end of the twentieth century, a new model of management of British higher education has gained the term as planning management system in academic literature. Such a model means a shift from the perception of higher education as a special social privilege to a widely available service that is guaranteed by the state and provided by the university (Kogan, 1992). Today, the country also has reforms aimed at improving the education system according to the modern needs. In 2019, the main strategic directions in the field of reforming the education system include:

- restoring attention to technical education, which involves reviewing its organization and funding in such a way as to promote the formation of the most necessary skills in the labor market;

- creating Institutes of Technology, that offering higher technical education and training in science, technology, engineering and math (STEM) subjects based on collaboration between HEIs and employers;

- development of legislative documents regulating the use of technology in educational systems: for example, digitalization for administrative processes, assessment, opportunities for lifelong learning and personal professional development, etc. (European Commission, n.d.).

The case of educational reforms in France is unique, starting from 1960-ties the changes has transformed the French educational system. After "Fouché's reform" in 1963 two levels of technological institutions were established that had to support the training of the specialist of middle level faster than before. After that French residents accepted the necessity for the technical education and state policy in this sphere. Since 70-ties French state started to put attention to the education level of migrants who came from former French colonies. The migrants and their children who acquired citizenship became a significant labor force with poor education. This problem needed to be solved. The most significant event was in 1989 when orientation law on education was adopted by French Parliament (Caillot, 2010). This law state main priorities and organized the school 'cycles' instead of 'years', and a 'cycle' is a set of three years during which the competencies to acquire were fixed by a national curriculum.

This reform forced pupils of the same age group to obtain at least a certificate of professional suitability or vocational education. Thus, 80% of young people in 1989 received a bachelor's degree. Due to this mass trend, the government began to create special teachers' institutes (IUFM, Instituts universitaires de formation des maîtres – University Institutes for Teacher Education). And to make it easier for young people to find work, in 1992 the general lyceums with a technical bias and a low competitive basis were launched (LeMonde, 1994). Thus, the French education system is characterized by significant centralization and strong state influence on decision-making processes.

The current situation in the French education system is not aimed at overcoming the crisis, which is a shortage of jobs and labor migration, but at overcoming the total ignorance of immigrants and their families. The reform of the French education system aims to democratize the educational process and make compulsory specialized education for indigenous French and immigrants. At the same time, in recent years there has been the introduction of the following main directions of reforming the education system:

- development of digital skills from school to university;

- reforming of vocational education to meet the needs of the labor market (European Commission, n.d.).

In Finland, it is believed that education, not social origin, is the most effective social elevator, provides opportunities for career growth and reali-

zation of the individual as a professional. Finnish law guarantees free education to all citizens, both at the stage of school education and at the stage of higher education. Such a system of national education allows to minimize labor migration from the country, and also to involve emigrants and students from other countries in economic development.

The high level of education quality in Finland has been confirmed by many international studies (THE, 2017). Finland is the leading country in the quality of school education, according to the Organization for Economic Co-operation in Europe (OECD), International Student Assessment Program (PISA) for 2003, 2006, 2009, 2012. But in 2015 the country lost the championship to Singapore, according to the World University Rankings 2016–2017 (THE, 2017). Such a high level of education from school to higher education indicates that the reforms carried out in the education system have achieved maximum results. The modern Finnish system of higher education emerged thanks to the reforms of the 1990s, which were aimed at increasing the level and demand for higher education. As a result, there are two types of higher education institutions: universities and polytechnics, which perform different functions. There are currently 14 universities and 24 universities of applied sciences in Finland.

Polytechnic universities take into account the needs of specific regions and specialize in applied sciences. They must meet the needs of regional development, so to create strong links with business, universities' internal autonomy has been expanded. They maintain close contacts with the business community, various industries, and the service sector at the regional level. It is this cooperation with the business that allows employing more than 80% of university graduates. At the present stage in Finland, the resource of "soft power" comes to the fore when the state spreads its national cultural values through education, culture, science, art, language promotion. In studying, foreign students receive personal contacts in the industry environment and absorb the country's ethics and culture. According to Finnish standards, institutions, teaching students from around the world, integrate Finland into the world economy, aims to cooperate with students who have returned to their home countries. In addition, the government is thus trying to attract foreign students who received a highly qualified education in Finland to stay in the country. This social group will eventually become new taxpayers, replenishing the budget with funds, which can be used to finance social spheres. This direction of resources in the reform of the educational sphere allows minimizing labor and social migration, increasing the level of employment of graduates of educational institutions, and making the country attractive for educated professionals from other countries. (Karpenko & Demida, 2014).

To minimize the general trend of labor migration, Finland is actively implementing the concept of continuing education – "lifelong learning". In 1998, the Law on Vocational Training of Adults was adopted. Adult education is provided by universities, adult vocational training centers, higher public schools, vocational schools, and summer universities. A particularly important form of education is the free training of adults in the employment service, which aims to increase the supply of skilled labor and facilitate the return of the unemployed to the labor market (Huusco & Korepanova 2010).

The People's Republic of China has undergone many reforms in education, many of which aimed to overcome labor migration to other countries in Asia, the United States, and the Soviet Union. The beginning of the reform of China's education system started during the "Great Leap Forward". But the consequences of such reforms have been disappointing. With an increase in the total number of engineering and technical workers in 6.3 times in the period 1949–1957, the share of engineers with higher education in the total number of engineering and technical workers decreased from about 32% to 14% (Modern China, 1972). After the educational reforms of the 60-the 70s of the XX century, higher education institutions' activities were disorganized or completely shut down, and many humanities specialists and scholars became redundant.

The cardinal steps of modernization of the higher education system in 1995 were abolishing the system of state distribution of graduates and the gradual transition to paid education. The distribu-

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tion system was abolished in 1993, and by 1997 all higher education was paid. Tuition is about 20% of its cost, and so far, there is a practice of determining the amount of payment depending on the level of student achievement. An exception is made only for students from low-income families (preferential payment or free education). The best students can apply for scholarships and one-time financial incentives. When a student is paid for by the organization or enterprise in which he or she works or will work, the system stimulates a decrease in the level of labor migration and an increase in the rate of employed citizens (Li Lanqing, 2007).

The history of a key step in reforming Japan's education system dates back to 1984. Under the Nakasone government, the National Council for Educational Reform was established. It consisted of 25 highly qualified specialists who analyzed the state of education and developed their recommendations for future educational reforms. Since then, the reform plan has been repeatedly finalized and approved. The Council decided to carry out the transformation, taking into account both the external challenges posed by the ongoing process of globalization (migration) and the internal problems accumulated in the Japanese education system. (Shimahara, 1992).

The first element in the set of reforms was the modernization of school education towards revealing each child's various individual abilities. Japan needs well-educated, capable, and talented people. The second element was the formation and development of such an education system, which would provide a citizen with continuous dynamic activity throughout life (lifelong learning – in the American style). The third component is the expansion of cultural exchange with foreign countries. The fourth element of the reform package is the restructuring of higher education to fully adapt new international conditions, globalization, and migration processes. Most of the "scientific migrants" were students from China – 64.7% of the total. Many of them continued to work in Japan, contributing to the share of migrant workers. Japanese students, due to the imperfect and non-progressive education system, believe that it is better to go to study in the United States (60%), China (18.8%), Great Britain (7.9%). One of the main problems of labor migration of young Japanese people receiving higher education abroad is the shortcomings of the employment and lifelong employment system. It is the traditional organization of work in large corporations that over time becomes a disadvantage rather than benefit.

Specific aspects of the third reform of the Japanese education system include its focus on individualizing learning and cultivating students' individuality, enhanced mental development and creativity, expanding educational opportunities through continuing education, promoting Japanese society's internationalization, and preventing labor migration, which is the next step, after student mobility (Vinnichuk, 2016).

The US continuing education system reform deserves the most attention among all national education reforms because education in this country has become the largest industry of the twentieth century. The education industry in the United States has developed in the last 40-50 years and now covers about a third of its population. If adolescents at the age of 13 could leave school in the early twentieth century, and this was the norm, now most of them receive full-time education on average up to 25 years and continue to study throughout their lives (Carolina University, 1998). Thus, the United States is a clear example of how education is an integral part of life as an individual and society and is continuous throughout a lifetime. Until 1970, few legislative acts manifested the idea of continuity of education. Among them is the Vocational Education Act of 1963, which provided professional growth opportunities or retraining for anyone in the most popular professions (Peterson, 1979). Compulsory education of young people, which for a long time was considered a vaccine against illiteracy and ignorance for life, was recognized as incapable of giving people knowledge to such an extent that would satisfy them for the rest of their lives.

With the enactment of the Lifelong Learning Act in October 1976, the US Congress formally recognized the importance of lifelong education. The act became a kind of manifesto on the need for continuing educational services. In 1977, a draft law was introduced to implement the Lifelong Learning and Public Policy Act, which defined

continuing education as "the process by which individuals continue to develop their knowledge, skills, and abilities throughout life" (Chickering, 1981). The project's main report emphasized the importance of all conscious educational efforts that can be made at work, at home, through formal or informal organizations; they are achieved either by traditional or non-traditional methods or through self-education. In 1976, the Law on Continuing Education came into force.

During the twentieth and early twenty-first centuries, the United States made considerable efforts to reform the education system. The concept of continuing education has been multifaceted; universities and colleges have been transformed and made available to the adult population; many new programs have been developed, including adult students; the prestigious libraries appeared and significantly increased their role in the education system. With the help of education reforms, labor migration from the United States to Europe and Australia has decreased dramatically; the main factor in the decline was the retraining of the adult population, who lost their jobs. The implementation of educational reforms has done everything possible to ensure that the idea of continuity of education is further developed and contributes to the country's social and economic prosperity.

2.2. Key trends in education: distance learning and online courses for inclusion of migrants

From the end of the twentieth century, it can be argued that reforming educational systems is becoming quite important following the changes in the labor market and scientific and technological progress. As a result, distance learning has become widespread, representing a new type of education based on the use of both the best traditional methods of acquiring knowledge and new information and telecommunications technologies, as well as the principles of self-education. Distance learning is intended for the general public, regardless of age, material security, residence, and state of health. Distance learning allows to implement interactive technologies of teaching and learning, to obtain a full higher education or training. Distance learning has advantages such as flexibility, relevance, convenience, modularity, cost-effectiveness, interactivity, lack of geographical boundaries for education. The relevance of distance learning is manifested in the possibility of introducing the latest pedagogical, psychological, and methodological upgrades with the division of material into separate functionally complete modules (topics), which meet individual students' abilities or groups in general (Vyshnivskyy et al., 2014).

Thus, distance learning provides ample opportunities for migrants and their integration into host societies. In support of this, the following data are presented (details in Figure 5): according to Eurostat, in 2019, the number of non-EU-born persons aged 25-54 years with a level of education "Less than primary, primary, and lower secondary education" was 36.2%, with the level of "Upper secondary and post-secondary, non-tertiary education" – 37.3%, and "Tertiary education" – 26.5%. At the same time, the participation of adults in education and training, according to Eurostat data, increased from 11.7% in 2010 to 14.1% in 2019 (Eurostat, 2020a, b).

The importance of education for migrants is also confirmed at the level of international documents, such as the New Skills Agenda for Europe, which states that in addition to meeting the most urgent needs of migrants for food, housing, there is a need to improve their long-term situation. Their communication skills (language skills), finding a permanent job, and general integration into society are in focus (European Commission, 2016). This implies, first of all, the need for non-formal learning, as well as in the long run – raising the formal level of education. Under such conditions, distance learning can greatly simplify the process of integrating migrants into society, providing greater opportunities for learning and developing the necessary skills on both a free and paid basis.

A variety of distance learning is presented by massive open online courses, which are the basis of lifelong learning and are gradually becoming a globally recognized trend. Massive open online course (MOOC) is an online course with large-scale interactive participation and open access via the Internet (ALT, 2012). Such courses are designed for students of completely different levels of training and do not impose any restrictions on students (for example, geographical, religious, age,

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Source: Eurostat (2020a, b).

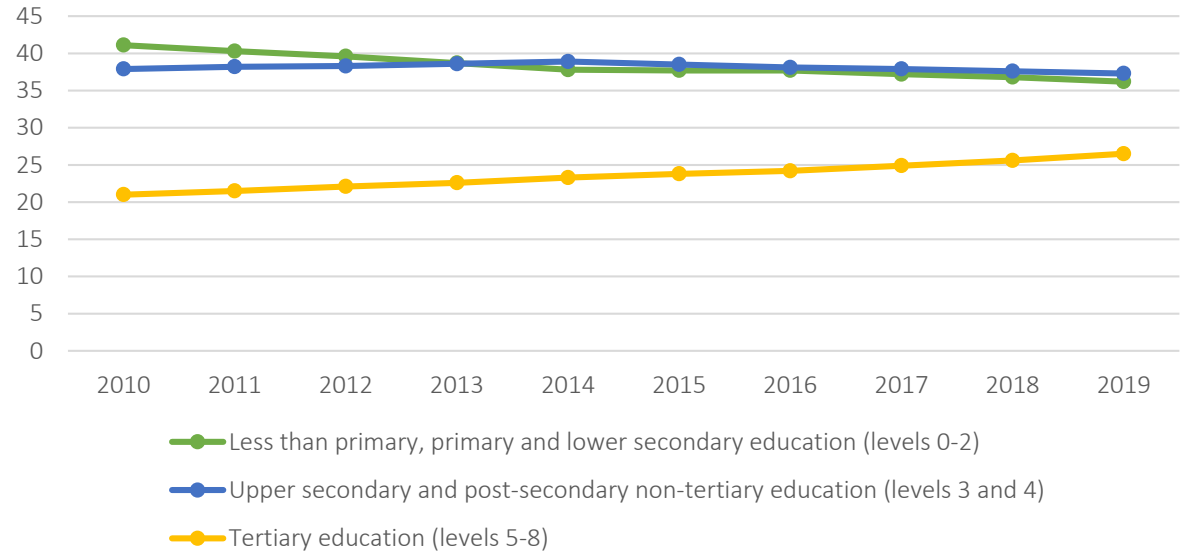

Figure 5. Dynamics of non-EU-born persons aged 25-54 (migrants), grouped by educational levels, EU, 2010–2019, %

financial burden, or other). They are characterized by adaptability, which allows adapting to each user (through the use of various forms of information in audio, video formats, visually in the setup of diagrams and tables or text, and the ability to control time for the lesson etc.). This creates a certain economic phenomenon, according to which the knowledge of teachers of the most prestigious universities in the world becomes so accessible that some students even devalue them. All these signs are the best evidence of the possibility of using mass online courses for migrants.

However, implementing educational activities through mass open online courses shows that there are problematic issues. These include: the mismatch between the expectations of the teaching staff and reality, unclear motives for student learning; problems with students' self-discipline; academic difficulties; the inability of certain students to plan their time properly; no sanctions in case of non-completion of the course; the humanities, in which live communication plays an important role, are difficult to bring online (Vyshnivskyy et al., 2014).

Today, mass open online courses are top-rated in different countries. Thus, according to the international online platform Class Central, which aggregates various courses from different providers and provides separate analytical information, the following trends have been observed over the past seven years in the world (Figure 6).

The data show the rapid growth of online education in recent years; as of 2020, there were more than 16.3 thousand courses (7 times more than in 2014) in more than 950 universities for more than 180 million students. We will note that on the chart, the abrupt increase in the number of students is observed in 2020 in comparison with 2019 – 1.5 times bigger. This is due to the global COVID-19 pandemic, which has changed the use of online education. According to CEO of Class Central: "One third of the learners that ever registered on a MOOC platform joined in 2020" (Shah, 2020b).

The world's largest MOOC provider by the number of registrations is Coursera – in 2020 – 76 million students and 4,600 courses. In second place is edX (35 million students and 3,100 courses), in third place is FutureLearn (13.5 million students and 1,160 courses), and in fourth place is Swayam (16 million students and 1,130 courses).

In 2020, the most popular courses were business (20.4%), technology (19.7%) and social sciences (11.4%). The least – mathematics (2.9%) and art (4.4%). Shah (2020b) presents the top-10 courses that were in demand in pre-pandemic and post pandemic period in 2020.

Source: Class Central (Shah, 2020a, b).

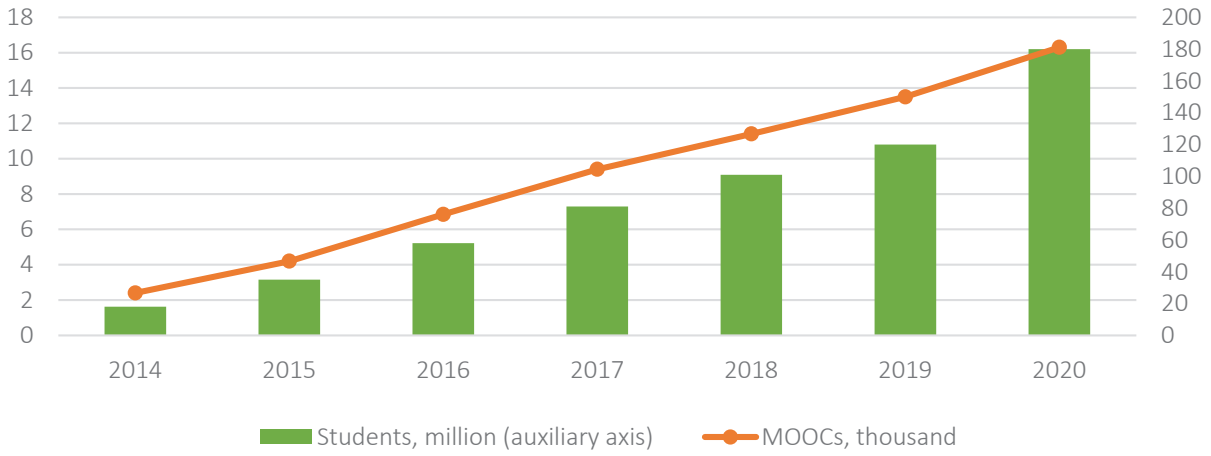

Figure 6. Dynamics of the courses MOOC and students (attendees), 2014–2020

Source: Class Central (Shah, 2020b).

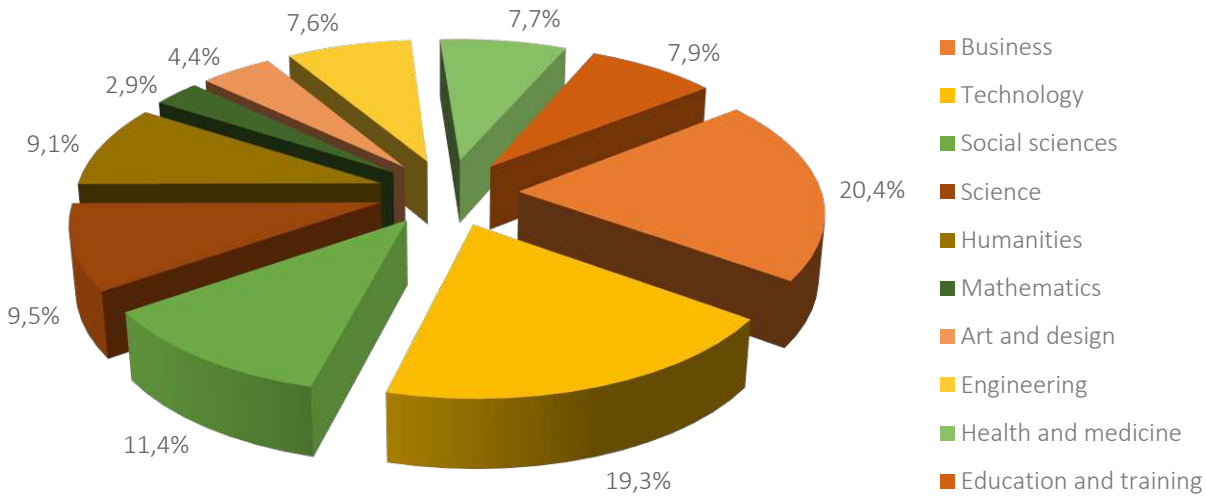

Figure 7. MOOC Distribution by the course, 2020

As it's performed, the field of interest has changed from more practical sciences (Computer Science, Programming, Business) to personal development, related to quarantine measures and the need to spend more time at home.

2.3. Case on Globally Networked Learning as a new trend in online learning and knowledge sharing

The antecedents of the case is the Stevens Initiative, created in 2015 and aimed at helping to expand the virtual exchange field through three pillars: investing in promising programs, sharing knowledge and resources, and advocating for virtual exchange adoption (The Stevens Initiative, 2020).

One of the fruits of Stevens Initiative was the Collaborative Online International Learning (COIL) project launched by the University of Nebraska – Lincoln in the United States in 2018. This type of transnational collaborative learning, commonly known as virtual exchange, is technology-enabled, active engagement among partner institutions. Virtual exchange is possible by a variety of communication methods, which can be synchronous or asynchronous. To make the learning process continuous, this particular virtu-

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al exchange was organized as a set of synchronous sessions with institutions from different countries. Among the popular videoconferencing platforms Zoom was chosen. The main goals of this virtual exchange were gaining cross-cultural learning experiences, enabling peer to peer engagement across the countries and time zones, and helping students' acquisition of global competencies.

Building upon the success of the COIL project, in 2019 the Global Nebraska Virtual Classrooms project was launched and it included institutions from the United States, Ukraine, Oman, United Arab Emirates, Denmark, India and the United Kingdom. Collaborative learning for this project focused on tourism and hospitality industries and their impact on national economies. Students and faculty members from nine institutions around the world attended classes synchronously via Zoom, as part of this project. To enable co-learning of common content, modifications to syllabi were undertaken by each institution. Class schedules were adjusted to allow for synchronous interactions across six different time zones.

Three Ukrainian HEIs took part in the project, namely Sumy State University, Kyiv National Economic University, and Kyiv Cooperative Institute of Business and Law. Besides, this project involved The Oberoi Center of Learning and Development (India), University College Lillebaelt (Denmark), Oman Tourism College (Oman), The Emirates Academy of Hospitality Management (United Arab Emirates), Bournemouth University (UK) and University of Nebraska – Lincoln (USA).

Research undertaken by the Nebraska Public Policy Center on behalf of the 2018 COIL project found significant gains in awareness of and knowledge about other cultures, as consequence of students participating in virtual exchange. This is based on data from pre-assessment and post-assessment questionnaires administered to participants. For example, the level of knowledge about etiquette and communication with other cultures was 2.27 (mean) before participating in virtual exchange and rose to 3.86 after. As for knowledge about cultural traditions of different countries, it was assessed as 2.05 before participating in virtual exchange, and 4.14 after students finished the course.

Though globally networked learning through virtual exchange is an effective pedagogical tool, it has limitations. To make this type of learning work, students should be reasonably fluent in English as well as willing and ready to exchange ideas with their international peers. Successful implementation of virtual exchange also requires high level of coordination, availability of and access to distance learning technology, and commitment of time and resources at an institutional level. Preliminary coordination and preparation should consider time differences, institutional calendars, and availability of resources. A significant challenge revolves around technology and Internet bandwidth. Not all classrooms are well-equipped to deliver distance learning, and Internet speed has a significant impact on program delivery and the quality of learning. Another key area is partnership development. It is important to build a cohort of institutional partners, educators and students, who would be invested in making a virtual exchange collaboration successful.

Another outcome of the aforementioned virtual exchange initiative was the "network effect". In 2020, three more collaboratives were launched among Sumy State University, University of Nebraska-Lincoln, Whitefield Business School in Mauritius, and Washington State University. More than 40 faculty members as well as 60 undergraduate and post-graduate students benefitted from participating. These projects generated new ideas for further collaborations in several disciplines.

Virtual exchange is also impacting training and development for business and industry. Using this type of technology, employers can conduct panel interviews, on-board employees, and build communities remotely. They can deliver on the job training synchronously and asynchronously; giving employees the flexibility to learn at their own pace without the constraints of a physical setting or a time slot. Virtual exchange is helping to expand the borders of knowledge sharing and technology transfers as well.

Given its ease of use and growing popularity, it is possible that virtual exchange might reduce the need for labor migration as potential migrants would be able to glean knowledge and skills with-

out migrating and continue to make gains in their professional careers. On the opposite end, virtual exchange could become a driver for migration by providing access, tools and resources for those with intent to migrate but previously lacked the resources and knowledge to do so.

The current study focuses on the investigation of the link between labor migration and education, namely, how education may prevent or mitigate labor migration. This paper embraced the bibliometric analysis, content analysis of the previous cases, and case analysis as a source of empiric data. However, this research has its limitations that define the knowledge gaps to be investigated in the future. The US was analyzed as one of the countries with a developed education system and a large number of migrants. But Germany, as a country with the biggest number of migrants in EU and a solid educational system, was not included in the research.

Another dimension to be discussed is the link between the competitiveness of migrants and distance learning (MOOC, virtual exchanges, etc.). It is still unknown how distance learning will influence employment during lockdowns.

The competitiveness of organizations, corporations, and SMEs is another topic to research. As the market borders are shifted in global markets, and the labor market is focusing on soft skills and remote jobs, the migration may take new forms and new destinations. It's still under the question, should mitigation of the migration take place, or it is wiser to provoke it in an attempt to attract new talented and dynamic migrants to the local communities, as it was done in Finland.

CONCLUSION

Summing up the study, it should be noted that there is a need to reform educational systems in the current conditions of development of socio-economic systems to prevent the effects of labor migration. The practicality of this conclusion is confirmed by the results of the bibliographic analysis, according to which the number of studies on education and migration (search query "education and migration") and education reform (search query "reforming and education") is growing rapidly. As a result of visualizing the co-occurrence of the keywords in previous studies, the groups of clusters were presented (for each query results). The connections between the selected concepts were confirmed.

The theoretical analysis of the cases of the selected sample of countries in reforming educational systems shows their transformation, aimed at spreading the principles of lifelong learning, practicality, i.e., compliance of knowledge and skills with labor market needs, and digitalization. That is why the development of distance education is becoming especially popular, a typical example of which is mass online courses. Using virtual exchange to deliver synchronous and engaged learning demonstrates a new era in online education, which started before the COVID-19 pandemic, but has since revealed its flexibility, operability, and usability as an effective pedagogical model.

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REFERENCES

1. Al-Jaghoub, S., Al-Adwan, A., Al-Yaseen, H., Al-Soud, A., & Areiqat, A. (2019). Challenges of improving effectiveness and efficiency of the higher educational system in developing countries. *Problems and Perspectives in Management, 17*(1), 19-31. http://doi.org/10.21511/ppm.17(1).2019.03
2. Association for Learning Technology (ALT). (2012). *MOOC pedagogy: the challenges of developing for Coursera.* Retrieved from https://altc.alt.ac.uk/blog/2012/08/mooc-pedagogy-the-challenges-of-developing-for-coursera/
3. Caillot, S. (2010). *La politique française d'intégration. Légitimation d'une politique publique fondée sur une notion équivoque.* Sociologie. (In French). Retrieved from https://dumas.ccsd.cnrs.fr/dumas-00725946/document
4. Carolina University. (1998). Let the people learn. *New Statesman, 127*(4411), 3. Retrieved from https://library.carolinau.edu/eds/detail?db=a9h&an=1351616&isbn=13647431
5. Chickering, A. W., Kolb, D. A., Havighurst, R. J., Weathersby, R. P., Perry, Jr., W. G., Schaie, K. W., Parr, J., Friedlander, L., Ward, P., Carlson, E. A., Griffith, D. E., Menges, R. J., Gaff, J. S., Benezet, L., Hodgkinson, H. L., & Lindquist, J. (1981). *The Modern American College: Responding to the New Realities of Diverse Students and a Changing Society*. San Francisco: Jossey Bass. Retrieved from https://eric.ed.gov/?id=ED200069
6. Cross, K. P. (1979). Adult Learners: Characteristics, Needs and Interests. In R. E. Peterson, *Lifelong Learning in America: An Overview of Current Practices, Available Resources and Future Prospects*. San Fransisco: Jossey Bass. Retrieved from https://diva.sfsu.edu/bundles/209442/80083/contents/342167
7. Elamir, E. A. H. (2020). Determinant indicators for labor market efficiency and higher education and training: Evidence from middle east and north Africa countries. *Problems and Perspectives in Management, 18*(1), 206-218. http://doi.org/10.21511/ppm.18(1).2020.18
8. European Commission. (2016). *Analytical underpinning for a New Skills Agenda for Europe.* Retrieved from http://eurlex.europa.eu/resource.html?uri=cellar:cd0fa1ca-2ee9-11e6-b497-01aa75ed71a1.0001.02/DOC_1&format=PDF
9. European Commission. (2020). *Europe 2020. A European strategy for smart, sustainable and inclusive growth.* Retrieved from https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf
10. European Commission. (n.d.). *National Education Systems*. European Commission National Policies Platform "Eurydice". Retrieved from https://eacea.ec.europa.eu/national-policies/eurydice/national-description_en
11. Eurostat. (2020a). *Population by educational attainment level, sex, age and country of birth (%).* Retrieved from https://ec.europa.eu/eurostat/databrowser/view/EDAT_LFS_9912__custom_330516/default/table?lang=en
12. Eurostat. (2020b). *Participation rate in education and training (last 4 weeks) by sex, age and country of birth.* Retrieved from https://ec.europa.eu/eurostat/databrowser/view/trng_lfs_13/default/table?lang=en
13. Huusco, K., & Korepanova, A. (2010). Education in Finland. *Innovative projects and programs in education, 5,* 11-16. (In Russian). Retrieved from https://cyberleninka.ru/article/n/obrazovanie-v-finlyandii
14. Karpenko, O., & Demida, E. (2014). Reforming the system of providing educational services: the experience of Finland. *Pedagogy and Psychology, 1,* 88-98. Retrieved from https://core.ac.uk/download/pdf/32308188.pdf
15. Kogan, M. (1992). Models of governance and development in the United Kingdom. *Higher Education in Europe, XVII*(3), 46-58.
16. Kotenko, S. I., & Shvindina, H. O. (2018). Problems of assessing the competitiveness of enterprises as an indicator of strategic development. *Problems of Economics, 3*(37), 104-112.
17. Kotenko, S. I., & Vasilyeva, T. A., Mayboroda, T. M., & Petrushenko, Yu. M. (2018) European trends of

the intercultural education policy. *Visnyk of Sumy State University. Economy series, 4,* 25-30. Retrieved from https://essuir.sumdu.edu.ua/handle/123456789/76989

18. Leisyte, L. (2007). *Higher education in the United Kingdom*. Enschede: Center for Higher Education Policy Studies. Retrieved from https://research.utwente.nl/en/publications/higher-education-in-the-united-kingdom

19. LeMonde. (1994). *L'installation du Haut Conseil à l'intégration Édouard Balladur appelle à "prévenir et limiter les phénomènes d'exclusion"*. (In French). Retrieved from https://www.lemonde.fr/archives/article/1994/03/11/l-installation-du-haut-conseil-a-l-integration-edouard-balladur-appelle-a-prevenir-et-limiter-les-phenomenes-d-exclusion_37967-15_1819218.html

20. Li Lanqing, L. (2005). *Education for 1.3 billion people: former Chinese vice premier Li Lanqing on 10 years of education reform and development* (pp. 198-199). Great Britain: Pearson Education Asia. Retrieved from https://www.nlb.gov.sg/biblio/12410363

21. Modern China. (1972). *Social and economic problems* (137 p.). Moscow: Nauka. (In Russian)

22. Pryima, S., Dayong, Y., Anishenko, O., Petrushenko, Y., & Vorontsova, A. (2018). Lifelong learning progress monitoring as a tool for local development management. *Problems and Perspectives in Management, 16*(3), 1-13. http://dx.doi.org/10.21511/ppm.16(3).2018.01

23. QS Top Universities. (2016). *QS World University Rankings 2016–2017*. Retrieved from https://www.topuniversities.com/university-rankings/world-university-rankings/2016/

24. Shah, D. (2020a). *By the Numbers: MOOCs During the Pandemic*. Retrieved from https://www.classcentral.com/report/mooc-stats-pandemic/

25. Shah, D. (2020b). *By The Numbers: MOOCs in 2020.* The Report by Class Central. Retrieved from https://www.classcentral.com/report/mooc-stats-2020/

26. Shimahara, N. K. (1992). Overview of Japanese Education: Policy, Structure, and Current Issues. In R. Leestma, & H. J. Walberg (Eds.), *Japanese Educational Productivity*. Michigan: The University of Michigan.

27. Shymanska, K. V., Kurylo, M., Karmaza, O., & Timchenko, G. (2017). Determinants of migration motives as a precondition for the migration flows formation. *Problems and Perspectives in Management, 15*(3), 1-13. http://doi.org/10.21511/ppm.15(3-2).2017.05

28. Tapper, T., & Salter B. (2004). *Understanding governance and policy change in British higher education* (Oxford CHEPS Occasional Paper No. 11). Retrieved from http://oxcheps.new.ox.ac.uk/MainSite%20pages/Resources/OxCHEPS_Op11.pdf

29. The Stevens Initiative. (2020). *2020 Survey of the Virtual Exchange Field*. Washington: The Aspen Institute. Retrieved from https://www.stevensinitiative.org/wp-content/uploads/2020/11/ASP-SurveyofVirtualExchange_FINAL_single.pdf

30. Times Higher Education (THE). (2017). *World University Rankings 2016–2017.* Retrieved from https://www.timeshighereducation.com/world-university-rankings/2017/world-ranking

31. Vinnichuk, N. (2016). Stages of development of educational system in Japan. *Science and Education a New Dimension. Pedagogy and Psychology*, *IV*(79), 97-101. (In Ukrainian). Retrieved from https://seanewdim.com/uploads/3/4/5/1/34511564/n._vinnichuk_the_stages_of_development_of_educational_system_in_japan.pdf

32. Vorontsova, A. S., Lieonov, S. V., Vasylieva, T. A., & Artiukhov, A. Y. (2018). Innovations in the financing of lifelong learning system: expenditure optimization model. *Marketing and Management of Innovations, 2,* 218-231. http://doi.org/10.21272/mmi.2018.2-18

33. Vorontsova, A., Vasylieva, T., Bilan, Y., Ostasz, G., & Mayboroda, T. (2020). The influence of state regulation of education for achieving the sustainable development goals: Case study of central and eastern European countries. *Administratie Si Management Public, 34,* 6-26. https://essuir.sumdu.edu.ua/handle/123456789/80903

34. Vyshnivskyy, V. V., Hnidenko, M. P., Haydur, H. I., & Ilyin, O. O. (2014). *Organization of distance learning. Creation of electronic training courses and electronic tests: Textbook*. Kyiv, "DUT".

http://dx.doi.org/10.21511/kpm.04(1).2020.05