

МЕТОДОЛОГИЯ И ТЕХНОЛОГИЯ ПРОФЕССИОНАЛЬНОГО ОБРАЗОВАНИЯ / METHODOLOGY AND TECHNOLOGY OF VOCATIONAL EDUCATION

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CURRENT TRENDS IN INTERNATIONAL ACADEMIC MOBILITY

Research article

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Abstract

The recent COVID-19 pandemic and the following global economic and political instability set new challenges for the higher education system worldwide and its internationalization. The related travel and social distancing restrictions shifted the higher education system, including academic mobility practices online. The paper aims to distinguish the trends and possible solutions in successful virtual academic mobility and remote research practices. In doing so, the paper analyses the impact of new challenges on the state of academic mobility in universities worldwide through current research publications, reports of international educational organizations and personal experiences in academic mobility during COVID-19 pandemic. The results show that globally practiced solution for sustaining international academic mobility of students, staff and researchers is online learning opportunities including synchronous and asynchronous classes, educational videos, online simulators, online conferencing, internationalization at home strategies, virtual reality tools, shifting data collection to a remote mode and using IT technologies for conducting research in science and engineering online. Therefore, despite the ongoing challenges, the universities find new approaches to international academic mobility of students, faculty members and researchers, bringing changes to academic mobility formats and destinations.

Keywords: academic mobility, digital transformation, COVID-19 pandemic, online learning, virtual reality tools, remote experiments.

СОВРЕМЕННЫЕ ТЕНДЕНЦИИ МЕЖДУНАРОДНОЙ АКАДЕМИЧЕСКОЙ МОБИЛЬНОСТИ

Научная статья

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Аннотация

Недавняя пандемия ковид-19, а также последовавшая за ней глобальная экономическая и политическая нестабильность продиктовали новые вызовы системе высшего образования в мире и ее интернационализации. Обусловленные ими ограничения в перемещениях по миру привели к новым форматам интернационализации высшего образования, включая виртуальную академическую мобильность студентов и преподавателей. Цель статьи – выявить современные тенденции и возможные варианты решения проблем академической мобильности и дистанционного формата научных исследований. Для этого анализируется влияние новых вызовов на академическую мобильность в университетах мира через последние научные публикации, отчеты международных организаций, а также опыт автора в виртуальной академической мобильности. В результате выявлена тенденция смещения академической мобильности студентов, преподавателей и исследователей в онлайн формат; систематизированы такие подходы к образовательной деятельности как синхронное и асинхронное онлайн обучение, образовательные видео, онлайн тренажеры, онлайн конференции, стратегии внутренней интернационализации; систематизированы такие дистанционные технологии проведения научных исследований как инструменты виртуальной реальности, сбор данных в удаленном режиме, использование прикладного программного обеспечения для удаленных экспериментов в естественных и технических науках. Таким образом, несмотря на продолжающиеся вызовы, университеты находят новые подходы к международной академической мобильности студентов, преподавателей и исследователей, при этом форматы меняются на дистанционные, и выбираются новые страны-партнеры.

Ключевые слова: академическая мобильность, пандемия ковид-19, цифровая трансформация, онлайн обучение, инструменты виртуальной реальности, удаленные эксперименты.

Introduction

Global trends shape the initiatives in higher education, including internationalization and academic mobility [1]. The current transformations are challenged by the COVID-19 pandemic and the following economic and political instability in many countries, with fewer possibilities of physical exchanges for university students and faculty members. Both students and professors are facing difficulties in continuing their studies and research abroad.

These difficulties include visa and travel challenges, expiring grants and residence permits, limited support from their peers [2]. Digital and virtual teaching going within the global digital transformation trend of the last decade in different areas [3] can serve as a solution to these challenges [4]. This trend is becoming inevitable in higher education, and COVID-19 pandemic only boosted emergency remote teaching [5] in higher education in different countries, thus mainstreaming the

online teaching and learning practices throughout the universities [6]. Moving instruction online has enabled flexibility of teaching and learning from any part of the world, thus encouraging internationalization practices of virtual academic mobility without any physical presence.

While being a good decision for many courses in humanities, online instruction often fails in STEM disciplines where students have to practice laboratory experiments and gain hands-on experience [7]. There are even more challenges for exchange scholars who plan research in laboratories using unique equipment available only in few world-leading universities.

The paper aims to demonstrate the current trends and possible solutions in moving academic mobility online and implementing research practices remotely under new challenges.

Research methods and principles

The paper uses the methods of analysis of current research publications and reports of international educational organizations on academic mobility based on interviews with students and professors participating in academic mobility programs, observation and the best practices world-wide. The methods are used concurrently and sequentially.

The motivation behind this study is to get a general overview of attitudes to virtual and digital academic mobility in the universities worldwide, and to show the best practices of implementing mobilities under travel restriction conditions.

Traditionally, academic mobility is part of the university internationalization strategy [8]. It enables higher education students and staff to study part of their degree, do research or teach courses in another country university, implying their physical presence there [9]. Even a short term stay in another country gets a student or a staff member involved in everyday communication with foreign people, thus encouraging them to train their intercultural competencies and cross-cultural communication skills [10], [11]. Many participants prioritize these communication opportunities and seek international mobility programs to get this chance.

Currently, the travel restrictions limit these communications and physical academic mobility opportunities. According to global survey report of International Association of Universities (IAU) [12], the impact varies greatly among the universities, depending on their background and status. Dr. Altbach and Dr. Hans de Wit in their recent December 2020 paper [13] state that the universities in low-income countries are mostly at risk. Travel restrictions can serve as the last drop in addition to the existing multiple barriers to academic mobility in these countries [14]. At the same time, top quality institutions and globally recognized universities can even be strengthened and recover rapidly.

Nevertheless, in most cases, the impact of the current challenges is not positive. Due to this impact, many international students had to interrupt or cancel their study programs, while others were grounded at foreign institutions with no chance to cross the border and get back home. Under these circumstances, the universities had to find ways to overcome these instabilities and to survive.

Main results

Academic mobility of students and staff

Today, the globally practiced survival strategy for universities running academic mobility programs implies an online learning alternative to traditional mobility, that is, virtual academic mobility. If properly implemented, it presents new benefits and opens new opportunities. Universities reconsider their strategies by enhancing digital infrastructure and shifting to more blended and online learning models. By doing so, universities increase their opportunities both in terms of incoming and outgoing mobilities.

Unfortunately, few universities can boast that all their staff members are well-trained to offer distance courses and have adapted their curricula for online teaching and learning. It takes time and effort to create an effective online environment, taking into account both synchronized and asynchronous modes of content delivery. Thus, there is a significant shift in the roles of university professors [15], and a reasonable demand for digital competencies [16]. These competencies allow for developing MOOCs on international platforms (e.g. Coursera) which can be further used for virtual mobility exchanges [17]. In engineering degree programs, online videos are used for showing the performance of different instruments and devices, including pilot plant equipment and small-scale tools [18]. Apart from the usual online communication tools, some engineering courses also require special laboratory simulation software and online simulators [19].

The strategies to support educators in their professional development for these new challenges also emphasize equity-focused teaching and learning [20]. Under these circumstances, the universities which used to practice online teaching earlier have a more beneficial position at present [21]. The Industry 4.0 context imposes digital transformation, and the institutions which did not adapt to it proactively in the past have to take emergency actions today [22].

Thus, the current problems highlighted the challenge that has existed for many years: mandatory simultaneous presence of both students and professors in academia has long excluded a certain number of students from the educational process [23]. Social distancing requirements during the COVID-19 pandemic resulted in closed universities, and emergency remote learning aimed at keeping the existing students and attracting the new ones.

Despite all the efforts taken by universities to support international academic mobility, the number of international students decreases in virtual mobility. Another factor contributing to this decrease is the poor access to technical infrastructure and online communication tools in rural areas or low-income countries. Many students who returned back to their place of residence willing to continue their academic mobility in a virtual format faced these challenges. The positive effect of these challenges is that they urge countries and their governments to take new steps in building online communication infrastructures.

At the same time, infrastructural changes for digital transformation give new alternatives to academic mobility, including international conferencing. By February 2020, a lot of international on-site conferences planned for the first half of the year had to be cancelled due to the growing concern about the coronavirus. Many conference organizers, however, made decisions on moving the conference activities online [24]. Though hard to imagine and full of uncertainties a year ago, online conferencing became our usual practice by the end of 2020. Virtual presence gave more equal opportunities for participation

and engagement. In general, since 2020, a significantly larger number of students and academics have had a chance to participate in international events in a virtual format than they usually do on-site due to financial limitations and timing challenges. With this hands-on experience, new virtual options of participation in international conferences appear to be not only a welcome opportunity but a necessary change for the future.

While many university campuses around the world are locked down, some of them located in safer regions are still open. They have to determine the ratio of face-to-face, online and hybrid experiences for each academic course [25]. Moreover, in light of the limited physical mobility opportunities, these universities demonstrate a stronger focus on internationalization at home as a strategy to develop intercultural competencies of their students. They are searching for new scenarios of using digital technologies.

The success of education depends not only on teaching and learning practices of the students, but also on their experiences. Travel restrictions have limited the number of these experiences, including on-site visits to partner universities and companies. These real-life experiences can be at least partially substituted using virtual and augmented reality tools [26]. These tools can create game like learning environments for the new generation of students who are digitally native. Virtual reality is making its way to university education, first of all, through courses in STEM disciplines. The rapidly developing area of VR applications in STEM is experimental practicums which can be demonstrated in such courses as space engineering [27], architectural practice [28], or environmental engineering [29]. These technologies, however, are limited by the high costs of VR headsets, which can be afforded only by few students. At the same time, they can be successfully used in class as an efficient active learning method.

Unfortunately, VR tools are often ignored in humanities, though they can offer a wide spectrum of applications for developing soft skills. Using free software, e.g., Google Earth VR, students can get a truly immersive experience of visiting different countries, cities, attractions, museums, universities and companies. This form of virtual mobility gives the experiences of presence in another country, which is missing in academic mobility through distance learning [30].

Academic mobility of researchers

Academic mobility is not limited to teaching and learning. In recent years, a significant number of early-stage researchers have also participated in international mobility programs with the purpose of using unique equipment at world-leading universities for their experiments or to gain a hands-on experience in the laboratories together with more experienced scientists. According to the recent survey of EURAXESS, a pan-European initiative of Researchers in Motion, an overwhelming majority of researchers say that periods abroad are an important contribution to their careers, therefore, travel restrictions present the biggest obstacle for international researchers [31].

In humanities, this obstacle can be partially removed by shifting in-person data collection to a remote mode. Remote data collection tools use basic technologies and instruments such as voice calls, text messaging and online survey tools. Unlike in-person data collection, a remote mode is limited by the availability of technology to respondents and their ability to use the technology at hand. While many of these tools have already been in use for several years, a limited population of researchers and respondents applied them in practice. Under new circumstances, remote and online tools are becoming the only possible options, therefore, researchers practice mobility by running distant surveys and interpreting them.

As for research in science and engineering, a possible way to overcome the travel restriction related obstacles is to use an appropriate alternative to conducting experiments in a laboratory. Modern IT technologies allow connecting to advanced analytical tools remotely from another lab in a different city or even a different country. One of the examples of using such laboratories is the iLab Project at Massachusetts Institute of Technology [32]. The idea behind this project is to share expensive equipment with other researchers. These remote laboratories were available in chemical and structural engineering, microelectronics, polymer crystallization and other areas of research. In the last years, some other universities also developed new approaches to using virtual 3D simulations in a distance format in different fields of science, e.g., biomedical engineering [33].

Although universities are trying to find virtual and distant forms of academic mobility, there are still many improvements needed to cope with the impact of pandemic on mobile researchers. According to the earlier mentioned survey of EURAXESS [31], these improvements include innovative platforms for online scientific exchange, new IT-based tools for international research cooperation, improved IT infrastructures for access to scientific information and results. These indicators show that researchers expect serious changes in organizing their work in the future to sustain a high level of research.

Conclusion

In general, observation of the recent trends in higher education and analysis of research publications and reports on the impact of travel restrictions on academic mobility show that we have recently seen a tremendously rapid though emergency mode upscaling of distant and online teaching and learning throughout the global academic community. The leading trend in international academic mobility is its shift to an online format. Depending on the background, status, and proactive digital transformation in the previous periods, universities demonstrate different levels of readiness for implementing academic mobility in a distant mode. Mostly at risk are universities in low-income countries and universities whose budget strongly depends on international students. At the same time, globally recognized research universities are likely to even benefit from this situation and get strengthened after the pandemic.

The globally practiced solution for sustaining international academic mobility is providing online learning opportunities including synchronous and asynchronous classes, educational videos, online simulators, online conferencing, etc. At the same time, international academic mobility is pursued by many students and researchers for the purpose of gaining international communication experiences, which can be partially replaced by using internationalization at home strategies and virtual reality tools for a true immersion into the foreign country environment. Academic mobility for researchers can be partially compensated online by shifting data collection to a remote mode and using IT technologies for conducting research in science and engineering online.

Therefore, despite the ongoing challenges, the universities find new approaches to international academic mobility of students, faculty members and researchers, bringing changes to academic mobility formats and destinations.

Конфликт интересов

Не указан.

Рецензия

Все статьи проходят рецензирование. Но рецензент или автор статьи предпочли не публиковать рецензию к этой статье в открытом доступе. Рецензия может быть предоставлена компетентным органам по запросу.

Conflict of Interest

None declared.

Review

All articles are peer-reviewed. But the reviewer or the author of the article chose not to publish a review of this article in the public domain. The review can be provided to the competent authorities upon request.

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