Online higher education during the pandemic: The case of Hungary

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ABSTRACT: The coronavirus pandemic has profoundly affected Hungarian higher education (HEI). As campuses around the globe were forced to shut down, online distance learning became an everyday reality for all students. At the same time, faculty were rushed to adjust their teaching content and methods, as well as forms of assessment, to online teaching. As a result, this transition exposed flaws in technological abilities, digital preparedness and flexibilities within universities. In this work, my goal is to analyze how the Hungarian HEIs adopted online educational practices during the pandemic and how they were able to address some of the difficulties while adjusting their teaching and creating new forms of support for both students and faculty. To that end, the article first discusses the prevalence of distance and digital learning before the pandemic, then evaluates the steps and challenges of transition to remote online education during the pandemic, and finally highlights some lessons learnt and best practices of some Hungarian universities.
KEYWORDS: Higher education, online education, Hungary, pandemic

INTRODUCTION

Hungarian higher education has been profoundly affected by the coronavirus pandemic. As campuses around the globe were forced to shut down, online distance learning became an everyday reality for all students. At the same time, faculty were rushed to adjust their teaching content and methods, as well as forms of assessment, to online teaching. As a result, this transition exposed flaws in technological abilities, digital preparedness and flexibilities within universities. Surveys and studies began assessing the pandemic's enduring consequences for students and faculty, and schol-

arship revealed the importance of earlier overlooked factors in higher education, such as the importance of psychological well-being, sense of belonging, community building and bonds of solidarity.

For most of the higher education sector, online distance education as a teaching model was not new, although it had not been commonly applied on a mass scale before the pandemic. We are yet to fully understand the challenges and opportunities that the pandemic posed for higher education institutions (HEIs) and entire education systems. In this work, my goal is to analyze how the Hungarian universities adopted online education during the pandemic and the strategies they developed to overcome some of the challenges while providing much-needed support to students. This article first reviews the state of distance and digital learning prior to the pandemic, and then assesses the transition to remote online education during the pandemic. Building on that develops some lessons learnt and highlights best practices from some Hungarian universities. Considering the quickly evolving scholarship on the effects of the pandemic on education both in Hungary and elsewhere, rather than an exhaustive literature review, the purpose of the article is to underline the challenges and present good practices and strategies that some universities developed, to indicate an effective way of how higher education can learn from the experience of emergency remote learning and become more resilient in the future.

To give a broad overview of the Hungarian higher education system, the table below provides some comparative statistics in terms of the number of international and domestic students in Hungary's higher education. Internationalisation is an important aspect of Hungarian higher education, considering governmental initiatives in promoting the internationalisation (Tong, 2021) of Hungarian higher education and universities' efforts as well (Derényi, 2018). Notably, while the number of foreign students more than tripled since the turn of the century, the number of domestic students has been gradually decreasing. The increase in the number of foreign students is due to the Stipendium Hungaricum scholarship scheme, introduced by the Hungarian government in 2013 in the framework of a government policy called "Eastern and Southern Opening."[1]

In terms of the institutional structure, academic institutions in the Hungarian system of higher education can be grouped into universities, universities of applied sciences and colleges. Currently, according to the Education Office (2021), among the recognized higher education institutions in Hungary, there are 17 state (public) universities and universities of applied sciences, 21 non-state (private) universities and universities of applied sciences; 1 state (public) college and 24 non-state (private) colleges.

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[1] For example, consider the experience of University of Pecs with a growing number of foreign students, at https://international.pte.hu/news/stipendium-hungaricum-miracle-scholarship and of University of Szeged at https://u-szeged.hu/news-and-events/2018/rising-number-of-foreign. More information about this program available at https://stipendiumhungaricum.hu/about/.

	2001/2002	2019/2020	Change
Domestic students	349 301	285 110	▼
International students	11 783	38 422	▲

Table 1: Change in the number of international and domestic students in Hungarian HEIs
Source: Statistics by Tempus Foundation[2] and Central Statistical Office[3]

Regarding higher education strategy and priorities, the Hungarian Government accepted "A Change of Pace in Higher Education. Guidelines for Performance Oriented Higher Education Development" strategy in 2014, which is expected to guide higher education until 2030 (OECD, 2017, p. 30). The strategy prioritizes links between HEIs and business, performance-based and research-focused higher education. In fact, several HEIs in Hungary have a long-term collaboration with multinational corporations, such as Ericsson, Bosch, Audi and others, and collaboration with industry has been further promoted by various policy initiatives (ibid., 34). There has also been increasing attention to the digitalization of education, and within that, higher education as well.

METHODOLOGY AND CONCEPTS

This study is particularly concerned with national trends in Hungary and strategies that Hungarian universities developed to mitigate challenges associated with online learning during the pandemic. Considering that the topic of education during the pandemic has received substantial attention from policymakers and researchers alike, there is a constantly evolving list of literature and studies; the literature review covers findings up to the summer of 2022. The aim of this article is to provide a review on the topic at hand, as well as integrate and synthesise research and non-academic accounts to provide a critical overview of how the pandemic affected some aspects of higher education in Hungary. As reviews constitute an important step in the scientific process, this article strives to contribute to the discussion about the effects of the pandemic on higher education, highlighting the opportunities and innovations that resulted from numerous challenges during the pandemic.

For the literature review, I used collections of studies in Hungarian, such as the Special Issue published in *Civil Szemle*, "Education, Digitalization and Civil Society"

[2] Csókás, Adrienn (2020). "Évente száznyolcvanmilliárd forint bevételt hoznak a külföldi hallgatók" (Foreign students bring 180 billion forints every year). *Magyar Nemzet*. Available at: https://magyarnemzet.hu/belfold/szaznyolcvanmilliard-forint-bevetelt-hoznak-a-kulfoldi-hallgatok-8748162/

[3] Central Statistical Office, Number of Students in higher education since 1990 until 2020. Available at: https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_zoi007a.html

(2020) and the collection of essays published in the Society of Learners: Educational Research During Pandemic (*Tanuló Társadalom: Oktatáskutatás járvány idején*, 2022), as well as peer-reviewed articles published in 2020, 2021 and 2022; I also used online sources, especially articles and letters published on university websites. This article was also informed by the conference organized by the Tempus Foundation in October 2020, which focused on the effects of the Covid-19 pandemic on the internationalization of universities and international students; the shared ongoing strategies and experiences from various Hungarian HEIs provide an important insight into how HEIs were able to adapt to various disruptions due to the pandemic.[4] Hence, this article draws heavily on surveys conducted among international students in Hungarian HEIs, as it is a student population whose experience was documented and may be indicative of the broader student body as well.

This article also builds on the work and findings from an Erasmus+ project entitled "ʻNavigating Social Worlds: Toolbox for Social Inquiry" (2021-2023), which explores the state of online education in five European countries (Hungary, Romania, Latvia, Estonia and Poland) and develops educational resources to develop research methods skills through an online Toolbox. In the framework of this project, educators and researchers from participating institutions, including the author or this article, conducted extensive desk research about higher education during the pandemic to have a better understanding about the national context, as well as to be able to compare countries in the region.

In terms of concepts and definitions used in this article, it is important to note that among Hungarian scholars, there is no established definition of e-learning, but there is a consensus that online education is more tilted towards cooperative, project-based learning, requiring a new set of skills and approach from educators (Námesztovszki, et al. 2020). Similarly to international researchers, Hungarian scholars also suggest using the term "emergency remote teaching" (*vészhelyzeti távolléti oktatás*) as a more appropriate description of the way in which education continued after March of 2020 in Hungary and beyond (e.g., Serfőző, et al., 2020).

DISTANCE LEARNING AND DIGITAL LEARNING BEFORE COVID-19

Distance learning is not a new phenomenon in Hungarian higher education. Already in 1974, the Higher Education Pedagogical Research Center (*Felsőoktatási Pedagógiai Kutatóközpont*) of Pécs initiated a project on distance education, especially focusing on teacher training and developing teaching materials (Cserné Adermann, 2020). Since then, distance education was advanced in various institutions, especially in the field of higher education, and today several universities have their own centres for distance learning (e.g., Szent István University's Adult Education and Distance Learning Center or University of Miskolc's Regional Distance Learning Center). In some universities, distance learning options were geared towards certain student groups, such as

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[4] Conference description and full program is available on the Tempus Foundation's website at: https://tka.hu/rendezveny/14087/a-jarvanyhelyzet-hatasa-a-felsooktatas-nemzetkoziesitesere-a-tempus-ko-zalapitvany-konferenciaja-a-campus-mundi-program-tamogatasaval-online

disabled students (Ismaili, 2021).

Undoubtedly, the ongoing digital revolution sped up and profoundly changed the nature of distance education, which was further accelerated by the pandemic. The evolution of distance learning is then hardly separably from globalisation, technological and digital developments, as digital resources increasingly became part of the distance learning experience. Although traditional forms of distance education may still be used, predominantly distance education now implies online learning, commonly referred to as e-learning. A growing body of research suggests that online education requires different methods of instruction and an entirely different approach to teaching and learning.

Hungarian scholarship has also been concerned with questions concerning efficiency of online instructions, quality of online learning compared with traditional learning, methods of online teaching and alike. For example, a broad overview of the trends in Hungarian digital education is summarized by Fehér Péter (2020) and in Réka Racsko's manuscript (2017), presenting the challenges and achievements of digitalization in education. Furthermore, Hungarian researchers have also inquired about changes in education since the digital revolution, suggesting that in the new age, educators are no longer the sole source of knowledge, but rather their role is in creating a learning environment that inspires inquisitiveness, creativity and collaboration (Budai, 2015). Indeed, teachers are expected to teach in a "new educational environment that is in accordance with the digital age, which requires student centric and competence developing environment instead of the subject focusing teacher centric education" (Jámbor, 2019). One remaining question is "whether the changes in the learning environment and the pedagogical theory have led to changes in pedagogical practice" (Koloszár & Tóth, 2020, p. 155). Research conducted for this article indeed suggests that changes are ongoing and several examples of good practices exist within the Hungarian higher education system.

Besides academic research, several universities established their own learning and research centers to study online education and develop methodologies, guidelines and resources for Hungarian educators. For instance, at the University of Szeged's Center for Research on Learning and Instruction, with the support of Microsoft Hungary (and later several other sources of funding), initiated the "Classroom of the future project" in 2006, with cutting-edge technology and equipment; it is now a renowned site for innovative teaching training that effectively merges ICT into teaching and learning (Molnár, 2020).[5] University-based projects like this proved to be a hub for education and innovation, guiding teacher training and providing the foundation for a new, IT-enriched approach to Hungarian education.

In addition, several e-learning environments were already established in the Hungarian higher education before the pandemic. Notable examples are the 2016 K-MOOC (Carpathian Basin Online Education Center) project, offering MOOC courses in Hungarian, and the 2012 Webuni project, a "community knowledge-sharing platform" for lifelong learners (Molnár, et al., 2020). Both projects prioritized online learning con-

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[5] The project's website: http://www.edu.u-szeged.hu/ok/?q=en/content/classroom-future

tent, as well as a new teaching and learning approach in the context of a modern educational system enhanced by ICT. Most universities in Hungary rely on Neptun, which was originally developed as a higher education administration system, but with time was expanded into a complex unified education system with e-learning solutions. In a recent article, Fanny Halmai (2022) convincingly argued that while MOOCs have a potential in Hungary, they have not been widely used until now.

What has also become apparent is the importance of digital skills for both, teachers and learners. The role of digital literacy in modern education was commonly discussed among Hungarian academic and policy makers well before the pandemic, highlighting the need to strengthen digital education of youth within the Hungarian education system. Accordingly, Hungary has begun its digital transformation in the field of education; one of the most important government policies is the Digital Education Strategy of Hungary, published in 2016 and adopted in Government Decree 1536/2016 (IX. 13), within the framework of the Digital Success Program launched by the Hungarian government in late 2015 (Government, 2016). The Strategy describes digital transformation as "not a matter of choice," but "an inevitable phenomenon that everyone must prepare for" (ibid.).

The strategy specifically highlights the role of higher education in digital transition, particularly listing three areas where "breakthrough is required":

(a) "a change in the present methodology of and approach to teaching-learning…";

(b) "development of a learning platform and university life supported with digital tools that help both students and teachers and, in addition, the building of a digital learning community";

(c) "development, maintenance and efficiency improvement of the infrastructure."

The Strategy considers the multidimensional changes in higher education a "paradigm shift." It is noteworthy that teachers are seen as part of the digital learning community. Another aspect of transformation is the digitalization of administrative and operational processes, which implies that university staff is equally part of the learning community as well. To achieve the suggested paradigm shift in teaching and learning, the Strategy also proposes considering virtual contact as a form of mentorship, and suggests re-conceptualization of quality higher educational as a modern, learning-intensive teaching that make use of digital technology. As a result, the Strategy emphasizes the need for developing high-quality learning material and digital teaching tools.

Although it might be premature to evaluate the efficiency of the Strategy, yet surveys demonstrate that digital skills among Hungarian young people aged 16 to 24 are still lower (68%) than the EU average (80%), and lower than most of its neighbors with a socialist past (with the exception of Romania, where digital skills are lower than those in Hungary), as summarized in Figure 1 below (EUROSTAT, 2021). Moreover, Hungary lags behind most other countries in the region (except Romania with 56%

and Bulgaria with 58% of young people in terms of digital skills in 2019).

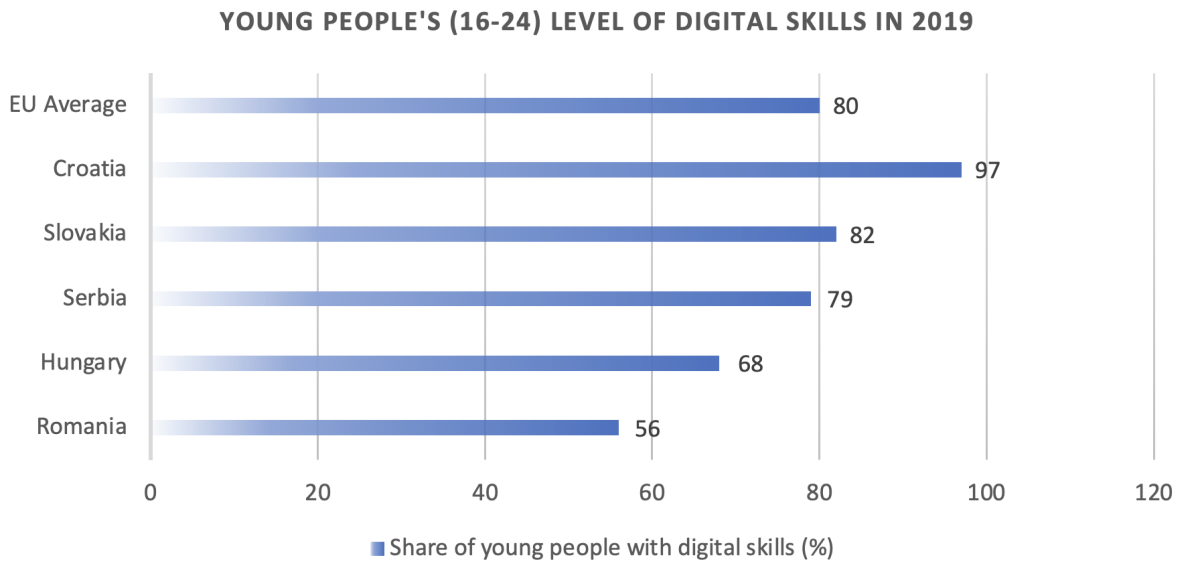**YOUNG PEOPLE'S (16-24) LEVEL OF DIGITAL SKILLS IN 2019**

Figure 1: Digital skills among young people aged 16 to 24 in selected countries
Source: EUROSTAT (2021)

In summary, while online practices were present in the Hungarian higher education before the pandemic, they were not widespread and not well integrated into the teaching practices. The need to modernise educational tools was apparent long before the pandemic, as modern tools of information and communication technology (ICT) are increasingly taking a central place in education. Among Hungarian researchers, several pointed at the urgency to modernize teacher training and methodological training of practicing educators (e.g., Kéri, 2020), as those with low digital skills are most wary of online education (Zakota, 2020). In addition, instructional approaches and methodologies also need to be adjusted and modernized, to improve the overall quality of education and provide up-to-date knowledge to students.

DIGITAL TRANSITION DURING THE PANDEMIC

Even with some of the ongoing digitalization efforts in education, the sudden closure of all educational institutions and transition to online education took Hungary by surprise. It was soon recognized in all countries around the globe that education must be provided continuously, and consequently educators were expected to adapt to the new circumstances and embrace online technology as the new medium of education. Admittedly, university students experienced the least disruption in their education during the pandemic compared to other levels of education (Zakota, 2020, p. 67), nevertheless this period was—and in many ways remains—challenging for university teachers, students and staff.

Universities in Hungary switched to remote learning in March of 2020, and many began the next academic year in September of that year as hybrid or blended educa-

tion, often with large classes delivered online and smaller classes with physical presence. Then, due to intensification of the pandemic and still no widespread vaccination plans, HEIs once again switched to remote learning in November of 2020 (see timeline in Figure 2 below). Universities ambitiously began 2021/22 academic year returning to traditional, contact education. As the academic year had begun and the number of Coronavirus cases increased, many schools and universities began switching to online education. (Hungarian sources reported that in public schools, online education was not allowed beyond the 6th grade, as children at that age were already eligible to receive a vaccine.[6] Universities and institutes, departments within HEIs enjoyed autonomy regarding the decision to continue education remotely or not.) From March 7, 2022, the Hungarian government has ended all restrictions related to the coronavirus (Decree no. 77/2022), and accordingly, universities were able to lift any restrictions implemented due to the pandemic.

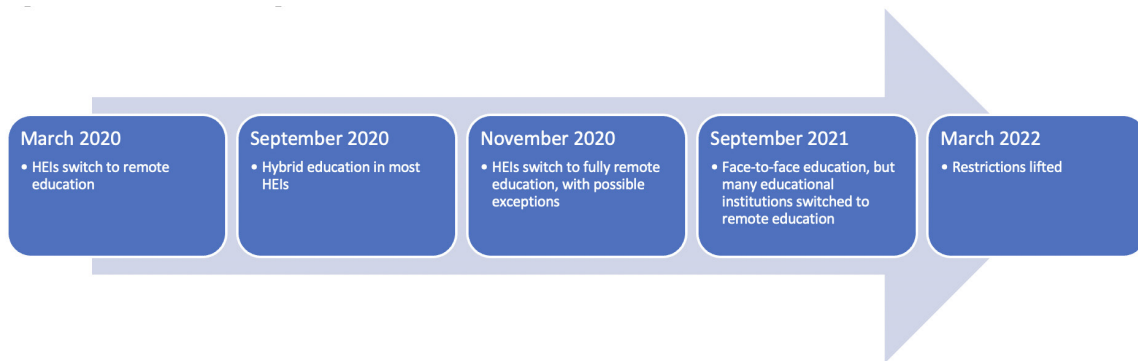| March 2020	September 2020	November 2020	September 2021	March 2022
• HEIs switch to remote education	• Hybrid education in most HEIs	• HEIs switch to fully remote education, with possible exceptions	• Face-to-face education, but many educational institutions switched to remote education	• Restrictions lifted

Figure 2: Timeline of university closures in Hungary in 2020 and 2021
Source: Prepared by the author

During the first wave of the pandemic, universities were forced to adjust both their teaching and operations to the new realities that precluded face-to-face interactions. Some universities set up new coordinating bodies responsible for managing tasks in relation to the pandemic. For example, Eötvös Loránd University established its coordinating body in February of 2020, which was announced through Rector's instructions.[7] The University of Debrecen founded its Pandemic Working Group,[8] and the University of Pecs set up its Coronavirus Taskforce (*Operatív stáb*) in the early phases of the pandemic.[9] Budapest Technical University created a central email address that all university-affiliated students, staff and educators could use to inquire or ask for

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[6] See for example an article published in Nepszava on September 15, 2021 https://nepszava.hu/3132247_lenyegeben-megtiltotta-a-kormany-a-digitalis-oktatast-azon-iskolas-korosztalynak-amelynek-tagjai-mar-kaphatnak-oltast and HVG https://hvg.hu/itthon/20210915_digitalis_oktatas_jarvany, published on the same day.

[7] The full instruction is available at: https://www.elte.hu/dstore/document/4558/rku-2020-03-koronavirus-egyetemi-intezkedesek.pdf

[8] About the work of the Pandemic Working Group: https://corona.unideb.hu/hu/hir/kulso/9632

[9] https://magyarnemzet.hu/belfold/a-pecsi-tudomanyegyetem-szakmai-stabot-allitott-fel-7730234/

information.[10] Other universities have communicated through regular Rector's letters regarding the possible changes in the university's operation as a result of Covid-19. Despite the relatively smooth transition, several challenges emerged: namely, access to technology and internet, lack of uniformity, and a concern for the well-being of students and faculty.

According to six leading universities[11] software and e-learning systems appropriate for distance education has long been available at HEIs in Hungary, and the primary task during the pandemic was to encourage faculty to use the same system within institutions (Hajdu & Jandó, 2020). The challenge was to assure that students have appropriate technology to follow and participate during online classes, yet universities were rarely able to assist with that. To address that, one notable project was initiated in Óbudai University: Audi Hungaria Zrt has donated laptops to Óbudai University's disadvantaged students through its Kandó Foundation, that students could apply for.[12]

Eötvös Loránd University's TÁVOK 2020 research project that examined how university students at the Faculty of Primary and Pre-School Education (N=609, 36% of total number of students at the Faculty) experienced emergency distance education (Serfőző, et al., 2020), also found that technology was not widely available to everyone. The research assessed students' feedback in the Spring semester of 2020 in two phases, and found that about half of the surveyed students had access to their own laptops, the rest worked on shared devices, which were less convenient for following classes online. In the meantime, many highlighted the benefits of flexible learning and stored information (lecture slides, videos and other learning materials) that is accessible at any time, but also pointed out the challenges of impersonal interactions.

A study conducted by Tempus Foundation of almost 8000 international students in 16 Hungarian universities revealed that rather than access to IT technology, the quality of the access and the type of technology may be more indicative of students' ability to fully participate in class (Kasza, 2020). While smartphones are widely available for university students, they rarely allow for in-class collaborative and interactive work like computers. In addition, the study showed that approximately a third of the surveyed students reported internet connectivity problems (e.g., slow or unreliable internet).

There was no uniform approach to how online education should be delivered at higher education institutions, with relatively little effort in harmonizing higher education during online education. State efforts mainly focused on creating appropriate conditions of education: in the summer of 2021, the Ministry of Innovation and Technology's State Secretary for Higher Education, Innovation and Vocational Training issued a recommendation (*Ágazati ajánlás*), which was supposed to "serve as a uniform

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[10] Magyar Nemzet (2020). "A Pécsi Tudományegyetem szakmai stábot állított fel" (University of Pécs set up a professional body). Available at: http://www.bme.hu/hirek/20200903/Tajekoztato_a_koronavirus_helyzetrol

[11] Budapest Corvinus University, Budapesti Technical University, Eötvös Loránd University, Óbudai University, Semmelweis University, University of Szeged.

[12] More information on the project is available on Óbudai University's website: https://neptun.uni-obuda.hu/hir/21/03/kando-alapitvany-laptop-palyazat

guide for the state-recognized higher education institutions of our country for the 2021/2022 academic year" (Ministry of Innovation and Technology, 2021a). This recommendation was amended in November of 2021 (Ministry of Innovation and Technology, 2021b). Recommendations primarily focused on encouraging vaccination, assuring hygienic and healthy learning environment and certain limitations on events attended by a large number of people. These recommendations were terminated in March 7, 2022 (Decree no. 77/2022).

As a result, teaching practices at HEIs differed greatly, with nearly full autonomy given to educators to decide on what methods of education they preferred. Each university selected a preferred digital platform – usually MS Teams, Zoom Neptun Meet, Moodle or Skype (Kasza, 2020) – but ultimately it was the teacher's choice which one to use for their classes. Some universities opted for students learning independently with shared online materials and online consultations, others chose videoconferences to hold synchronous lectures, while some recorded lectures and made them available to their students. Universities that had practical subjects struggled to replace those with online content. Budapest Technical University and University of Szeged extended their spring 2020 semester into the summer to hold some exams and courses over the summer, when the pandemic was expected to slow down, while Semmelweis University's medical students could substitute some practical courses with volunteer medical work.[13]

There were also psychological and mental consequences of online education in HEIs for students. With no opportunities to forge social connections, limited personal interactions and growing feeling of disconnectedness, students' wellbeing was negatively affected. Another study of Eötvös Loránd University inquired about students' (N=108) experience of distance learning during Covid-19, and highlighted that the absence of social value in distance education is a significant challenge, although online learning platforms were accessible and rated favorably by most respondents (Ismaili, 2021). Indeed, the pandemic has also pointed out the importance of students' and educators' well-being for the success of higher education, which international scholarship has also recognized (e.g., Holzer, et al., 2021; Nurunnabi, Almusharraf & Aldeghaither, 2020).

A student survey conducted by Tempus Foundation inquired into emotional and social tolls imposed on international students in Hungarian universities during the pandemic, and found that the majority (65.3%) experienced stress, while about half (50.8%) also experienced a sense of isolation (Kasza, 2020). The majority felt that the pandemic had significant consequences for their learning, while only a quarter (24.5%) felt supported by their universities (ibid.). The experience of international students at Eötvös Loránd University once again echoed the importance of psychological support and consideration of well-being during the pandemic (Nguyen, et al., 2020). Some students also highlighted the role of their educators in mitigating mental challenges: "the role of faculty members which are not in close relation to knowledge transfer,"

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[13] Dean's letter available at: https://semmelweis.hu/english/files/2020/04/Dékáni_körlevél_COV-ID1_20200408.pdf

but rather focus on care and communication improved trust and satisfaction among university students (Pusztai & Győri, 2021).

Well-being was a challenge not only among students, but also university educators: lecturers and researchers at Pecs University also reported mental difficulties during online education (Jarjabka, et al., 2020). Indeed, examining the teachers' perspective based on the experience of 681 people from 36 different higher education institutions, a recent study found that among educators at HEIs, "the main difficulties were the lack of personal communication, organizing a digital teaching platform, creating a home office, and providing digital access and communication within institutions" (Szabó, Juhász & Kenderfi, 2022). Mental health has then emerged as an important aspect of higher education among students and teachers alike.

Another question that was widely discussed among Hungarian scholars was learning strategies among students during online education. One study conducted Pannon University assessed students' learning strategies and found a highly diverse picture: women and men study differently, more advanced students and their less experienced peers also expressed different learning habits, while practice-oriented subjects and theoretical subjects may once again require a different teaching approach (Hargitai, Sasné Grósz & Veres, 2020). With that, the authors concluded that in order to find the most optimal online teaching tools, students' preferences and learning habits must be taken into consideration. Then, a 2021 study similarly pointed out that teaching and learning strategies were highly diverse during online education, based on the experience of one Hungarian university: students' learning practices were determined by contextual factors, such as living and employment conditions, and educators' teaching practices had to be adjusted based on, for example, additional administrative tasks (Horváth, et al., 2021).

Having recognized some of the challenges, many universities began addressing them through various initiatives and projects, with multiple best practices worth reviewing. Among the most important lessons drawn from the experience of emergency remote education was that online education, although will not entirely replace traditional, face-to-face education, is undoubtedly becoming an integral part of teaching and learning. As one study concludes, "education is changing its transmission methods, and e-learning will undoubtedly become a vital strategy moving forward" and "prospective generations of university students worldwide will likely embrace technology as a necessary educational tool either in traditional, virtual or blended classroom settings" (Ismaili, 2021).

BEST PRACTICES AND LESSONS LEARNT

Among scholars, there was much criticism of the Hungarian HE system, including its transition to online education. For example, István Polónyi writes that "neither the equipment of the institutions nor the lecturers were prepared for mass distance education" and as a result, the "lack of resources prevented a rapid response, and a lack of autonomy resulted in dependence on the center instead of independent initiatives" (2021, p. 3). Polónyi attributes this inadequate response to the pandemic to the "trans-

formation of the Hungarian public education and higher education system over the past ten years, and its unfavorable consequences for the effectiveness of pandemic education" (ibid.). In a similar vein, Agnes Batory in her recent study argues that the entire crisis response of the Fidesz government was inadequate, including its handling of education.

Other scholars saw the transition as "relatively smooth" albeit with challenges (e.g., Bacsa-Bán, 2022). Recognising the criticism, this section primarily wishes to highlight some of the opportunities that emerged as a result of remote education, and innovative strategies that emerged during the pandemic and provided support to students. Admittedly, this section is not comprehensive, but rather illustrative, pointing out examples of strategies and possible opportunities to strengthen the culture of higher education after the pandemic.

In general, students' feedback across several universities that was discussed among academic and non-academic circles in Hungary highlighted the key benefit of online education that stems from its flexibility – for instance, students can access materials easily or download videos and lecture slides at any time. In addition, individualized learning practices, more efficient teaching, and fast distribution of up-to-date materials are also among important advantages of online education (e.g., BME 2020). For example, a study conducted among computer science students of Eszterhazy Karoly University concluded that students indeed liked digital education and half of the surveyed students are prepared to continue their higher education online in the future (Bogdandy, Tamas & Toth, 2020).

Optimistically, Covid-19 can be seen as an opportunity in improving higher education. University of Pécs has taken this optimistic approach in rethinking their teaching and operation in the context of Covid-19, striving for institutional resilience. Continuous engagement with international students was a particularly important task. Every year the University offers several international programs, making its international programs eminent in Hungary. The sudden disruptions caused by the pandemic were met with an approach aimed at resilience: discovering potentials and new possibilities in the evolving situation and re-designing the programs accordingly (Pozsgai, 2020). In the field of international student mobility and study abroad students, University of Pécs took initiative in learning about effective online forms of engagement with foreign partners and students, and redesigned their programs accordingly. Besides formal virtual courses, which prioritized close collaboration and one-on-one mentorship, there were informal venues of socialization and networking also, such as the Virtual Coffee Break Program, virtual sightseeing, game nights, movie nights and other options (ibid.). For the future, this resilience-based model envisions hybrid learning practices during international programs as a way to broaden possibilities for students and keep the best practices learnt during the pandemic (Pozsgai, 2020).

The approach of University of Szeged to mitigate the consequences of pandemic was that of building stronger solidarity, which included interactive information sessions, methodological support to teachers, workshops for sharing best practices, and ongoing surveying of faculty and students' experiences (Pusztai-Varga & Udvari, 2020). Support was also given to international students, recognizing their compound

sense of isolation. With the aim of creating a stronger community in a time of crisis, the University strove to cultivate platforms for self-reflexivity, as well as practices of democratic and honest communication to develop sustainable solutions. Mental and psychological support to international students was also realized through the Centre for International Relations at Eszterházy Károly University, which provided an invaluable service of intercultural counseling to all international students during the pandemic. Through this service, it became evident that more focused mentorship and attention to mental health of students is imperative for continuation of learning for many international students at HEIs (Geml, 2020).

Another noteworthy initiative that helped alleviate anxiety and create a strong sense of community was the Community Garden initiative at Szent István University's, Research Institute of Agricultural Economics (Ramos Díaz, 2020). In many ways, this initiative was innovative and supportive: it allowed for social interaction and networking outdoors, informal learning to take place through a hands-on sustainability project, as well as provided an opportunity to connect with the local community and strengthen students' sense of belonging. A total of 61 international students registered in the initial project and took part in building a garden, planting, weeding and harvesting together. As a continuation of this project, the University plans to involve Hungarian students as well. Although the challenges of international students in Hungarian HEIs during the pandemic may be more far-reaching, nevertheless these studies are likely indicative of the overall student population in the system of higher education.

The list of best practices in not exhaustive by any means. Further research has pointed out at multiple other universities supporting their students, non-formal educational practices playing a role in assisting university students through online education, and various bottom-up initiatives that aimed at helping vulnerable university students to succeed in their studies (see for example the collection of works edited by Kattein-Pornói et al. (2022)).

SUMMARY AND IMPLICATIONS

Overall, this article reviewed existing online educational practices in Hungarian higher education in Hungary, which were relatively limited in scope and largely unintegrated in the whole pedagogical approaches. During the spring of 2020, when the Covid-19 pandemic forced schools around the world to turn to online distance learning, digital education platforms and ICT became essential to the continued provision of education, and Hungarian universities, although transitioned quickly, were unable to establish a coherent approach to teaching. A growing number of studies inquired about the effects and consequences of the pandemic on the current state of higher education, and collectively these findings are a fertile ground to re-think the future of higher education in the country.

Currently, although some faculty may be apprehensive with fully online higher education in the future, yet blended (or hybrid) learning as the future of Hungarian higher education seems favorable to many. For example, according to the vice-dean

of Budapest Technical University's Faculty of Economics of Social Sciences, Emma Lógó and Áron Tóth, Moodle specialist at the Faculty, face-to-face education remains important as a motivating factor and a way of personal interaction for students. Yet, a blended form of education may merge the advantages of online and face-to-face education and will be beneficial in the future (BME, 2020). Whether hybrid learning is going to be the future of education is currently one of the most discussed topics among scholars of education science.

The sudden transition to online remote learning powerfully underlined the importance of digital skills, that must be possessed by teachers and students alike; this recognition is echoed in the new National Digitalization Strategy for 2021-2030.[14] In addition, distance e-learning also highlighted an important strategy that the Hungarian higher education system—notorious for its bureaucracy and complexity—must embrace – innovation (Sipos, et al. 2020). With that, public-private cooperation, which has decades of history from before the pandemic, as a solution-driven approach to innovative learning should be highlighted in the context of education during the pandemic.

This article pointed out that universities themselves can be promoters of innovation and change. HEIs, with their forward-looking, research-based approach became hubs for not only knowledge production, but also innovative thinking in overcoming the challenges of the pandemic in the sphere of education, as well as re-thinking education and contributing to a paradigm change. During the pandemic, some universities took initiative at organizing study groups, workshops and research centers, striving to understand the effects of the pandemic on education. Moreover, in Hungary collaboration between several universities also resulted in a partnership that helped the government effort of assessing and halting the virus: four Hungarian medical schools –Semmelweis University as the coordinator, together with Universities of Pécs, Szeged and Debrecen – collaborated on a nationwide coronavirus testing in the spring of 2020.

In summary, Hungarian higher education was profoundly affected by the pandemic, and through adjustments, research and improvements, universities re-thought their teaching and operating models. As a result, several noteworthy practices and projects evolved that successfully mitigated the challenges of coronavirus on students in terms of their learning practices and well-being. An optimistic account suggests that with more changes underway, we might be witnessing a paradigm change in the nature and modes of education. The pessimistic view, however, implies that due to various limitations – decreasing autonomy of universities and lack of funding, to name a few – it is questionable to what extent universities will be able to implement some innovations and changes into the overall culture of teaching and learning.

What has clearly emerged from the discussion above is the importance of autonomy and flexibility of higher education institutions, which may enable a swift institutional response and allow educators to find the most optimal teaching tools during emergency situations. In addition, various platforms of communication must be

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[14] Full text of the strategy is available at: https://2015-2019.kormany.hu/download/f/58/d1000/NDS.pdf

promoted where students can be assisted not only with their studies, but also their mental health and overall well-being. The role of policy makers can be imperative in promoting such platforms, which can assure ongoing communication between the institution, teachers and students alike.

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