

Beatrix Séllei, Heléna Krén, Nóra Stumphauer

► Open Access in Hungary with a special focus on the field of Vocational Education and Training

1 Development of Open Access in Hungary

1.1 Introduction

From almost the birth of the concept of research, researchers in Hungary used the results of other scientists and experts as a starting point for the work in their field. This requires access to previous articles. Before the spread of the Internet, this caused serious problems because of language issues and physical distance. There have been serious obstacles to the free flow of information since the global use of the Internet, but these have since become mainly economic.

In today's world, Open Access (OA) to articles is mostly hampered by for-profit publishers. The results of publicly funded research are sold at a high price by these publishers to various target groups, such as universities, libraries, and individual researchers. Early in the 1900s, in the USA, due to the high investment in technology and science, researchers started to create an enormous amount of publications, but the publication rights became increasingly concentrated in the hands of commercial publishers. This trend was so strong that by the 1980s the market had become monopolized by these publishers, which made the rights to read academic journals much more expensive. In response, most subscribers began to cancel orders. This was the reason why academics wanted their articles to become their property and become distributable through the Internet (VONGSINA 2007).

The initiative was launched abroad (outside Hungary), first with the release of the arXiv in 1991. The arXiv is a free distribution service with an OA archive document library, where preprints are published free of charge. Initially, it published mainly articles in the area of natural sciences but is now available to a wider range of academic fields. The next important step was the 1999 Santa Fe Convention, where the people leading the OA Initiative agreed

on the reciprocal searchability of preprint collections. With this agreement, it was possible to read preprints almost anywhere via the World Wide Web.

The next and perhaps most important step was closely linked to Hungary because in 2002 a significant number of scientists and institutes signed the Budapest OA Initiative (BOAI).¹ The initiative aims to provide free access to scientific articles on the Internet (BÁNHEGYI 2003). This was a three-year program to which György Soros donated three million dollars through the Soros Foundation. The BOAI initiative set out two strategies, on the one hand, proposing self-archiving and, on the other hand, publishing articles in “alternative journals”.

Self-archiving means that authors place their work in an institutional collection, called a repository. This is what we call the green way of publishing in today’s terminology. Here, authors do not have to pay, but for the wide visibility of repositories, institutions have to take separate steps, the immediate availability and the search for such articles require additional steps, too, such as a serious search mechanism on the Internet.

The other way in which authors publish in alternative journals is the so-called “golden way”. These journals provide free access to use and read articles but often charge serious production and publishing fees in return. This can mean costs for the researcher or compensation of publishers via an institutional membership fee. This last strategy implies that institutions subscribe to have their researchers’ papers published in that journal. This has become more common since researchers individually often do not have enough money or are not willing to pay the fees. The “golden way” is very positive from the users’ point of view, as there is no cost for institutions, libraries, or readers, and even at the moment of publication, these articles are easily accessible.

In addition to the two paths, a kind of hybrid path has emerged in which authors publish to a subscription journal in an OA manner, i. e., the journal is only accessible by subscription, but there is an option for authors to redeem OA to their work. As it is much more economically viable for publishers, these journals will play a crucial role in the market. The disadvantage of this strategy is that in reality, these journals do not help the spread of OA, as the need for subscription is retained and the costs for researchers are even higher. Thus, in the long run, this model does not achieve the goal set by the BOAI (RUTTKAY 2017).

The BOAI has caused a very mixed response in the scientific world. Some observers had a positive response, as the expenditure of libraries and institutions could be greatly reduced and the dissemination of scientific results became easier, thus speeding up the discussion and improvement of research. On the other hand, some scientists were afraid of the economic issue of the initiative, since they thought it would be more expensive (HEGYKÖZI 2002). The BOAI initiative was reaffirmed twice in June and October 2003 in the Bethesda and Berlin declarations (BÁNHEGYI 2006).

Despite the BOAI, Hungary was in a rather backward position in terms of progress on the issue of OA. The National Scientific Research Programme (in Hungarian, Országos Tu-

1 <https://www.budapestopenaccessinitiative.org/read/> (last access 24 March 2022).

dományos Kutatási Alapprogram, shortly OTKA) is now one of the signatories of the Berlin Declaration (the most recent version of BOAI), but of the Hungarian universities, only the former Central European University and the University of Debrecen have officially joined the initiative. Later on, HUNOR (Hungarian Open Access Repositories) was created by the Hungarian Academy of Sciences and several Hungarian libraries in addition to the University of Debrecen in 2008. The members of HUNOR want to improve the domestic and international recognition of Hungarian science by effectively disseminating scientific results, namely by establishing a national infrastructural network of OA repositories, a methodological center, applying foreign know-how and international standards in Hungary, introducing complementary channels of scientific communication, by building an international network of contacts (NATIONAL RESEARCH, DEVELOPMENT AND INNOVATION OFFICE 2018).

However, it can be said that the knowledge of OA in Hungary is not high. In 2007 most institutions did not even know what should also be done for using OA (VONCSINA 2007). In addition, the costs for libraries and other subscribers are still growing steadily. For instance, the consortium subscriptions of the Electronic Information Services National Programme (EISZ) increased tenfold between 2012 and 2020, even though they tried to negotiate with many relevant content providers in 2018. The biggest problem was that it almost seemed to be impossible to reach an agreement with Elsevier, even though Elsevier products account for 45% of the total EISZ budget (Electronic Information Service webpage).

We can also see from these facts that the country has not yet embarked on a path that would greatly facilitate the spread of OA. As part of the European Union (EU), we could also improve the situation by the spread of the Open Access Initiative because the EU made a point in law that the results of publicly funded research can only be published through OA journals. Although these rules improve the spread of OA in Hungary to some extent, Hungary is not at the forefront of the use and dissemination of this view. This statement is also supported by data describing the use of scientific literature in Hungary.

1.2 Vocational Education and Training in Hungary

During the last 10 years, there is a growing interest in the special field of vocational education and training (VET). With the spread of inclusion in education there comes an even bigger need for teachers and therapists for children with special educational needs. 10 years ago there were only 3 higher education institutions where professionals could graduate, today 10 universities offer Bachelor's (BA) programmes and 1 offers a Master's (MA) degree. After all, the scientific life hadn't grown parallel with the number of professionals because in Hungary, VET seems to be an applied field in the border of VET itself, in pedagogy and psychology. Almost all researchers and university teachers have at least two different graduations, they have their MA degree mostly in the field of pedagogy or psychology, some perhaps in sociology. This interdisciplinarity is fruitful in practice but can be hard to manage in the case of research projects, and even worse is the situation regarding publications.

In Hungary, there are already such publishing houses, like Akadémiai Kiadó as one of the biggest publishers, that offer researchers optional OA publication in each journal. The publishing houses also use the Gold OA business model in some of their journals. In their case authors have to pay the article processing charge. The most relevant journal in the field of VET is *Fogyatékoság és társadalom* (Disability and Society), which is published by a higher education institution and contains only OA articles without article processing charge. An English volume is published once a year. Other relevant journals publish only in Hungarian language and readers have to pay to access the articles. But none of these journals are indexed by Web of Science nor have a high ranking in the Scimago journal ranking system (SJR). On the other hand, VET professionals read mostly in Hungarian and search for easily accessible knowledge.

2 Use of Scientific Literature in Hungary

According to analyses conducted by the Hungarian consortium EISZ between 2015 and 2021, there are several Hungarian-based and international sources that are used by Hungarian researchers. Although the number of accessible sources is increasing, there are some preferable ones according to the data about the use of Hungarian institutions.

We chose the top five universities in Hungary to see which databases and kinds of literature are used most of the time. Our top five universities – which according to the QS World University Rankings 2022² are University of Szeged, University of Debrecen, Eötvös Loránd University, University of Pécs and Budapest University of Technology and Economics – simultaneously have mostly used the following sources: Academic Search Complete, EBSCOhost, Journal and Highly Cited Data, JSTOR, MathSciNet, Nature, ScienceDirect, SciFinder, SciFinder-n, *Scopus*, SpringerLink, Web of Science, Wiley Online Library.

SpringerLink was the only one used by all the universities in the full reviewed period i. e., between 2015 and the first half of 2021. ScienceDirect seemed to be the most frequently used and read peer-reviewed literature source since 2016. After 2016 SpringerLink and Web of Science have had over one and a half million searches and/or downloads in the examined period.

These sources are usually available for researchers due to institutional subscriptions or national support. The previously mentioned agreement between the Hungarian consortium EISZ and Elsevier also supported the use of scientific literature until 2019. In 2019, Elsevier no longer provided access to its databases and literature, which negatively affected Hungarian researchers because some of the main sources of research materials are ScienceDirect and *Scopus*, the solutions of Elsevier. Luckily, the Hungarian consortium managed to make a deal with Elsevier, and Hungarian institutes can now easily access scientific results published

2 See URL: <https://www.topuniversities.com/university-rankings/world-university-rankings/2022> (last access 24 March 2022).

by Elsevier and publish in OA journals at the cost set for subscribing institutes. But this pilot agreement is in force only until the end of 2021.

Not just the scientific but also the financial aspect of accessing Elsevier sources is important. Taking the current prices of Elsevier – presented in Table 1 – into consideration and comparing them to the monthly income of an assistant professor, it is almost impossible to keep up with the scientific literature provided by publishing houses like Elsevier.

Table 1: Current prices of Elsevier

Elsevier 2021	Minimum price in EURO	Maximum price in EURO	Mean price in EURO	Number of journals included
Article Publishing Charges	160	8,500	2,468	2,480

Source: <https://www.elsevier.com/about/policies/pricing> (accessed on 04.10.2021)

The gross salary pay per month of an assistant professor in Hungary is currently 615,34 Euros based on the law of XXXIII from the year 1992.³ Elsevier offers a pay-per-view option, which costs 27,07 Euros per viewed article. It also costs 2,468 Euros on average to publish an article in an Elsevier journal, which is much more than the salary of an assistant professor. Another example is the International Journal for Educational and Vocational Guidance, published by SpringerLink, which is a widely disseminated journal in the field of vocational training. Since the end of 2021, the journal is OA from the readers' aspect. From the researchers' aspect, the required article-processing charge to publish in this journal was 2,190 Euros. From the perspective of the researcher, access to both sources, Elsevier and SpringerLink, is essential because they ensure the availability of up-to-date literature. Therefore, OA gains higher importance in the scientific literature and ensures the dissemination of scientific results. However, compared to salary levels, article publishing prices are so high that hardly any researchers in Hungary are able to afford them.

Some other aspects should be also considered when estimating the importance of OA. On the one hand, researchers can access literature offline. They can order journals individually in a printed version or they can use the services of a library or an agent to look for relevant material. On the other hand, researchers can use the internet to get inspiration and supporting evidence from previous articles or books. In this way, they can buy articles or books as individuals and find papers due to institutional access or just use OA. The intention to be eco-friendly and sustainable pushes us in the direction of online journals, while OA is preferable in financial terms.

From the perspective of a researcher as a reader, it can be argued that printed journals, online subscription-based journals provided by their institutions, pay-per-view options, or

³ See URL: <https://njt.hu> (last access 4 October 2021).

OA can ensure the accessibility of articles. Amongst these options, OA is the only one that does not require any payment for reading neither from the individuals nor from the institutions.

From another perspective of researchers – as a disseminator of research results – it still brings some challenges because of article publishing charges. With an agreement like the one Hungary has with Elsevier, publishing is made easier because subscribed national institutes take over the charges of the articles.

Last but not least, the personal aspect of researchers should also be considered. Journals, books, and research materials provided by publishing houses serve the development of new theories, ideas and contribute to researchers extending their own knowledge. They secure up-to-date information and the latest research insights, and therefore they are useful for educational purposes and for further developing theories. Most of the above-mentioned aspects and initiatives support OA journals, even though our interviews indicate that the initiatives are not widely known and used in Hungary.

3 Qualitative Analysis of the OA Literature in the Field of VET

In Hungary, there are ten higher education institutions where special education needs teachers and therapists can study for BA degrees. MA degrees are available in only one institution and one university has got a Ph.D. programme in the field of special needs as part of a pedagogical doctoral programme.

In our study, we asked all 10 universities, but in the end, 6 institutions took part in the research, the biggest one being Eötvös Loránd University, where the MA and Ph.D. level are available, and which is located in the capital. The five other ones were: the University of Miskolc and the University of Debrecen in the eastern part, Széchenyi István University in the western part, the Kaposvár Campus of the Hungarian University of Agriculture and Life Sciences and the University of Szeged located in the southern part of the country.

The answers were received from the most appropriate people of the campuses. In some cases, the head of the department answered, and in the case of bigger institutes, the colleague who was responsible for research projects. Each respondent had a Ph.D. and carried out scientific work, so they had at least 10 years of experience in higher education and research.

The key results of our analysis are the following:

1. Publication requirements as external motivators

The primary duty of a professor or researcher is to contribute to the future by developing new theories and extending existing knowledge. For this purpose, OA articles are one of the best starting points. These freely and easily accessible articles provide inspiration for researchers and therefore help them toward meeting the scientific criteria of academic writing.

The institutions are different in terms of the publication requirements they have, although this is the most important motivation for research and scientific writing. All the respondents representing their institutions answered that publications had to be useful for practice, but high-quality scientific journals like articles on Web of Science or Q1-Q2 ranked journals by the SJR homepage are often not available or neither known by vocational trainers or special needs teachers or therapists. These ranking systems are for academic use, and these categories are important for scientists or university members. Furthermore, respondents stated that there are only a few highly ranked journals in this scientific field. Researchers have to choose interdisciplinary journals from the field of medicine or pedagogy or psychology to fulfill the criteria of a higher scientific degree in terms of points gained with publications. Since university lecturers' academic writing is assessed, there are ranking systems in many universities in which Web of Science or SJR Q1 publications are given a higher weight, but these are not officially prescribed. Respondents said that in other faculties and in other universities these kinds of rankings are prescribed, yet it seems that the field of vocational education only suggests high-quality scientific work but does not enforce this yet.

2. Reading and accessibility of former publications

By preparing for publication, the first step of scientific writing is reading. Because of this, it matters how they can access or even download research material. Usually, there are two ways to do this. On the one hand, institutions like universities or research laboratories in many cases subscribe to journals or publishing houses. On the other hand, researchers can get individual access to scientific literature if they pay the article fee per view or subscribe for printed or e-journals.

Some years ago, the government didn't give them the money and the contracts to access scientific databases, so universities had to make their own contracts with publishers. In this way, the universities varied in terms of the range of journals and databases they were able to offer. Based on the interviews, bigger institutions with many faculties were able to offer better opportunities.

Because of this governmental money distraction, there was a change in higher education funding in Hungary: during the last years, almost all higher education institutions have gone from governmental funding to voluntary maintenance, i. e. foundations or other organizations became the maintainer of universities. Among the respondents, 5 universities are after this change in voluntary maintenance for more or less time, and 1 university is still in governmental maintenance. But according to the responses, not the form of maintenance influences the budget and the availability of a wide range of scientific sources. They feel that it depends more on the size of the institution and the priority afforded to scientific work, but these come together: bigger universities want to reach a higher scientific rank. Irrespective of this, researchers like to read OA journals because these are always available, do not require any official IP address like some scientific databases, and they regard these kinds of publications as good quality ones. In the

case of smaller universities with small budgets, a researcher can read only OA publications because centrally they cannot pay for articles, and considering the average salary of an assistant professor, it would be costly to read all useful scientific sources and almost impossible to stay up-to-date on research topics. In some cases, they use their scientific network to get an important article, or they use ResearchGate to reach out to authors, but they prefer OA. There are cases when there is an urgent need for an article that is not available, and in these situations, researchers have to use a grey way to download articles from torrent sites.

3. Publishing the own results

Each university expects the carrying out of research projects as a form of scientific work, but researchers feel that in the field of VET they have to work in an interdisciplinary way, yet in really closed fields. The research studies are mostly longitudinal and the results are important principally in the applied field. These facts also make it harder to meet the requirements of higher scientific degrees, not to mention publishing opportunities.

Publishing the results was an ambivalent topic among the respondents, so now we show their questions and the ways respondents thought about them.

- ▶ First, when publishing the results in Hungarian language, practitioners can use it, but from a scientific point of view, the researcher can only get limited benefit from the university. On the other hand, only half of the Hungarian journals are OA. The two dedicated vocational and special needs journals are OA, but some interdisciplinary journals are accessible through subscription only – although neither the special nor the interdisciplinary journals are part of internationally recognized scientific rankings.
- ▶ Second, there are only a few journals in this special field that are listed in Web of Science or have Q1-Q2 rank in SJR. From researchers' point of view, it means that publishing an article can take years, and sometimes they don't have that much time (partly because of university pressure to reach a degree and partly because the results lose their significance). When they widen the list and try to publish in an interdisciplinary journal, the picture is a bit more optimistic, but there are not many appropriate journals.
- ▶ Additionally, some of these are OA journals, which are known for their rapid period of assessment and quick publishing. That's why many researchers decide to publish in OA. They rank it as good-quality ones according to Web of Science or SJR lists, but the only question is the funding of publishing costs. Among the respondents was one university that does not support publishing costs, and there was one that supports each research project, including good quality publications up to 2,000 Euros. The other 4 universities have different processes to at least partly compensate for publication costs: the researcher can submit applications for some amount (around half of the

whole cost) or after publishing an article the researcher can get some money as a reward from the university (this payback also accounts for around half of their costs).

- All in all, researchers need to publish in journals to fulfill universities' scientific requirements, and they are open to this in OA journals. The only question is the money, besides they see only the advantages of OA journals publishing: the availability for a wider public – these can also be read by practitioners and contribute to vocational training –, the quick and easy-going process, and the honor of publishing. There was one point when we talked about disadvantages: how authors can control the use of the articles because they suggest that researchers who have access to scientific databases can understand the topics and the results, while Google users who find the article and want to use it might not be able to understand it correctly.

4 Discussion

Based on the literature review and our pilot study, we can assume that access to science is predominantly open for higher education institutions, but it is limited for vocational trainers who work in the applied field, and they are usually not even familiar with high-quality journals. This is the opposite of the aim of research, namely that it should be able to contribute to all aspects and fields of life. In the special field of VET, theory and practice have to thrive together but are hard to maintain where OA journals could ensure availability, not just in the scientific but also in the practical field.

On the one hand, we can feel this need, but on the other hand, there is an expectation from institutions to publish high-quality articles. That's why the scientific standard of OA journals is a key point in their dissemination. Researchers are open to sharing their knowledge, but university standards are boundaries for them.

Researchers and practitioners of this field are in a unique situation: the field itself is quite closed, results of Hungary-based studies could be nation-specific (regarding the education and rehabilitation system). On the other hand, the field itself is interdisciplinary, many scientific aspects are integrated such as medicine, pedagogy or psychology. Finding the appropriate literature to read or the best fitting journal to publish in is, therefore, a complex question. Our interviews revealed that there are only a few journals dealing with special education or vocational training, and it also takes a long time to publish in them. OA journals seem to be a suitable answer for both of these questions. As we can see in other fields of science, even in Hungary, this kind of access is currently a promising way of developing science.

However, the costs of OA publications are boundaries for using this way, and we could feel the difference in motivation of that researcher whom university supported in the costs of publications. There are such good practices that can be broadened as application possibilities for money or external motivators as rewards from institutions. With this financial help, researchers have more opportunity to publish their results in high quality OA journals, and this could be beneficial for the universities, too, because they get a higher scientific rank in

a relatively short period of time. With such a step, the sense of accessibility can come to the mind of researchers. On the other hand, without this support, the majority of researchers and university lecturers do not have the opportunity to finance the OA publishing costs. The other way of reducing the gap is from the side of salary: should researchers' income be increased, the publishing costs seem to be more affordable.

4.1 Expense of researchers

These publication costs are mainly for the expense of researchers, which is why universities try to motivate them by funding the publishing costs. There are also some good examples in Hungary, as mentioned by our interviewees. At some universities, there is a fixed compensation for the article publishing charge, while other researchers can apply, and at the end of the evaluation process, they get back some of the charges.

An additional idea is related to the change in universities' funding. In most cases, universities are not in the governmental foundation and use a business model in their maintenance. On the labour market, performance evaluation is an ordinary process. Universities that are now part of the competition sector can evaluate high-quality publications in their performance rating system and reward them with an appropriate amount of money.

At the institutional level, we also have an idea. Of course, institutions have to count on this cost in their budget and provide the right amount of money to access publications. Although the government doesn't support the contracts with the big providers and publishing houses, more institutions can join to ask for better subscription conditions, even in the price of subscription as well as the number of OA publications.

4.2 Questionable future

According to our interviews, the bigger the university, the better opportunities it offers for scientists, thanks to the larger budget and the higher priority of university ranking. There is also a recent phenomenon in Hungary that universities go from governmental funding to voluntary maintenance. However, we are now at the beginning of the process, so in some years we can discuss the impact of this change in funding structures.

The agreement between Hungary and Elsevier was warmly welcomed after the hiatus of access in 2019. Elsevier's products are the main sources for Hungarian universities based on our analysis of EISZ data. This agreement is effective until the end of 2021, so if Hungary cannot reach a new agreement with Elsevier, OA journals as a research basis will gain higher importance.

Above all, publishing in OA journals is also part of the deal for researchers to meet the scientific requirements. The Hungarian-Elsevier agreement provides an opportunity for authors to publish in OA journals within the framework of this agreement. Its advantage is that authors do not have to pay article publishing fees, which are commonly prescribed by OA journals.

5 Closing words

The amount of literature about OA in Hungary is not extended, and in the field of VET, we couldn't find any articles. That's why we decided to conduct a small research project that gave us some important findings and asked questions, on the one hand, and offered answers, on the other.

We, personally also feel the urgent need for good quality publications and share the experience of our interviewees about the difficulties of this process: How can I access relevant publications or measurement tools? Where can I publish my results? How much time do I have for waiting for peer reviews? How much money do I have to publish in the OA journal? How hard is the pressure to fulfill the science-metrical criteria of my university?

We are in a relatively good position as employees of one of the biggest and highly ranked universities in Hungary. But many times we also use those websites which provide free access to scientific journals or use Researchgate to ask directly the corresponding author for an article or our network from other institutions that have access to other journals. All in all, OA is an advantage, because nowadays there is not much money in higher education. Researchers' salary is low and we can't see any changing tendency.

The political and economic situation in Hungary influences scientific work as research, education, and publication. We also feel this impact in the differences depending on the location of an institution and the local infrastructure or the maintainer.

We hope that this pilot research itself can add something to solve the situation: we would be delighted if it could facilitate a conversation between the institutions to learn good practices from each other. Perhaps it could add some fresh vibes at the institutional level, for example, by thinking about the criteria of the scientific weight of different journals in different fields of science.

References

- BÁNHEGYI, Z.: Fogalmi és terminológiai zavar: az Open Access NEM „szabad hozzáférés”! In: Tudományos és Műszaki Tájékoztatás 53 (2006) 3, pp. 134–135
- BÁNHEGYI, Z.: Nyílt Hozzáférés Kezdeményezés (Open Access Initiative). In: Tudományos és Műszaki Tájékoztatás 50 (2003) 6–7, pp. 236–249
- HEGYKÖZI, I.: Budapesti felhívás. In: Tudományos és Műszaki Tájékoztatás 49 (2002) 4, pp. 164–167
- NATIONAL RESEARCH, DEVELOPMENT AND INNOVATION OFFICE (Ed.): Open Access – tudástár. 2018. URL: <https://nkfih.gov.hu/hivatalrol/open-acces-tudastar/open-access-tudastar> (last access 24 March 2022)
- RUTTKAY, SZ.: Open Access a gyakorlatban, lecture notes. Semmelweis University 2017
- VONCSINA, L.: Nyílt Hozzáférés Kezdeményezés. Új paradigma a tudományos kommunikációban. Doctoral dissertation, szte. 2007