

RESOLUTION

of the 1st Scientific-Practical Conference with International Participation “OPEN SCIENCE IN THE CONTEXT OF THE INTEGRATION OF UKRAINIAN EDUCATION INTO THE EUROPEAN RESEARCH AREA”

(OS-UA-ERA-2023)

On April 27, 2023, the 1st scientific-practical conference with international participation "Open Science in the Context of the Integration of Ukrainian Education into the European Research Area" (OS-UA-ERA-2023) was held.

The format of participation was combined: face-to-face presence and remote access via Zoom.

Organizers of the conference: the Institute for Digitalisation of Education of the NAES of Ukraine, the State Scientific Institution “Encyclopedic Publishing House”, the project of the Visegrad Foundation "Educational Academic Portal of IT Integration into Education" EDUPORT, the National University of Bioresources and Nature Management of Ukraine.

The topics of the conference included the development of theoretical foundations and the exchange of practical experience in the application of open science technologies in educational and research institutions, the use of research digital services and e-infrastructures, ways of integration into the European research space, and covered such a scope:

1. Philosophy and practice of using open data and open access.
2. Digitisation of educational and research activities in the context of open sources.
3. Encyclopedics as a tool for the integration of open science terminologies.
4. Technologies of open science in educational institutions.
5. Method and models of using open science services in educational process.
6. Ethical principles of open scientific research, copyright and license law.
7. Modern practices of evaluating the results of scientific research.
8. Integration into the European Research Area (ERA).
9. Problems and prospects of the development of open science in Ukraine during the war and in the post-war period.

25 reports were submitted to the conference.

5 Doctors of Sciences and 5 Doctors of Philosophy took part in the work of the organizing and program committees.

The electronic version of the conference program and the proceedings the conference are available at: <https://iitlt.gov.ua/info/news/konferents-/i-naukovo-praktychna-konferentsiya-z-mizhnarodnoyu-uchastyu-vidkryta-nauka-v-umovakh-integratsiyi-os/>

Conclusions and Recommendations of the Conference

The Institute for Digitalisation of Education of the NAES of Ukraine has prepared a whole constellation of scientific and scientific-pedagogical personnel, which exert influence on the formation of the theoretical and methodological foundations of the creation of open educational systems (<https://iitlt.gov.ua/atestat/spetsializovana-vchena-rada/avtoreferaty-dysertatsiyi.php>).

The Institute offers basic approaches to the formation of open science models based on open education approaches (Bykov, V., 2008). The results of the studies create a theoretical and methodological foundation for further work in this direction.

It is appropriate to introduce cloud-oriented open science systems as tools for implementing the principles of open science (open access, open data, open cooperation, open methods, open evaluation, etc.). At the same time, it is important to take into account that open science systems cover all levels of education, from primary to postgraduate.

It is necessary to implement organizational measures for the implementation of open science systems in educational and scientific institutions. Human-machine systems cannot be implemented relying only on technical and technological approaches, on scientific developments related to the implementation of conceptual models, it is necessary to rely on variable organizational systems that require constant improvement in accordance with the human factor.

During the speeches at the conference and the subsequent discussion, the main areas of activity and results of the EDUPORT international project “IT support system for educational, publishing activities and academic research of teachers” were presented and discussed, which is being carried out in 2022-2023 with the support of the Visegrad Foundation (<https://www.visegradfund.org/>), and the Institute for Digitalisation of Education of the NAES of Ukraine, representing Ukraine, along with educational and scientific institutions of Slovakia, the Czech Republic, Poland, and Hungary, became a participant. The main result of the EDUPORT project was the creation of a cloud-oriented IT support system for research activities of a virtual research team. The system consists of network ICT infrastructure, educational software WPadV4, methods of creating educational packages and accompanying educational materials and their multilingual support, as well as PIKS channels – an online application (PHP/MySQL) developed for the implementation of personal information and communication system.

The experience of using cloud-oriented tools of open science to support the processes of international scientific cooperation in educational institutions is summarized: communication; joint work; adaptive content management; supporting the processes of creating and using electronic educational resources in the process of organizing educational and scientific cooperation in virtual teams. It can be used for the further development of open science systems in the national educational and scientific space.

The training component with WPadV4 software was developed and tested based on Windows-22 cloud server, deployed based on the Azure cloud platform. This paves the way for the development of methods for deploying educational and scientific components in educational institutions. The question of the selection and integration of services, the study of their various components, as well as the most appropriate ways of application in open science

systems, the combination of intelligent technologies and network cloud services provides a perspective for the further development and implementation of open science approaches.

Among the cloud-oriented tools of open science, the following are in need of wider implementation: systems for supporting the activities of virtual educational/scientific teams, which provide access to a flexibly organized pool of electronic resources. In particular, it was established that thanks to the wider involvement of educational institutions in the educational and scientific process of the means and services of cloud-oriented platforms, as well as various types of corporate cloud services, it is possible to achieve positive changes in the implementation of this activity, the improvement of its qualitative and quantitative indicators, the application of new forms and models of its organization, which has a positive effect on both the results of training and the development of scientific research, improving the level of their organization, increasing efficiency.

The creation of electronic encyclopedic publications that support the formation and development of the conceptual and terminological apparatus both in individual fields and in education as a whole will significantly improve the organization of open science, in particular the work of international scientific teams, and interdisciplinary research. In this regard, the participants of the conference developed some recommendations for the holding of the joint (Institute for Digitalisation of Education of the NAES of Ukraine and the State Scientific Institution “Encyclopedic Publishing House”) master classes on the use of web-oriented information systems (in particular, e-VUE, the Great Ukrainian Encyclopedia, and UEEO, Ukrainian Electronic encyclopedia of education) as a source of an agreed terminological system of open science (with examples of semantic search and navigation, to illustrate the differences from Wikipedia) and application in education; the involvement of authors/experts in the preparation of encyclopedic resources for the formation and development of the conceptual and terminological apparatus of the sciences and the educational field; develop a multi-level/variable algorithm for the integration of national scientific and educational resources into the European research space.

The European Open Science Cloud (EOSC, <https://eosc-portal.eu/>) needs special attention as a pan-European infrastructure that unites European research infrastructures (including e-infrastructures and ESFRI programs/projects) into a single virtual scientific space, where each EOSC member researcher (single research infrastructure, consortium, etc.) is given access to: all currently available scientific data obtained at state expense, with the possibility of using them in one's research (data catalog); information about available services and capacities of research e-infrastructures with the possibility of their use (service market catalog); information about existing research infrastructures, about current programs and projects, about consortia that already exist and are being created, with the possibility of joining and cooperation (catalog of research infrastructures). EOSC includes a huge number of electronic resources and services classified according to scientific fields and types of activities. The methods of using these services in the educational and scientific process is an urgent task. It is necessary to provide support to teachers, lecturers, and scientists regarding the introduction of new practices.

The toolkit posted on the EOSC portal is quite diverse, the list is extensive. During the master class “Organization of training by means of European Open Science Cloud”, held within the framework of the conference, clear instructions were provided regarding

registration on the portal, navigation, search for services, use of categories, obtaining access, use for educational purposes and much more (https://www.youtube.com/watch?v=DpxS_1JCIIE&t=2s).

Having an updated understanding of the ethical principles of conducting scientific research and the ethical principles of publishing/protecting the results of scientific research, the moderators of the master class “Ethical principles of publishing the results of scientific research: prevention of plagiarism” focused on preventing plagiarism and identifying the consequences of actions that characterize the process of plagiarism (<https://www.youtube.com/watch?v=oYjMBDnJIXY&t=14s>).

The conference contributed to the establishment and strengthening of cooperation between teachers, young researchers, and experienced scientists, the exchange of positive experiences, discussion and joint search for solutions to the problems of the development of open science in Ukraine, further improvement and implementation of digital technologies in educational and scientific institutions.