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SHEMAIEVA H. V.

National Aerospace University 'Kharkiv Aviation Institute' (Kharkiv, Ukraine),
e-mail: annashemaeva@ukr.net, ORCID 0000-0002-1053-989X

KOSTYRKO T. M.

Scientific Library, Admiral Makarov National University of Shipbuilding (Mykolaiv, Ukraine),
e-mail: tamara.kostyrko@nuos.edu.ua, ORCID 0000-0002-4175-9975

Educational Function of Academic Libraries under Martial Law in Ukraine

Objective. The article highlights the pedagogical aspects of library activities at technical universities under martial law. **Methods.** To achieve the objective, methods of analysis and synthesis, web monitoring, systematisation and generalisation were used. **Results.** Based on the study of reports and websites of 14 libraries of technical universities in Ukraine, including those located near the front line, the main areas of their pedagogical services were identified. These are the formation of information, digital and media culture, academic integrity; the formation of competencies in the context of open science. A new direction has been initiated, related to the promotion of safety and psychological health in conditions of martial law. The promising opportunity for libraries to teach literacy in the field of artificial intelligence has been identified. **Conclusions.** University libraries in Ukraine are actively introducing new forms and areas of activity for organising the training of students, scientific and teaching staff and colleagues based on different learning styles, and are expanding educational content in line with new challenges. In order to develop the teaching role of libraries, it is necessary to establish cooperation with all participants in the educational process.

Keywords: university library; pedagogical function; information literacy; academic integrity; digital literacy; media literacy

Introduction

Contemporary challenges related to digitalisation, martial law, the development of distance learning and the concept of open science have led to the expanding activities of academic libraries in higher education institutions as active participants in the educational process. Libraries are increasingly playing a key role in shaping the information, digital and academic literacy of students and the scientific and teaching staff of universities. Although the expansion and evolution of the roles of academic libraries in this context have been evident throughout the history of librarianship, the modern period is characterised by a more holistic approach and the formation of new directions.

The place and role of libraries in the context of learning and teaching are discussed by many authors. Foreign scholars from South Africa analyse literature published between 2015 and 2020, which reveal various aspects of the teaching role of academic librarians in the digital environment and determine the need to develop fundamental pedagogical knowledge and deepen the digital skills of library specialists (Saib, 2023). Other researchers share this opinion. In particular, emphasis is placed on the proactive position of library specialists in organising information literacy training, taking into account different learning styles, and intensifying cooperation with all participants in the educational process (Maiwada, 2019).

Many authors emphasise the importance of developing library information literacy programmes. A study of information literacy training in academic libraries in China (Guo & Huang, 2021) is noteworthy. According to its results, mini-courses are an effective approach for integrating online and offline learning. Also interesting is the experience of creating programmes within educational and extracurricular activities focused on practice and communication of research, expanding information literacy education (Kasten-Mutkus, 2020).

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In the context of digitalisation, the teaching roles of library specialists and their perception as educators are changing. A study by an American scholar (Baer, 2021) notes the development of the pedagogical function of academic libraries. Based on an online survey of 87 library specialists, he found a high level of their involvement in credit course classes (95.4%); organising seminars for students (81.61%) and for teachers and researchers (63.22%); the development of courses (63.22%) and teaching materials (88.51%). This allowed him to conclude that there has been a transition from the librarian as a service provider to the librarian as an educator.

The pedagogical potential of academic libraries in shaping information and digital culture is actively discussed in scientific and professional discourse. Thus, emphasis is placed on understanding the concepts of “information culture”, “media culture”, and “digital culture”; it is argued that the concept of “information culture” is generalising in relation to other types of cultures (Lomachynskyi, 2023). It is pointed out to the influence of digital technologies on the formation of information culture, as well as the challenges of digitalisation, which cause problems of academic integrity (Horban, & Oliinyk, 2024).

In the context of the open science paradigm, the potential participation of library specialists in the development of bachelor's degree programmes in research data and understanding of scientific communication processes is justified (Shao, Quintana, Zakharov, Purze, & Kim, 2021). Models of partnership between librarians, teachers and students are being studied, as well as the contribution of libraries to the development of open pedagogy through the creation of open educational resources (OER) (Henke, Anthoney, & Burek, 2024; Kolesnykova, Gorbova, & Shcherbatiuk, 2022). At the same time, students are considered an integral part of the partnership pedagogical framework, which creates a cycle of continuous improvement and revision of OER.

In general, publications by foreign and Ukrainian researchers raise various issues related to the development of the pedagogical function of academic libraries in the current conditions of digitalisation. However, the specifics of the teaching role of academic librarians in the digital environment under martial law remain insufficiently researched.

The purpose of this article is to identify effective practices and areas of pedagogical activity of library specialists that are implemented in libraries of Ukrainian technical universities in the current conditions of digitalisation and martial law.

Methods

To reveal the pedagogical aspect of library activities in the conditions of martial law in Ukraine, methods of analysis and synthesis, web monitoring, systematisation and generalisation were used. Fourteen scientific libraries of technical universities in different regions of Ukraine, including those near the front line, were selected for analysis. First, library reports for 2022–2024 were studied, and then, to clarify the data on learning and teaching, website monitoring was used, which was carried out during 2024–2025. The analysis yielded generalised data on the main areas of library activity related to educational services.

Results and Discussion

Under martial law in Ukraine, university libraries continue to operate, combining online and offline formats. Despite all the existing challenges, the problem of searching for, accessing and finding relevant information resources is not disappearing, but rather intensifying. Users need not only to know how to access collections and digital materials in various formats, but also to understand the rights associated with the content in order to use the information properly and disseminate their work ethically.

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The analysis of library activities revealed the main areas of the educational spectrum (Fig. 1). The study found that university libraries have taken on a wider range of educational responsibilities in recent years, particularly during the hostilities in Ukraine.

Firstly, all the libraries surveyed continued to organise information literacy classes for students during martial law. Under martial law, university libraries conduct webinars and training sessions and develop manuals and reference books. Most libraries provide comprehensive information literacy training through a special course called “Fundamentals of Information Culture”, which aims to develop a set of knowledge, skills, and abilities for the rational use of information and information technologies.

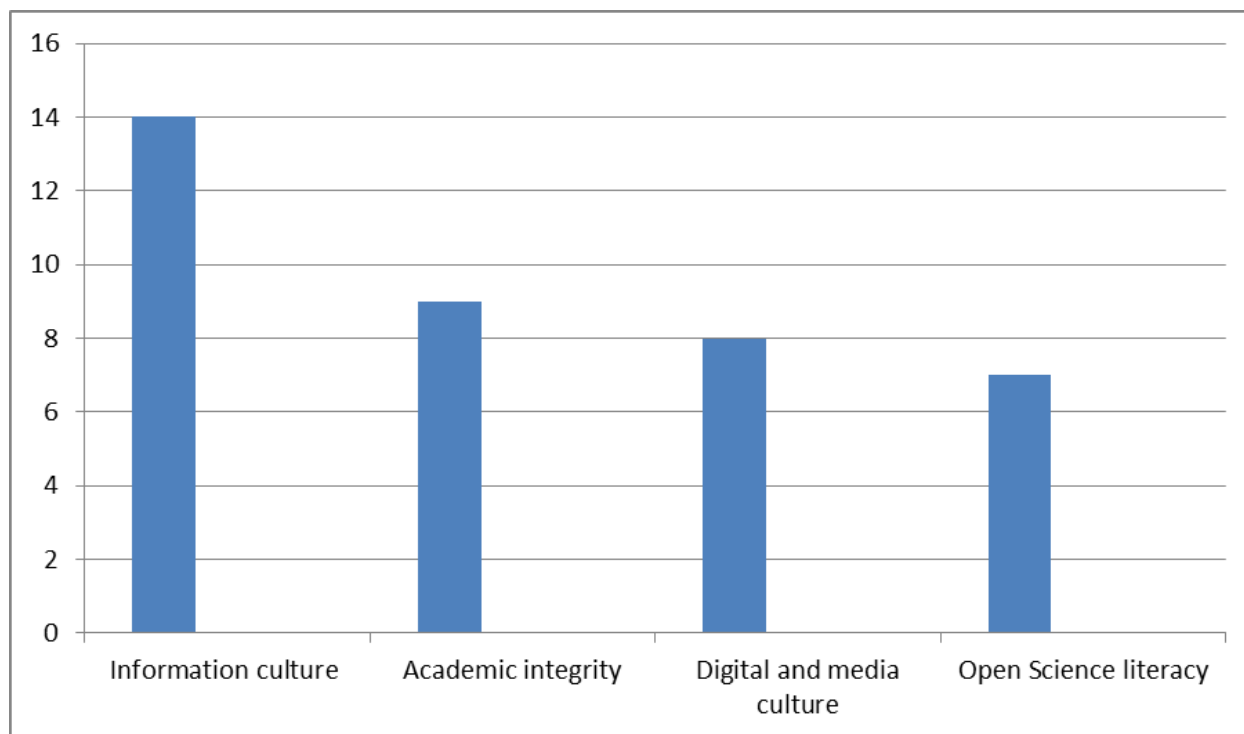


Fig. 1. Main areas of educational services in technical university libraries

For example, library specialists at the Scientific and Technical Library named after G.I. Denysenko of the National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” (Kyiv Polytechnic), the scientific library of the Kharkiv National University of Radio Electronics (KNURE), and the scientific library of the Admiral Makarov National University of Shipbuilding (NUS) conduct lectures and practical classes for students on an ongoing basis. During martial law, such training takes place remotely. However, in some university libraries, the formation of the fundamentals of information culture still takes place in the form of a one-time library class for first-year students.

Secondly, under martial law, the development of digital and media culture has become a priority. Digital and information literacy are important academic skills for navigating the complex world of the modern information landscape. It is worth noting that the term “digital information literacy” has recently become widespread, which refers to the development of competencies in processing information using digital technologies and tools. Digital culture education is mainly focused on the ability to use digital tools and interact with online resources. Media literacy activities in academic libraries are an important part of the educational process, aimed at

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developing students' critical thinking, analysis and evaluation skills, as well as shaping a responsible attitude towards the media. Such classes help students recognise fakes, manipulation and misinformation, as well as effectively use the media for their own needs. In this regard, the creation of digital education hubs, within which library specialists conduct seminars, trainings, master classes, educational events, individual consultations and training, is significant. In particular, this is stated in the reports of the libraries of Zaporizhzhia Polytechnic, the National University of Shipbuilding, and Kyiv Polytechnic.

The process of forming information and digital culture requires a differentiated approach, selection of teaching methods and programmes, taking into account the professional specialisation of users, the level of their information needs and digital skills. The level of competence of library specialists in modern technologies and teaching skills is also important.

Thirdly, university libraries pay considerable attention to issues of academic integrity. In most of the libraries surveyed, specialists conduct lectures, training sessions, seminars and webinars. For example, the scientific library of Chernihiv Polytechnic has set up an Information Centre for the Prevention and Detection of Plagiarism, which organises various events. Library specialists from the Scientific and Technical Library named after G. I. Denysenko of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (STL of KPI) and the Scientific and Technical Library of the National Technical University "Kharkiv Polytechnic Institute" (STL of KhPI) act as teachers of the elective discipline "Fundamentals of Academic Integrity" and the course for the professional development of scientific and pedagogical workers "Academic Integrity". Employees of the Scientific Library of the Admiral Makarov National University of Shipbuilding (SL of NUS) teach the course "Academic Integrity" to students and organise basic seminars on "Academic Integrity and Electronic Resources for Science and Education" and "Academic Integrity. Formation of Academic Writing Skills". Library specialists teach students to understand the importance of academic integrity standards, to complete educational tasks independently, to reference sources of information in accordance with existing requirements, and to avoid plagiarism.

Fourthly, the libraries under study have identified an expansion of educational activities related to open scientific communication. Librarians offer classes and courses on research strategies; help students identify useful scientific resources; provide advice on scientist profiles in Scopus, Web of Science, Orcid, Google Scholar; selecting and reviewing journals for publication. The formation of competencies to support the full cycle of scientific communication in accordance with the concept of open science is underway: from the selection of digital tools to the analysis of research performance (Table 1).

Table 1

Building open science skills

No.	Library name	Pedagogical aspect in the context of open science
1	Scientific Library of the National Transport University http://library.ntu.edu.ua/	Conducting lectures and practical classes for students on information literacy, the fundamentals of information culture, and academic integrity.
2	Scientific and Technical Library of the National University "Lviv Polytechnic" https://library.lpnu.ua/	Information support for research. Organising classes on the fundamentals of information culture and academic integrity
3	Scientific and Technical Library of the National University "Odessa Polytechnic" https://op.edu.ua/library	Conducting classes on the fundamentals of information culture. Promoting the principles of academic integrity.
4	Scientific and Technical Library of Vinnytsia National Technical University https://lib.vntu.edu.ua/	Conducting classes on the fundamentals of information culture. Forming a culture of academic integrity

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5	Scientific and Technical Library of National Technical University "Kharkiv Polytechnic Institute" http://library.kpi.kharkov.ua/uk	Publication support centre. <i>Information and Resource Centre "Without Barriers"</i> . Training in safe behaviour and support for psychological health. Launch of an electronic publishing platform. Organising classes on the fundamentals of information culture and courses on research strategies; events on media literacy and academic integrity culture.
6	Scientific and Technical Library of the National Aerospace University "Kharkiv Aviation Institute" https://library.khai.edu/	Informing users about webinars and seminars on open science issues. Conducting classes on the fundamentals of information culture. Promoting the principles of academic integrity.
7	Scientific and Technical Library of the Ivano-Frankivsk National Technical University of Oil and Gas https://library.nung.edu.ua/	Conducting classes on the fundamentals of information culture. Forming a culture of academic integrity
8	Scientific Library of the National University "Zaporizhzhia Polytechnic" http://library.zp.edu.ua	Consulting on issues such as: scientist profiles in Scopus, Web of Sci, Orcid, Google Scholar; selection and verification of journals for publication. Consulting and training on the fundamentals of information culture. Conducting media literacy events: organising interactive lectures, quizzes, practical classes and online meetings. Promoting the principles of academic integrity
9	Scientific Library of the Ukrainian State University of Science and Technologies https://library.ust.edu.ua/uk	Digital publishing Consultations, editorial services. Training in the fundamentals of information culture. A series of webinars and video lectures for teachers, researchers, and librarians on awareness of OER, their features, and advantages. Forming a culture of academic integrity
10	Scientific Library of the Kharkiv National University of Radio Electronics https://lib.nure.ua/	Consulting for researchers, conducting classes on the fundamentals of information culture. Promotion of the principles of academic integrity
11	Scientific and Technical Library (STL) of the National Aviation University (NAU) Scientific and Technical Library of the State University "Kyiv Aviation Institute" https://lib.nau.edu.ua	Consulting on scientometrics and document placement in the repository. Organization of classes on the fundamentals of information culture.
12	Scientific Library of the National University "Chernihiv Polytechnic" http://library2.stu.cn.ua/	Metadata is indexed in the electronic archive. Consulting on author profiles, selection and formatting of literature. Training in search capabilities. Determination of scientometric indicators. Formation of information literacy through classes on the fundamentals of information culture; Promotion of the principles of academic integrity
13	Scientific Library of the Admiral Makarov National University of Shipbuilding http://lib.nuos.edu.ua/	Conducting seminars, training sessions, and individual consultations within the framework of the established digital education hub. Developing educational materials (methodological guides, methodological guidelines). Conducting lectures for students on information literacy, the fundamentals of information culture, media literacy, and a course on "Academic Integrity: A Course for Students"; organizing basic seminars on academic writing and the use of electronic educational and scientific resources; Consulting research and teaching staff on issues such as: profiles in Scopus, Web of Science, Orcid, Google Scholar, selection and verification of journals for publication; placement of publications in repositories (self-archiving); research data management issues.

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14	Scientific and Technical Library named after G.I. Denysenko of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" https://www.library.kpi.ua/	Consulting. Support for the full cycle of scientific communication. A series of educational events aimed at developing the research competencies of university scientists is organized; scientists are advised on working with scientific citation databases and international researcher identifiers. A series of open lectures entitled "Must-haves for Research Activities" consisting of seven online lectures. Classes on the course "Fundamentals of Information Culture" for students. Promotion of the principles of academic integrity.
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In this regard, it is worth noting the activities of the STL of KhPI and the Scientific Library of the Ukrainian State University of Science and Technologies (SL of USUST) regarding open educational resources (OER). The STL of KhPI has established a Publication Support Centre, and in December 2024, an electronic publishing platform was launched. The SL of USUST has considerable experience in this area, being the first among university libraries to initiate a series of webinars and video lectures for teachers, researchers and librarians on OER awareness, their features and advantages. The deepening of professional communications with the faculties, departments and lecturers of USUST contributed to the organisation of the Digital Publishing Centre and intensified the involvement of librarians in the processes of digital publishing of original open textbooks and teaching aids (Kolesnykova, Gorbova, & Shcherbatiuk, 2022).

Research data management is of great importance in the context of open science, particularly due to its value and prospects for promoting scientific research. The usefulness of research data management skills is also emphasised by foreign researchers (Shao, Quintana, Zakharov, Purze, & Kim, 2021). The study revealed the launch of research data management services in Ukrainian university libraries. For example, the SL of Chernihiv Polytechnic indexes metadata in its electronic archive. The STL of KPI has introduced support for the full cycle of scientific communication. To this end, a series of educational events aimed at developing the research competencies of university scientists is organised; scientists are advised on working with scientific citation databases and international researcher identifiers. The library has interesting experience in conducting webinars on research data management on the following topics: "Research data: the right to privacy"; "Research ethics and privacy protection"; "Exchange and long-term storage (archiving) of research data"; "Tools for assessing data for compliance with FAIR principles". The SL of NUS is also involved in organising training on research data. In particular, library specialists are introducing the following educational services: webinars and individual lessons for researchers; development of a special course for students; and professional development for library specialists.

Under martial law, a new direction in the educational activities of libraries has emerged: teaching safety behaviour and supporting psychological health. This direction was initiated by the KhPI library. During 2023, specialists organised 15 psychological and 4 safety-oriented events, and in 2024, 5 events on safety and psychological aspects related to current challenges.

It is also worth noting that the rapid development and spread of artificial intelligence (AI) technologies raises questions not only about the need for relevant knowledge and skills among library specialists for application in various areas of library activity, but also about the possible prospect of involving the university library in the formation of AI literacy. Assumptions about the role of the library in teaching students and other library users literacy in the field of artificial intelligence are expressed in publications by foreign researchers through the identification of a certain influence of digital information literacy training on students' perception of artificial intelligence technologies in research tasks. (Lo, 2024). A study of the pedagogical aspects of the activities of libraries at Ukrainian technical universities shows that library specialists are actively

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studying AI tools and beginning to use them. Some libraries conduct training in the form of webinars and workshops for their staff. One can agree with foreign researchers regarding the possible participation of university libraries in the formation of AI literacy. On the other hand, artificial intelligence tools create an opportunity to rethink the fundamental skill of information literacy in terms of evaluating information in the modern world.

Conclusions

In general, it can be noted that despite the difficult conditions of today, academic libraries in Ukraine are actively introducing new forms and directions of activity in the organisation of training for students (both within the framework of compulsory or elective disciplines and outside the educational process), scientific and pedagogical staff and colleagues based on different learning styles. Library specialists are implementing innovative learning models; combining online and offline forms; expanding educational content in line with new challenges and new information needs of library users from traditional classes in information culture and digital and media culture to the formation of literacy in the context of open science, as well as learning about safe behaviour and the promotion of psychological health.

However, not all libraries studied focus their pedagogical model on developing and teaching courses integrated into the curriculum. The success of a library's pedagogical services largely depends on relevant knowledge and skills, consideration of existing challenges, and a combination of traditional and innovative approaches. In order to recognise the teaching role of the university library, it is necessary to deepen cooperation with students, teachers and colleagues in the joint development of training courses and disciplines and the introduction of innovative methods.

Further research is needed to determine the impact of library educational activities and courses on academic performance and student research results. It is also becoming increasingly important to study the partnership between librarians and teachers from different faculties.

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HEMAIEVA H. V.

Національний аерокосмічний університет "Харківський авіаційний інститут"
(Харків, Україна), e-mail: annashemaeva@ukr.net, ORCID 0000-0002-1053-989X

KOSTYRKO T. M.

Наукова бібліотека, Національний університет кораблебудування імені адмірала Макарова
(Миколаїв, Україна), e-mail: tamara.kostyrko@nuos.edu.ua, ORCID 0000-0002-4175-9975

Освітня функція академічних бібліотек в умовах воєнного стану в Україні

Мета. Висвітлюються особливості педагогічного аспекту в діяльності бібліотек університетів технічного спрямування в умовах воєнного стану. **Методика.** Для досягнення мети застосовано методи аналізу та синтезу, вебмоніторингу, систематизації та узагальнення. **Результати.** На основі вивчення звітів та вебсайтів 14 бібліотек університетів технічного спрямування визначено основні напрями їхніх педагогічних послуг. Це формування інформаційної, цифрової та медіакультури, академічної доброчесності; формування компетентностей у контексті відкритої науки. Започатковано новий напрям, пов'язаний із промоцією безпеки та психологічного здоров'я в умовах воєнного стану. Позначено перспективну можливість бібліотеки навчати грамотності в галузі штучного інтелекту. **Висновки.** Університетські бібліотеки активно впроваджують нові форми й напрями діяльності з організації навчання студентів, науково-педагогічного персоналу та колег на основі різних стилів навчання, розширюють навчальний контент відповідно до нових викликів. Для розвитку викладацької ролі бібліотеки необхідним є розгортання співпраці з усіма учасниками освітнього процесу.

Ключові слова: університетська бібліотека; педагогічна функція; інформаційна грамотність; академічна доброчесність; цифрова грамотність; медіаграмотність

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