



Ukrainian and international experience of formation of information competencies by means of library practices

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Abstract. The relevance of the research problem is explained by active digitization, which places modern libraries tasks to apply new information and communication technologies in their work to increase the level of information competencies of employees and readers. The purpose of the article is to determine the main forms and methods of forming information competencies through library practices in the context of Ukrainian and international experience. The research methodology is based on a combination of source analysis, comparative analysis, and systematic and logical methods of scientific research. As a result of the study, it was noted that the concept of information literacy encompasses a set of technological skills that contribute to effective information search and processing, enhance the ability to interact effectively in the media space, understanding the essence of media texts, and the ability to protect against negative media influences. Based on the analysis of the legislative framework, the content of the concepts of "digital competence" and "media competence", which are components of information competence, was determined. The article defines the specifics of forms and methods of increasing the level of information competencies in public and academic libraries. In public libraries, work on increasing the level of information competencies includes skills and abilities to use information and communication technologies; search for information on the Internet; safe and responsible work in the virtual space; critical processing of information obtained from media resources. In academic libraries, in addition to the above, work is aimed at expanding knowledge services, strengthening interaction between teachers, students, and librarians for the effective conduct of innovative research and the quality assimilation of new knowledge. For librarians as knowledge managers, increasing the level of information competencies encompasses a complex of technological, information legal, methodological, moral-ethical knowledge with the involvement of security components. The practical significance of the research lies in the possibility of more effectively using the analyzed practices of forming information competencies by Ukrainian libraries

Keywords: information literacy; digital competencies; media competencies; information security; public libraries; academic libraries

Introduction

The beginning of the twenty-first century is marked by the emergence of the digital era, which has shaped the phenomenon of the "digital human" and has presented libraries with new challenges – the need to enhance the

level of digital competencies among library staff, digitization of information resources, overcoming digital inequality in access to information resources and technologies, and opportunities for their use. The widespread

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use of the Internet has created a new reality of a kind of informational "self-service", which affects the change in the forms and methods of library work, with active orientation towards service in the virtual space involving digital technologies. This necessitates the implementation of a set of measures to enhance the level of information competencies of library staff for quality service to the community of readers, including "virtual" readers.

To disclose the essence of the mentioned problem, it is worth noting the scientific research by M. Deja *et al.* (2021), who focused on the features of implementing information culture in the space of the university library in their studies. The authors thoroughly analyze the problem of forming information competencies in university libraries and note that the combination of information and digital literacy influences the intention to use digital technologies for learning, and overall, information literacy positively affects the intention to use digital tools. The importance of information literacy for librarians is emphasized by T.S. Nicolas-Rocca & R.J. Burkhard (2019). Based on the analysis of libraries in the United States, scholars assess the impact of knowledge transfer as a means of enhancing information security in libraries. The results of the study indicate that library workers who have completed a cybersecurity course understand that they are obligated to protect the personal information of library visitors.

For modern libraries in the global context, the problem of digitizing library collections is of particular importance. In particular, N. Barbuti (2021) emphasizes the importance of digitizing libraries for preserving cultural heritage. However, digitization of library collections poses a problem of information security for their quality preservation, as well as the level of information competencies of librarians themselves as knowledge managers. A. Khan *et al.* (2021) focus their attention on analyzing information security in university libraries in Pakistan. Based on a survey of 190 professional librarians in Pakistan, the authors provide practical recommendations for enhancing the level of information competencies of librarians, including their level of information security.

The issue of security management in library management has become the focus of attention for V. Singh & M. Margam (2018), who analyze the issue of information security in Indian university libraries. The authors note that information competencies of librarians should include information security management in the context of library management, namely – the control means that librarians need to implement to protect their information assets from all potential threats, to ensure the confidentiality, integrity, and availability of their information resources, as well as to help identify and reduce critical risks.

The role of media literacy in modern library and information activities is revealed in the research by T. Granchak (2018). The author analyzes the challenges that Ukrainian libraries faced due to Russian aggression, in the context of the feasibility of preserving information

of openly manipulative nature, or regarding the problem of systematizing library collections – by genre or thematic principle (which would enable a more qualitative presentation of the most relevant resources on Ukrainian history and culture for readers), as well as the relationship between preserving the principle of freedom of speech and ensuring information security. In these conditions, adherence to the librarian's code of ethics acquires special urgency, among the key positions of which the author highlights the principles of intellectual and information freedom, as well as adherence to neutrality, personal honesty, and professional skills.

The research by I. Lomachynska & V. Lomachynskyi (2021; 2022) is aimed at analyzing the knowledge management culture in university libraries, noting that the digitization of educational resources is a key factor for effective knowledge management in the university environment. The possibility of digitally rethinking this process largely depends on a clear organizational strategy oriented towards innovation. The authors emphasize the role of librarians in expanding scientific and research activities in modern universities through consultancy, practice, training; the important role of librarians in facilitating market analytics to improve the professional competencies of graduates.

O. Ronges (2021) is working on the issue of levels of digital and media competency, which the author presents as components of communicative competence, enabling orientation in the world of internet technologies. These competencies are associated with logical and critical thinking, as well as information management skills. The development of these aspects is identified as a key goal for achieving the status of a full-fledged and reliable digital state. In the research findings, the author emphasizes the need for citizens of Ukraine to determine their level of digital competencies using available testing methods, as this will contribute to the further formation of the most demanded skills in the digital era.

S. Khrushch (2022) explores the innovative media space of the modern library based on the principle of "library humanism", which is implemented in the field of professional library activities. Among the relevant directions of library activities for the digital age, the author highlights consulting services for overcoming digital inequality and the implementation of digital education for citizens, which requires competent consultant specialists and the availability of digital learning tools. In the research results, the author emphasizes the need to adapt the humanistic function of the library to innovative transformations based on axiological orientations of library functioning.

Thus, the accumulated Ukrainian and international scientific experience makes it possible to define the research goal – determining the main forms and methods of forming information competencies through library practices. The goal involves solving the following tasks: clarifying the content of digital and media competencies

in international and national regulatory documents; determining the mechanisms and educational components of information security as a component of ensuring information competencies; clarification of practical aspects of increasing the level of information competencies in the system of public and academic libraries.

Materials and Methods

The specified work utilized a range of interdisciplinary research methods. The heuristic method was employed in the process of sourcing the research's theoretical and empirical foundation. Further theoretical analysis of literature on the research topic allowed for the identification of key trends in understanding fundamental concepts, including "digital competency", "information literacy", "media literacy", and others. To delineate the scope and substantive content of these and other concepts and their critiques, the formal-logical method was applied. A significant research method was the systemic approach, which was employed to better understand the essence of contemporary library activity as a holistic information-communication system. Within this method, the role of libraries in preserving the country's cultural heritage in terms of documentary resources, particularly through modern digital technologies, was analyzed. The application of the systemic method also theoretically substantiated the importance of libraries as agents of knowledge and skills dissemination in the field of information security, the integration of new technologies in the university environment, and the high-level provision of information literacy to the population. Another interdisciplinary research method utilized was comparative analysis. This method facilitated the identification of the specificity of forms and methods for increasing information literacy in library settings and the determination of the most promising existing approaches and practices used globally in the field of digitizing information service provision. Alongside this, the specified method was employed to compare various theoretical concepts, propositions, and interpretations present in contemporary literature regarding the digitalization of the educational sphere and academic environment. The method of classification and typologization allowed for the identification of the leading tasks of the modern library and the classification of knowledge management culture organization directions in the modern higher education system.

The research materials included various types of sources such as legislative acts, official documents, and notifications from Ukrainian and EU government bodies, reports from international organizations, and more. Specifically, in 2005, UNESCO presented the main directions for the development of an information society as a knowledge society (UNESCO, 2005), which subsequently formed the basic criteria for information and media literacy – critical perception of information, free access to media and information literacy, adherence to the right

of access to information, media and information literacy as a continuous and dynamic process (Five Laws of Media..., 2018). The European Commission proposed a digital education action plan, based on which the creation of a European digital education content system is planned, incorporating technological, educational, ethical, and security components (European Commission, 2020). The importance of information literacy for learning and self-development is emphasized in the Law of Ukraine No. 38-39 "On Education" (2017). The Concept of Development of Digital Competencies (2021) highlights a specific plan for their practical implementation.

Results and Discussion

Digital and media components of information competencies. In the UNESCO World Report "Towards Knowledge Societies", UNESCO experts expressed the view that knowledge is a social resource that should be universally accessible (UNESCO, 2005). The organization aims to promote social integration and support social activity for all. Therefore, as long as global society lacks equal opportunities in accessing information and critically evaluating it, as well as in analyzing, sorting, and contributing to the common knowledge base, information will remain a collection of obscure facts. Of particular importance is the ability to navigate information flows, cognitive abilities, and critical thinking (Onishchenko, 2012).

In EU countries, the Digital Education Action Plan 2021-2027 was adopted (2021). Among its main directions are a set of measures to create an effective digital educational ecosystem, including infrastructure for providing communication tools and digital equipment; the ability to organize effective planning and development of digital potential; the formation of educational and teaching staff possessing a set of digital competencies; high-quality content, as well as secure platforms and convenient tools ensuring privacy and ethical standards. Also of great importance is the control of the quality level of digital skills and competencies that meet the requirements of the digitization era, namely the formation of key skills for working in the digital environment and competencies from an early age: digital literacy, including the recognition of disinformation and information overload management; computational education; increasing the number of professionals in the field of digital technologies (European Commission, 2021).

Under these conditions, the library community faces the challenge of creating new conditions for interaction with society, aimed at increasing the level of information culture, creating a safe environment for knowledge acquisition, and overcoming the digital divide. Libraries play a key role in continually updating the information resources and skills necessary for effective professional and personal self-realization, public participation, and personal management. In global scholarly discourse, there is an active debate about the content, forms, and

methods of library work in the context of digital transformation. Overall, the problematic field for analysis encompasses children's, academic, and public libraries, which pursue different goals and develop unique approaches tailored to the age and professional needs of the reading audience.

Digital literacy skills in the twenty-first century are a manifestation of success, citizens' readiness for change, and their full participation in public life. I. McShane (2011) distinguishes between the concepts of "digital literacy" and "information literacy" as a transition from information consumption to production and culture, from modes of "reading-only" to "reading-writing". The author proposes to consider library activities in the context of the concept of "participation culture" – a culture with relatively low barriers to artistic self-expression and civic participation, strong support for creating and exchanging works, and a kind of informal mentoring through which experienced participants pass on knowledge to newcomers. Thus, the expanded use of the Internet in cultural, commercial, and government institutions has transformed the digital divide into a "participation divide," which concerns not so much access issues as opportunities for engagement in participation culture.

The development of Internet technologies has led to changes in the field of information competencies and has also contributed to the evolution of digital competencies. They are often grouped into a triad with information literacy and media literacy. Digital competencies encompass a wide range of skills, such as using, filtering, evaluating, creating, programming, and exchanging digital content. In other words, it is a specific set of skills and competencies necessary for effective searching and processing of information in computerized form (Deja *et al.*, 2021).

In the Ukrainian normative and legal field, information competencies encompass media and digital competencies. Based on the decisions of UNESCO and IFLA (The International Federation of Library Associations and Institutions), media literacy and information literacy have been unified into a single concept – media and information literacy (Five Laws of Media..., 2018). Information competencies can be described as a complex of knowledge, skills, and abilities necessary for understanding the essence of information and effectively mastering its search, evaluation, organization, and ethical use. This new formulation is introduced in the revised Concept of Media Education Implementation in Ukraine (Concept of implementation..., 2016). "Media competence" describes the level of media culture that enables an individual to understand the socio-cultural, economic, and political context of media functioning. It indicates the ability of an individual not only to be a recipient and transmitter of media-cultural values, tastes, and standards but also to effectively interact with the media space, create new elements of media culture in modern society, and demonstrate active citizenship. Components of media competence include creative

critical thinking, communicativeness, positive motivation, reflection, and value-based perceptions of media usage. S. Khrushch (2022) suggests defining the innovative media space of a modern library as a complex of technical, technological, and software tools that arise in the process of digital transformations in the library. This complex is aimed at addressing the informational and socio-communicative needs of citizens, determined by their professional and civic activities, education, leisure, daily life, tasks of personal development, and interaction.

In 2014, the Ukrainian Press Academy began cooperation with libraries in the field of media education and media literacy (Libraries form media-literate personalities..., 2014). The realization that the modern library has a mission to assist its readers in competent consumption of various information in mass media, including adults, youth, and even the youngest, became the basis for cooperation between the Ukrainian Press Academy and libraries in the field of media education and media literacy. This is a response to the challenges of the present, where users need not only to effectively consume information but also to create their own media products. To increase the level of information culture among users, facilitate information search, and ensure communication with a remote audience, library specialists actively use virtual reference services to answer bibliographic questions and implement multimedia services such as virtual tours, galleries, educational video courses and lectures, and organizing video conferences. In this context, the study of the experience of libraries in presenting relevant information in a balanced way, aimed at impartial informing about socially controversial events, ensuring adherence to the principle of impartiality, while at the same time not excluding the activation of certain topics and issues important for national memory, is worthy of attention (Granchak, 2018).

In the Concept of Development of Digital Competences, "digital competence" is defined as a dynamic combination of knowledge, skills, ways of thinking, views, and other personal qualities in the field of information and communication technologies. This determines the individual's ability to socialize successfully, carry out professional and/or further educational activities using such technologies (Concept of development of digital competences, 2021). The Law of Ukraine No. 2145-VIII (2017) recognizes information and communication competence as one of the key competencies necessary for every modern person for successful life. With the approval of the new Concept of Development of Digital Competences, the concept of "digital competences" as a dynamic combination of knowledge, skills, ways of thinking, views in the field of information and communication technologies, which determines the individual's ability to carry out professional and educational activities using digital technologies, is actively spreading in the Ukrainian scientific space (Order of the Cabinet of Ministers of Ukraine No. 167-2021-p, 2021). It is worth noting that it is

more expedient to understand "information competency" as a broader concept than "digital competency". The information competency of a librarian involves mastering a complex of analytical competencies for successful knowledge management, digital competencies (confident, critical, and responsible use of digital technologies for successful professional activities and self-realization), media competencies (critical thinking regarding media texts), as well as understanding the constant improvement of information security skills and legal knowledge.

The transition from an analog to a digital paradigm in the work of Ukrainian libraries is characterized by a shift from processes of forming local information environments to creating a global media space. This also manifests in the transition from proprietary closed infrastructure to utilizing the potential of the global digital space. Ukrainian libraries already have significant experience in teaching computer literacy and working with the internet for their users. In particular, since 2009, public libraries that have joined the project of the Ukrainian Library Association have operated Citizens' Access Points to Official Information. Here, librarians provide training and assistance to community residents in using websites and services of state institutions. Analyzing the state of digitization of libraries at that time, O. Marjina (2012) proposed a strategy for developing a new communication environment for libraries. This strategy includes a shift in activity orientation towards the media environment, focusing on content creation and researching users' information needs. It also proposes the adoption of a new, more user-friendly library image that reflects real people, as well as encouraging user participation in library web projects through comments, constructive criticism, and other means. Additionally, the use of social media marketing technologies, social forms of cooperation, exchange, and self-organization to support and promote communication with users is recommended.

Considering societal demands and preferences, modern Ukrainian libraries have become key elements of the Digital Education Hubs network – spaces where everyone can learn digital literacy skills, gain free access to the Diia platform. The NGO Ukrainian Library Association and the Ministry of Digital Transformation of Ukraine have started joint activities within the project "Diia. Digital Education" and launched a national campaign on digital literacy "Be Up-to-Date!" (Ukrainian Library Association, 2020).

The best way to assess one's digital literacy is through the Digigram – a nationwide test of digital literacy (Press Office, 2020). Using the Digital Competence Wheel allows for an understanding of the wide range of necessary skills in the digital era. Digigram serves as a tool for checking current knowledge and skills in operating systems. Moreover, specific practical questions regarding knowledge and mastery of digital tools provide an objective understanding of real competencies at the moment (Rongers, 2021). Thus, based on the analysis of Ukrainian and global experience, it is possible to assert that in-

formation competencies encompass digital and media competencies, with important components being the ability to effectively work with information arrays both in traditional and virtual formats, as well as possessing critical thinking skills in consuming information products.

The role of public libraries in shaping information competencies.

A special role in shaping information competencies belongs to public libraries. C. Sidhartha *et al.* (2020) consider libraries as archetypal knowledge repositories. In this sense, librarians could be called knowledge managers, as they systematically manage the information available in the library so that the necessary information is accessible to knowledge seekers on demand, saving time for readers and increasing the efficiency of library work. As an organization focused on education, the main role of the public library lies in supporting the education of users, and in this sense, public libraries play an important role in democratic society - in defending freedom of speech and personal freedom, the right to education and self-education. Public libraries are endowed with the ability to serve the community in disseminating knowledge, providing access to information, removing barriers to learning, and also help cultivate a reading culture by engaging readers from all walks of society.

The Covid-19 pandemic has been a powerful challenge for library activities in accelerating the virtualization of library services: organizing virtual exhibitions and other learning tools, promoting their digital content, which can be used to support education, conducting weekly online concerts, providing free e-books, highlighting content aimed at learning new skills to move literacy programming online. The Chartered Institute of Library and Information Professionals (CILIP) (2020) launched its National Shelf Service, created "book walks" with descriptions of historical sites to encourage people to read and walk, stay connected with their users, and even conduct online arts projects, literary festivals. This includes creating new programs with freely accessible content, developing new educational materials for users to help them make the most of these learning opportunities, best use available digital tools, as well as virtual information literacy training.

Library professionals specialize in identifying, selecting, obtaining, processing, organizing, and disseminating information among users, thus managing the entire system of human knowledge. The main function of library staff is to manage human knowledge by collecting, processing, preserving, and managing information resources. The quality of library workers' work, according to D. Oguche *et al.* (2017), will depend on several factors, including the acquisition of relevant skills, experience, educational ability, and self-education. Challenges posed by globalization to the library service system have greatly spurred the need for initiatives and programs to increase management potential.

The introduction of new technologies in library services, rapid growth of new knowledge, changes in trends in library services, communication media, subject knowledge are among the main factors that will require an increase in the potential of library and information professionals. With the paradigm shift in users' use of internet resources over material carriers of information, library professionals need technological skills to thoroughly search for correct information in a specific database, using a logical and analytical approach, and provide this information to users promptly. They must be able to assist users through retrospective searching, provide ready reference services, bibliographic services, as well as ensure selective dissemination of information services, etc. A librarian working in a web environment also requires skills in document classification and cataloging, indexing and abstracting methods, etc. (Oguche *et al.*, 2017). Accordingly, a library professional acts as a kind of intermediary between readers as information users and information resources, requiring mastery of relevant information and communication competencies. Overall, contemporary librarians must possess analytical competencies, be creative, and be able to work with diverse groups of readers. To enhance professional competencies, it is worth organizing library schools, short-term qualification enhancement courses, seminars, conferences, round tables, etc.

In modern conditions, thanks to the main mission of public libraries – to satisfy the information needs of users, new models are used to shape their space, and digital libraries occupy a special place in this complex world of digital challenges. The digital transformation of society is changing the strategies and methods of work of public libraries, which, according to (Kuzma, 2010), must transition from providing exclusive access to knowledge to working as platforms for storing and disseminating the knowledge of the local community in a global context using new technologies such as Web 2.0. One of the main missions of Ukrainian libraries is to preserve their cultural heritage in terms of documentary resources. According to Ukrainian legislation, cultural heritage is understood as a set of objects inherited by humanity from previous generations - landmarks, works of art and architecture that have preserved their authenticity and value from archaeological, aesthetic, ethnological, historical, architectural, artistic, scientific, or artistic perspectives (Law of Ukraine No. 1805-III, 2000). To this end, the creation of electronic libraries is envisaged, as well as the enhancement of the professional information competencies of librarians, which will ensure the efficiency of their functioning.

Analyzing international regulatory documents regarding the preservation of documentary heritage, N. Barbuti (2021) notes that cultural heritage consists of resources inherited from the past in all forms and aspects – material, immaterial, and digital (born digital or digitized), including monuments, places, landscapes,

skills, practices, knowledge, and expressions of human creativity, as well as collections preserved and managed by governmental and private entities such as museums, libraries, and archives. It stems from the interaction between people and places over time and is constantly evolving. These resources are of great importance to society from cultural, ecological, social, and economic perspectives, and thus their sustainable management is a strategic choice for the 21st century. Based on this conclusion, the author believes that digitizing library collections is a social and cultural necessity of the present. Data are no longer mere tools for simplifying administration or enhancing the efficiency of cultural heritage but will become digital artifacts representing a new digital cultural heritage, reflecting each community in its socio-cultural context, a simple or complex ecosystem of the digital age, serving as historical memory and a source of knowledge.

Thanks to digitization processes, libraries can provide worldwide access to significantly more information and knowledge. This is especially relevant when library groups work together in the field of joint management, electronic publishing, and document delivery. European libraries are implementing a range of initiatives at the local, national, and international levels to improve visitors' access to digital information, thereby engaging a wider audience in their services. For example, the European Library initiative includes 48 European national libraries that have a single portal for a global audience to access the collections of national libraries (The European Library, 2014). At the same time, unprotected digital library systems can lead to adverse consequences for both libraries and visitors. Ensuring safe operation on the Internet is a challenging task for modern library professionals due to the increasing threats of Internet vulnerabilities and constant hacking attempts. In this context, digital library security should be considered a multidimensional approach involving both technical and managerial solutions.

Based on the analysis of the practice of American public libraries, T.S. Nicolas-Rocca & R.J. Burkhard (2019) emphasize the importance of training programs for librarians to enhance their information competencies in the field of computer security. In this context, the terminological aspect of this issue requires attention. A. Khan *et al.* (2021) consider information security as a process acceptable for securing information available in printed or electronic form. The authors understand the concept of "information security" in a more general and unifying way regarding the concept of "cybersecurity", noting that there are many problems in information security, such as software attacks on servers, lack of information security training, lack of recovery plan, lack of cyber security policy, intellectual property theft and equipment, information sabotage, and more.

Information security management in the context of library management practice is discussed by V. Singh &

M. Margam (2018), describing the control measures that libraries need to implement to protect their information assets from all potential threats, to ensure the confidentiality, integrity, and availability of their information resources, as well as to help identify and mitigate critical risks and types of network attacks. There are three factors of effective information security management: comprehensive policy; presence of security control mechanisms; information and training program; organizational management system ensuring their implementation. And it is people who are the most important element of information security management (Soomro *et al.*, 2016).

Thus, in the global scientific discourse, information competencies in public libraries are considered at two levels – regarding library users and regarding librarians. Regarding users, information competencies are realized in the acquisition of digital information search tools, formation of reading culture, development of education and self-education. Regarding librarians, information competencies encompass knowledge and skills in human resource management, analytical competencies, and skills in the field of computer security.

Information competencies in academic libraries.

Formation of information competencies in an academic library has its specificity. In recent years, the key directions of knowledge management culture organization in the modern higher education system are as follows: cognitive, managerial, technological (Table 1). This is explained by the fact that the modern university as an organizational structure is conditioned by the specificity of coordination, integration, and concentration processes of human efforts, creativity, initiative, professionalism; dynamics of communicative ties that determine the unity of the collective; specificity of socio-psychological conditions based on the degree of compatibility of collective members; specificity of information-business exchange and adequacy of perception of the organization and its plans by all participants of the organizational environment. Moreover, the dynamics of knowledge management in universities stimulates students to exchange experience and knowledge not only within one educational institution but also in the online educational space in general (Lomachinska & Lomachynskyi, 2022).

Table 1. Directions of knowledge management culture organization in the modern higher education system

Direction	Specifics
Cognitive	Study of the nature of knowledge, features of its development. Ability to manage knowledge, information culture. Changing thinking style, mobilization of individual intellectual and creative potential, transformational leadership, etc.
Managerial	Research on the organizational culture of universities: development of effective management models in higher education institutions and higher education.
Technological	Research on the possibilities of modern information and communication technologies in knowledge accumulation, transmission, and management.

Source: developed by the author

The modern university is the online environment where three groups of subjects are represented: students, teachers, and librarians, and the perspective of information education for these groups differs. Students are perceived as information users, teachers as trainers in the field of information competencies, and librarians are responsible for adapting and implementing standards of information competencies. The undeniable strength of academic libraries lies in their experience and openness, which enable them to introduce new technologies at an early stage of change. Therefore, the role of academic libraries is crucial in universities' readiness for digital transformation (Deja *et al.*, 2021). Librarians' roles in academic circles can be seen as part of the information culture support process through their commitment to developing information competencies.

Changes in information and communication technologies have impacted information centers in universities. This has led university libraries to diversify their services based on digital technologies, facilitating user access to information. Providing technologically intensive services in university libraries has raised doubts about the digital literacy skills of both library staff and

users. It is known that higher education institution libraries provide continuous training to their users on effective library information source utilization. For this reason, university library staff are responsible for their users' education. However, in university libraries where digital technologies are widely used, users lacking or with low digital literacy skills do not derive maximum benefits from these libraries. Therefore, university libraries should provide progressive education appropriate at all levels in the context of access to academic information, considering the digital literacy skills and differences of their users. M. Rafi *et al.* (2019) note that in addition to technological skills and skills in using digital tools, it is also possible to enhance students' information literacy in academic institutions, and the combination of visual learning and technology, inspiration, and Inspire Data help students improve their analytical and organizational skills to effectively process information and data, understand complex concepts, and make quick decisions.

The university library is a dynamic environment striving to meet users' needs in learning, research, and teaching, so attention should be focused on whether the university libraries take appropriate measures to

prevent possible and potential cybercrime threats to intellectual property objects owned by them. Social media remains the best way for library professionals to develop understanding of data and information security (Khan *et al.*, 2021). Universities are becoming smart organizations (environments) where structures are formed by creating metadata, organizing data, their flow, and use. M. Deja *et al.* (2021) emphasize the importance of information and digital literacy as the results of academic librarians' educational activities, which have become significant during digital transformation. In academic circles, there are two levels of this process. One takes place at the administrative level. To benefit from digital transformation, universities as organizations must be "equipped" with relevant information and digital competencies, especially valuable in the context of augmented reality, artificial intelligence, robotization, digitization, and the Internet. Academic librarians have become important actors in the context of implementing information competencies. They were mainly necessary to support students and staff in overcoming barriers to accessing digital resources and services.

With the change in the landscape of technical services, academic research libraries have moved towards greater collaboration with users. Distance education programs require electronic access to library resources. There is an increasing need for access to primary sources in the humanities and social sciences. Digitizing national cultural heritage is of great importance in increasing information literacy levels, as emphasized by foreign researchers. Among the measures aimed at increasing the level of information literacy in the academic environment, students support both collective initiatives – such as information events at the department (discussions, debates), webinars on information culture, and individual conversations with teachers and librarians (Lomachynska & Lomachynskyi, 2021).

Consequently, academic librarians, through their contribution to the development of information literacy, can influence the self-effectiveness and expansion of opportunities for academic personnel. This gives libraries a special place in university information management, where, on the one hand, they shape users' competencies and, on the other hand, affect information management methods in the field of scientific information. Librarians can expand scientists' capabilities during digital transformation through information literacy courses. Librarians can help in digital changes by demonstrating advanced archiving and organization practices of information resources.

Summarizing this theoretical analysis, attention should be drawn to the scientific discussion regarding the correct definition of concepts repeatedly mentioned in this study. In Ukrainian scholarly thought, the concept of "information competence" ("information and communication competence") is predominantly presented in studies of pedagogical orientation. Specifically, N. Morse & A. Kocharyan (2016) emphasize the technological component of this concept, defining information and

communication competence as the ability to use information and communication technologies to meet individual needs and solve professional tasks in a particular subject area. For N. Zavadzka & M. Ignatyuk (2020), information competence, besides the technological aspect of effective information search, includes its analysis and critical understanding, mastery of rational working methods with various types and sources of information for performing diverse tasks in all spheres of life, and confident orientation in the information space. In this interpretation, the concept of "information competence" is close to the concept of "media competence", which, according to Concepts of implementation of media education in Ukraine (2016), encompasses creative critical thinking, positive motivation, and communicativeness.

V. Ivashova *et al.* (2019) focus on the communication component in defining information competence, considering not only information search and structuring according to the specifics of the pedagogical process but also the task setting for teaching through various information and communication methods, qualified work with various information resources, as well as professional tools and methodological complexes. M. Tolmach (2022) does not provide an authorial definition of digital competencies; however, relying on normative documents, he offers potential educational profiles for library workers considering the requirements of the digital age. V. Nikitenko *et al.* (2022) note that digital competence includes the following components: information literacy and data handling skills, communication and collaboration, creation of modern digital content, and information security components. V. Stegantseva (2022) operates with the concept of "informational-digital competence", referring to informational-knowledge, digital, and motivational-ethical components. O. Ovcharuk (2020) considers the issue of digital competencies in the context of digital citizenship.

Regarding other researchers, there is no consensus on the scope of the concepts of "information competence" and "digital competence". R. Vuorikari *et al.* (2016) define digital competence broadly, covering a wide range of competencies, including information literacy, communication and collaboration skills, media literacy, digital content creation (along with programming), knowledge of security issues, particularly digital well-being and cybersecurity-related competencies, as well as problem-solving skills and critical thinking development.

In the concept of "information competence", B.U. Zan *et al.* (2021) also include media competence. Analyzing university libraries as institutions expected to play an active role in developing digital literacy skills among students, the authors emphasize that librarians should voluntarily take on the leadership of digital media. Librarians should also possess digital literacy skills to fulfill this task. In this case, there is a need to support the digital capabilities of library workers through continuous education to enhance their own digital competencies.

M. Deja *et al.* (2021) operate with the concept of “information literacy”, which is based on key digital competencies, self-efficacy, expanding information opportunities, information culture, information management, and information use. The authors note that the concepts of “information literacy”, “digital literacy”, and “media literacy” should be considered closely interrelated. However, if digital competence includes the ability to use, access, filter, evaluate, create, program, and exchange digital content – in other words, it is a specific set of skills and competencies needed for effective work with information in a computer environment – then information literacy in an academic environment presupposes for librarians the possession of information management skills.

In the conclusions to their work, D. Oguche *et al.* (2017) add technological skills among the main skills and competencies for library workers: computer skills, barcode technology application, database creation and updating, web page design and updating, etc.; information search skills; management skills: library and information specialists as heads of library-information centers should possess some basic management skills to manage various organization departments, such as finances, human resources, etc.; communication skills: a library-information specialist acts as an intermediary between information users and information resources or information providers, as well as digital security skills. A. Khan *et al.* (2021) emphasize the importance of information competencies focusing on information security. In their conclusions, the authors underscore that negative attitudes toward data and information security can hinder the establishment of a reliable infrastructure in university libraries, which may affect the effectiveness of mass digitization projects and ensuring the usefulness of access to the country’s intellectual assets.

Digital competencies, in the context of their close connection with digital citizenship and digital rights, are discussed by L. Pangrazio & J. Sefton-Green (2021). In their conclusions, the authors note that digital literacy and digital rights typically focus on individual actions, while digital citizenship usually involves practices with a collective or group dimension. The authors propose the necessity of continuously improving digital competencies to ensure the protection of digital rights and the formation of responsible digital citizenship, as only their combination allows for effective functioning in the modern digital society.

Thus, the content and scope of the concept of “information competency” in the context of library activities, presented both in Ukrainian and in world scientific thought, largely depend on the active development of information technologies, which entails the gradual transformation of the information society into a knowledge society. The virtualization of library space, the emergence of the reader as a “digital person”, necessitate continuous improvement of digital competencies, the actualization of their security component, and the

threats of cognitive wars require the deepening of media competencies and critical thinking. Accordingly, refining the content of information competencies in library activities, as well as improving the forms and methods of their formation, is a constant dynamic process that evolves as a necessity for an adequate response to the challenges of the modern digital age.

■ Conclusions

The onset of the digital era has necessitated a deeper understanding of the concepts of “information literacy”, “digital literacy”, “media literacy”, their interconnections, and manifestations. An analysis of theoretical developments, government strategies, and legislation has established that “information literacy” is comprehensive in relation to the concepts of “digital literacy” and “media literacy”, which are its logical components. Information literacy encompasses a complex set of technological skills in the field of information and communication technologies that facilitate effective information retrieval and processing, the ability to interact effectively in the media space, understanding the essence of media texts, and the ability to protect oneself from negative media influences.

In the scientific literature, the prevailing opinion is that the forms and methods of enhancing information competencies in public and academic libraries have their own specificity. Public libraries are unique meeting places for readers, so the idea of organizing spaces for communication, relaxation, entertainment, and learning has become popular, both in Ukrainian libraries and abroad. The task of librarians is not only to develop technological skills in working with information and communication technologies but also to explain the relationship between information freedom and information responsibility. Similar ideas are relevant for children’s libraries, which can offer access to internet communication for both entertainment and educational purposes, and, most importantly, teach safe and ethical use of the virtual environment. Virtual tours, exhibitions, journeys through the pages of favorite books, blogs on social networks, meetings with partners – media experts, and more are used for this purpose. The main goal of academic libraries is knowledge services aimed at deepening cooperation between the academic community – professors, students and librarians to effectively acquire new knowledge. Training sessions on enhancing information and communication skills in working with distance learning platforms, issues of intellectual property, and academic integrity are relevant. The most promising practices for enhancing the level of information competencies of library workers as knowledge managers include organizing a complex of organizational events to improve the level of technological skills in information digitization, working with electronic resources, information, and computer security skills, as well as forming information legal culture in the form of library schools, short-term courses of professional development, seminars, conferences, and more.

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■ Conflict of Interest

None.

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Український та міжнародний досвід формування інформаційних компетентностей засобами бібліотечних практик

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Анотація. Актуальність проблеми дослідження пояснюється активною цифровізацією, що ставить перед сучасними бібліотеками завдання застосування нових інформаційно-комунікаційних технологій в роботі задля підвищення рівня інформаційних компетентностей працівників та читачів. Метою статті є визначення основних форм і методів формування інформаційних компетентностей засобами бібліотечних практик в контексті українського та міжнародного досвіду. Методологія дослідження заснована на поєднанні джерелознавчого аналізу, компаративного аналізу, системного та логічного методів наукового дослідження. В результаті проведеного дослідження було зазначено, що поняття інформаційної грамотності охоплює комплекс технологічних навичок, які сприяють ефективному пошуку та опрацюванню інформації, підвищують здатність ефективно взаємодіяти у медіапросторі, розуміння сутності медіатекстів та вміння захисту від негативних медіавпливів. На основі аналізу законодавчої бази визначено зміст понять «цифрова компетентність» та «медіакомпетентність», що є складовими інформаційної компетентності. У статті визначено специфіку форм і методів підвищення рівня інформаційних компетентностей у публічних та академічних бібліотеках. У публічних бібліотеках робота з підвищення рівня інформаційних компетентностей охоплює вміння та навички використання інформаційно-комунікаційних технологій; пошуку інформації в мережі Інтернет; безпечної та відповідальної роботи у віртуальному просторі; критичне опрацювання інформації, отриманої з медіа ресурсів. У академічних бібліотеках, окрім означеного, робота спрямована на розширення знаннєвого обслуговування, посилення взаємодії викладачів, студентів і бібліотекарів задля ефективного проведення інноваційних досліджень та якісного засвоєння нових знань. Для бібліотекарів як менеджерів знань, підвищення рівня інформаційних компетентностей охоплює комплекс технологічних, інформаційно-правових, методичних, морально-етичних знань із залученням безпекової складової. Практичне значення дослідження полягає у можливості більш ефективного використання проаналізованих практик формування інформаційних компетентностей українськими бібліотеками

Ключові слова: інформаційна грамотність; цифрові компетентності; медіа компетентності; інформаційна безпека; публічні бібліотеки; академічні бібліотеки