

ANALYSIS OF INFORMATION AND ANALYTICAL COMPETENCE IN IMPROVING LIBRARY EDUCATION

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***Abstract.** The article analyzes world concepts and foreign experience in creating a new paradigm in the development of information and library education in the digital age. It is proposed to use educational technologies in teaching information and library disciplines, taking into account the analysis of information and analytical competencies, which can change the quality of the process of training highly qualified specialists for information and library institutions of the republic.*

***Keywords:** competency-based approach, innovative educational technologies.*

Introduction

In the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030 (Ukaz Prezidenta Respubliki Uzbekistan, [UPRU], 2019), in the paragraph “Introduction of digital technologies and modern methods into the educational process”, in order to introduce digital technologies and modern methods into the educational process, the following activities are proposed: the use of “cloud technologies” in educational processes; the widespread introduction of a system of electronic libraries with the possibility of remote use of them, the expansion of opportunities for continuous improvement of the professional qualifications of students by organizing the use of the library fund and databases after completing their studies at higher educational institutions; acceleration of the creation of national electronic educational resources, organization of work on the translation of foreign electronic educational resources, a gradual increase in the share of electronic resources in the educational process, (UPRU, 2020) the creation of electronic educational literature, as well as a system for placing information on electronic resources in libraries using a QR code in order to download electronic educational literature on mobile devices; creation of an electronic database of scientific and technical information, consisting of materials of conferences, graduation theses, master's and doctoral dissertations of a higher educational institution, the widespread introduction of the use of an anti-plagiarism system

in order to preserve the novelty of scientific and technical information in the future, etc.

Literature review

Korshunov (2021) and Shirkova (2021) presented the results of the analysis of Russian and foreign recruiting companies. They compared the requirements that are contained in the vacancies for library specialists from analytical databases. In the US, a librarian is an IT specialist. In the group of digital skills of the competence profile of an American librarian, knowledge of 3D printing, statistics, application testing, BigData, layout, digital curating, SMM, digital and information literacy. American employers focus on knowledge-intensive and high-tech skills that affect the main areas of activity of a modern specialist: creating libraries and library systems at the national level, participating in consortiums, and developing global perspectives. There is an increased demand for competencies related to working with clients, holding events.

The experience of the scientific and technical library of the Dnepropetrovsk University of Railway Transport (SNL DNURT), reflected in the work of the library director Kolesnikova (2020) "The concept of intellectualization of the library profession and its implementation at the university." The strategic goal of the library is to be the center of integrated information support for educational and scientific processes, as well as cultural activities of the university. The mission of the library is the most effective, comfortable and high-quality satisfaction of the information needs of university communities in study, scientific research, pedagogical and administrative practice.

The main characteristic feature of the library activity is the definition of intellectual information technologies as a strategic vector of its functioning, an ideologeme of its development and an indispensable condition for existence. These principles of development and activity contributed to the creation of an innovative model of the university library - "Library - information intelligence center" (Kolesnikova, 2020), which provides the creation of opportunities for equal access of users to documents, information and knowledge in order to increase the efficiency of the university on training highly intelligent specialists and conducting high-quality scientific research.

Arakelov & Rahmatullaev (2022) consider information, information and analytical competence as a component of the professional competence of a specialist. The interdependence of computer literacy and professional competence, defining this interaction as a special information literacy, which is updated at the professional level. Information competence reflects different levels of professionalism of the individual, his professional development as a relatively new socio-cultural phenomenon, which is fixed in the regulatory requirements for a modern specialist.

Palkevich (2021) presented for discussion several incarnations of the librarian of the future: Librarian 4.0, bibliographer 5.0, information curator and event architect. The position of a new type of bibliographer includes five key competencies: knowledge engineer, local knowledge environment designer, bibliolinguist, infonet assembler, knowledge archaeologist plus information curator and event architect.

Korshunov (2021), in turn, noted that an information and library specialist is: an analyst-synthesizer, a creative information navigator, a specialist in the field of digital technologies, an instructor in the development of information culture, a manager and marketer in the information and library field, etc.

Methodology

Methodological basis of the research was the theory of knowledge, which is significant for the development of analytical activity as a process of mastering the accumulated knowledge about an object. *The object* of the research is information and analytical activity. *The subject* of the study is the means, methods for developing the information and analytical competence of library specialists.

Purpose of the research. Improving teaching methods in information and library education, taking into account the analysis of information and analytical competences of future specialists.

Studies by foreign experts and scientific schools show that as the level of development of the industry increases, the range of skills required by a librarian expands significantly.

Methods. The works of Raven & Stephenson (2001) are widely known in the field of the diagnostic's method and research of competence, its assessment and implementation. Of no less interest are the studies of Spencer & Spencer (2005), who developed methods for assessing competence and predicting the results of the work of specialists based on competencies. Also widely known are the works of Short (1984), who considered competence as a macro concept and identified four approaches to its decoding. Ganieva & Arakelov (2019) considered the method of developing competencies and competitiveness as one of the most promising in improving the training of information and library specialists.

The essence of the intellectualization of the library profession is considered by us as the constant acquisition by specialists of relevant library and information knowledge in the process of study or self-education, as well as in increasing the possibilities for their creative implementation in the professional field. Characterized by effective informational thinking and skills that allow to increase the amount of consumed, processed and qualitatively reproduced information, a modern specialist is focused on improving the quality and

comfort of user service, that can be achieved, in turn, by a competency-based approach to information and library learning (Arakelov & Rahmatullaev, 2022).

In the course of the work, a set of research methods was used: the general scientific method of theoretical analysis of selected publications on the research topic; a method of comparative analysis for studying foreign and domestic experience in studying the competencies of a specialist in the library and information sphere; terminological analysis method for introducing the concepts of competences into work. The conducted terminological analysis allowed us to reveal the essence of the information and analytical competence of a library specialist - this is a professionally significant personality trait, manifested in the ability to effectively solve social and professional problems using information and communication technologies, improve one's skills in the field of information technology, and adapt professional knowledge to the changing conditions of the information society.

As a system, information and analytical competences includes tasks, functions, properties, has its own characteristics and structure (Mamontova, 2011), which were investigated in the course of the study.

The tasks are: enrichment with knowledge and skills from the field of informatics and information and communication technologies; development of communicative, intellectual abilities; implementation of an interactive dialogue in a single information space.

The functions include: normative-legal (indicators of achievements and development; it manifests itself as a system of moral norms, norms of a legal nature, which must be followed in the information society); epistemological (aimed at the systematization of knowledge, knowledge of the surrounding reality and self-knowledge by a person of himself); communicative (ensuring communication in the information society); adaptive (adaptation to the conditions of the information society); evaluative (assessment of the significance, usefulness of information, etc.); developing (formation of an active life position, independence, self-realization on the basis of a certain system of knowledge and norms adopted in the information society).

Properties have the following properties: dualism - the presence of an objective (external assessment of information competence by society) and subjective (internal - self-assessment of one's information competence by an individual) parties; relativity - knowledge and knowledge bases quickly become obsolete, so they can be considered as new only in a conditionally defined space-time interval; structuredness - each person has his own specially organized knowledge bases, hierarchically ordered into a certain system of knowledge about information, its types, properties, functions and methods of working with it, using information technologies in professional activities; accumulateness - knowledge and knowledge bases tend to "accumulate" over time; newly incoming knowledge is built into existing arrays;

selectivity - there is a selection of knowledge according to the principle of usefulness, the possibility of practical use in professional activities; dynamism - implies that a specialist does not have a significant amount of knowledge, but the ability to constantly update, update at the right time and use them in the process of professional activity; integrativity - manifested in the relationship with the socio-cultural environment of a librarian and the development of society as a whole; polyfunctionality - the presence of a variety of subject-specific knowledge bases (the semantic component of knowledge bases is multifunctional) allows you to perform many functions that are a factor in the success of the professional development of a librarian.

The peculiarity is that information competence is manifested in: self-renewal, application of new forms and ways of meeting the information needs of subjects, adapting information competence to changing conditions; self-development, complication of structural, functional and organizational parameters of the entire system of information competence; deepening the specialization of individual elements and the level of their interconnectedness and interaction with each other.

Research results

In dissertation work (Mamontova, 2011) proposed an alternative vision of the structure of information competence of a library specialist, which includes three components: cognitive, activity-creative and personal-motivational. The percentage distribution by the number of competencies (20% - cognitive component, 65% - activity-creative, 15% - value-motivational) corresponds to the general principle of practice orientation in the credit-modular system of higher professional education.

Monitoring (questioning, observation, interview, analysis and synthesis of data on student performance) of academic groups in the undergraduate direction "Library and Information Activities" of TUIT named after Muhammad al-Khwarizmi among students in the undergraduate direction "Library and Information Activities" (60-3rd year students and 50-4th year students) showed effectiveness (about 36% of average scores, about 28% of high scores) of the competency-based approach in the credit-module system of education and training of future library specialists compared to the traditional (academic) form of education (about 34% of average scores and about 18% of high scores) added optimism to continue active introduction into the learning path of information - analytical competencies, taking into account the processes of intellectualization of ICT.

Table 1 Summary of the results of the survey of undergraduates and students of bachelor (made by author)

No	Questionnaire Questions	Questionnaire answers	Quantity	%	Ranked
1	Status	Masters, bachelors	110	100	1 2 3 4 5
2	What professional competencies would you like to have:	1.Working with public organizations, attracting extra-budgetary funds and resources (PR management, advertising, fundraising, crowdfunding, outsourcing, etc.)	20	18	5
		2.The use of Machine Learning methods (ML) in the analytical work of the library	19	18	4
		3.Preparation and implementation of projects	18	17	3
		4. Working with Big Data in the library (large amounts of various data that require advanced methods and technologies for their collection, storage, distribution, management and analysis)	14	13	2
		5. Organization of cultural events	14	13	2
3	On what knowledge and skills, to the greatest extent, the effectiveness of library work depends:	1. Organizational skills	35	33	5
		2. Leveraging Library Innovation	33	31	4
		3.Communication skills, ability to work in a team	19	18	3
		4.Using Social Media to Advertise Library Activities	17	16	2
		5.Working with world information resources	16	15	1
4	What professional competencies are most important for a modern librarian:	1.Computer Literacy and Information Literacy	49	46	5
		2.Ability to navigate in the information space (navigation through information resources)	35	33	4
		3.Willingness to master and implement innovative technologies	28	26	3
		4.Ability to apply professional knowledge in practice	25	24	2
		5.Out of the box thinking, creativity	25	24	2
5	In what areas of the library activity do you need additional knowledge:	1.Application of information technology in the library	24	23	5
		2.Organization of funds and catalogs	23	22	4
		3.Information and analytical work	21	20	3
		4. Library statistics	15	14	2
		5.Reference and bibliographic work	13	12	1

On the other hand, diagnostics of the level of information and analytical competence of library specialists of the city information and library system made it possible to identify problem areas in the constituent components of information competence:

- the results of the analysis of data characterizing the cognitive component suggest that 56% of library specialists have theoretical knowledge at a low level; 28% - at an average level and 12% have knowledge at a high level. A weak theoretical basis for librarians was revealed. It is due to the low number of specialists with vocational education (10% higher and 34% secondary specialized education). A special problem is caused by the normative criterion: 45% of the respondents have a low level of right-wing culture. The survey was conducted voluntarily, anonymously, remotely, however, some employees of the city information and library system refused to take part in the survey, which, in our opinion, indicates some psychological barriers in understanding, studying and working with ICT for acquiring and improving information and analytical competence;

- the data characterizing the activity-creative component indicate that the leading place is occupied by such competence as “ownership of applied software”, the interdependence of the development of information competence and the creative component is confirmed (51% of respondents confirmed that the growth of information-analytical competence is accompanied by creativity, creativity in the profession);

- data characterizing the value-motivational component indicate the presence of two basic motives that stimulate the development of information and analytical competence of a library specialist, taking into account the ICT intellectualization process: “improving my professional level”, “increasing my own self-esteem”.

Factors contributing to the development of information and analytical competence were also identified (availability of good computer equipment; high level of computer proficiency among colleagues; monetary incentives, i.e., external factors for stimulating activities); hindering the development of information and analytical competence (lack of theoretical knowledge; imperfection of computer technology, the inability to update it in the near future; imperfection of methodological work and lack of advanced training courses and retraining of personnel).

Table 2. Summary of the results of the survey of managers and employees of the city information and library system (made by author)

No	Questionnaire Questions	Questionnaire answers	Quantity	%	Ranked
1	Status	Managers and employees	60	100	1 2 3 4 5
2	What professional competencies would	1. Consulting users and issuing informational certificates	22	52	5

	you like to have:	"questions - answers" (in traditional and electronic forms) 2. Preparation of book exhibitions, days of information, days of a specialist, benefit of the author, book premiere 3. Working with public organizations, attracting extra-budgetary funds and resources (PR management, advertising, fundraising, crowdfunding, outsourcing, etc.) 4. Creation of multimedia products (training videos, presentations) 5. Use of Machine Learning methods (machine learning) in the analytical work of the library	18 17 16 15	43 40 38 36	4 3 2 1
3	On what knowledge and skills, to the greatest extent, the effectiveness of library work depends:	1. Leverage library innovation 2. Use of Internet resources 3. Leadership qualities 4. Communication skills, ability to work in a team 5. Using social media to advertise library activities	40 32 32 20 20	95 76 76 48 48	5 4 4 3 3
4	What professional competencies are most important for a modern librarian:	1. Computer literacy and information literacy 2. Willingness to master and implement innovative technologies 3. Ability to apply professional knowledge in practice 4. Ability to navigate in the information space (navigation through information resources) 5. Out of the box thinking, creativity	40 37 27 22 21	95 88 57 52 50	5 4 3 2 1
5	In what areas of the library activity do you need additional knowledge:	1. Reference and bibliographic work 2. Application of information technology in the library 3. Forms of cultural and leisure work 4. Methodical work 5. Organization of funds and catalogs	31 28 20 18 18	74 67 48 43 43	5 4 3 2 2

Libraries with a new philosophy that comprehends (taking into account the increasing virtualization of communication with readers) the concept of free access to information as a system of distributed information resources based on network technologies.

Thus, it can be argued that library and information specialists of a new qualification level are gradually acquiring new competencies. They become experts, consultants on the principles of creation, preservation, distribution, management of electronic information resources (EIR) and technological means.

It is the librarians of the new formation, who implement the concept of deep intellectualization of their profession, who will secure the user's priority and the efficiency, comfort, speed of his information service in the relationship "library success - university success" (Kwanya, Stilwell, & Underwood, 2013).

Conclusions and discussion

In foreign libraries, there is currently a tendency to single out information learning as an independent direction. You can even see it in the job titles. So, employees who are directly involved in the reference service in the "request-response" mode are called "reference librarians", and employees who train users are "educators". And if earlier informational training of users to search for information was mainly characteristic of academic libraries (university libraries), where it was integrated into training programs as independent courses, now the range of libraries offering training services is expanding, for example, due to public libraries.

At present, the need for user training is determined not only by well-known factors (the educational mission of libraries, the need for users to adapt to the information environment, the obligatory library orientation and bibliographic training), but also by general trends in the development of the information society.

Thus, from the analysis of discussions in the literature, we can conclude that the library in the future should become an innovative intellectual library "Library - information intelligence center", in which the system will analyze the information itself and provide conclusions to users. The role of information and library specialists will be very important for the implementation of the above; Librarian 4.0 and bibliographer 5.0 training should be a top priority in the near foreseeable future, taking into account the intellectualization of ICT (Pedersen, 2016; Varnum, 2017; Palkevich, 2021).

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