

Research on the Construction of Professional Competence of University Librarians in the Era of Artificial Intelligence

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Abstract: *Artificial intelligence is an important feature and development trend of today's era, which has had a profound impact and challenge on various industries, including libraries as important institutions of knowledge service. The application of artificial intelligence technology provides new opportunities and possibilities for libraries, and also puts forward new requirements and expectations for the professional competence of librarians. Starting from the challenges and opportunities faced by librarians in the era of artificial intelligence, this article analyzes the connotation and composition of the professional competence of librarians, explores the goals, contents and approaches of professional competence construction for librarians in the era of artificial intelligence, and aims to provide references for improving the professional quality and service level of librarians and promoting the innovative development of library services.*

Keywords: *Artificial Intelligence; Library; Librarians; Professional Competence; Competence Construction*

1. Introduction

Artificial Intelligence (AI) refers to the intelligence demonstrated by a system created by humans. AI is a branch of computer science that attempts to understand the essence of intelligence and produce an intelligent system that can react in a similar way to human intelligence. Today, AI is an important driving force for the development of technology and industrial change in the world, and it is also an important symbol of national strategic competitiveness and international influence. In recent years, with the rapid development of new generation information technologies such as big data, cloud computing, and the Internet of Things, AI technology has made breakthrough progress, achieving significant breakthroughs in fields such as speech recognition, image recognition, natural language processing, and machine learning. It has been widely used in various fields such as education, healthcare, transportation, finance, and security, bringing about enormous changes and value to social and economic development.

As a knowledge service institution, libraries also face new opportunities and challenges in the era of artificial intelligence. On the one hand, AI technology provides libraries with new tools and means to achieve goals such as resource digitization, intelligent services, and optimized management, and improve library service efficiency and quality to meet the diverse, personalized, and convenient needs of users. On the other hand, AI technology also poses new requirements and expectations for libraries, such as how to adapt to changes in the information environment, how to make good use of AI technology, and how to protect user rights and data security, which need to be carefully considered and addressed by libraries.

Against this backdrop, librarians as the main bodies and implementers of library services also face new challenges and requirements for their professional competence. Professional competence refers to the comprehensive qualities such as knowledge, skills, attitudes, and values individuals possess in a specific professional field, which are the basic conditions necessary for individuals to perform their jobs. Librarian professional competence refers to the comprehensive qualities such as professional knowledge, skills, literacy, and innovation competence that librarians must possess in engaging in library service activities. With the widespread use of AI technology in library services, librarians not only need to master traditional library and information knowledge and skills but also need to have knowledge and skills related to artificial intelligence, as well as the competence to effectively

communicate and collaborate with users, colleagues, and other institutions. Additionally, librarians also need to have the competence for self-learning and innovative development to adapt to the constantly changing information environment and user needs.

Therefore, this article, starting from the challenges and opportunities that librarians face in the era of artificial intelligence, analyzes the connotation and composition of librarians' professional competence, and explores the goals, content, and approaches of constructing professional competence for librarians in the era of artificial intelligence. The aim is to provide references for enhancing the professional competence and service level of librarians and promoting innovative development of library services[1-2].

2. The Connotation and Composition of Librarian Professional Competence

Librarians' professional competence refers to the comprehensive qualities such as knowledge, skills, attitudes, and values that librarians should possess when engaged in library work. It is the foundation and guarantee for librarians to realize their own value and social value. The connotation and composition of librarian professional competence are influenced by factors such as the background of the times, social needs, and professional characteristics. With the advent of the era of artificial intelligence, librarian professional competence also needs corresponding adjustments and updates. According to the challenges and opportunities that librarians face in the era of artificial intelligence, this article believes that librarian professional competence can be divided into the following five aspects:

(1) Basic competence

Basic competence refers to the basic knowledge, skills, and literacy that librarians must possess when engaged in library work, including theoretical knowledge of library and information science, knowledge of literature resource management, knowledge of information organization and retrieval, knowledge of information services, and knowledge of information technology application. Basic competence are the core and foundation of librarian professional competence and are also the prerequisites and conditions for other competence.

(2) Innovation competence

Innovation competence refers to the creativity, innovation awareness, and innovative behavior that librarians should possess when engaged in library work, including discovering problems, analyzing problems, solving problems, proposing new ideas, new methods, and new models. Innovation competence is critical for librarians to cope with changes and challenges in the era of artificial intelligence, and it is also an important way to improve the service level and competitiveness of libraries.

(3) Collaborative competence Collaborative competence refers to the qualities of effective communication, coordination, and cooperation with others that librarians should possess when engaged in library work, including teamwork consciousness, communication skills, coordination skills, and collaboration skills. Collaborative competence is a necessary condition for librarians to realize cross-border integration and resource sharing, as well as an effective means to improve work efficiency and quality.

(4) Learning competence

Learning competence refers to the qualities of continuous learning, updating knowledge, and improving one's own quality that librarians should possess when engaged in library work, including learning consciousness, learning methods, and learning strategies. Learning competence is the guarantee for librarians to adapt to changes and development in the era of artificial intelligence, and it is also the way to achieve lifelong development and self-improvement.

(5) Responsibility competence

Responsibility competence refers to the qualities that librarians should possess when engaged in library work, including responsibility to oneself, users, and society, such as responsibility, professional ethics, legal awareness, etc. Responsibility competence is the foundation for librarians to win user trust and social respect, as well as an important factor in guaranteeing library service quality and safety. In the era of artificial intelligence, responsibility competence also requires librarians to pay attention to ethical and legal issues of artificial intelligence, such as protecting user privacy, respecting user

autonomy, preventing the abuse of artificial intelligence, and maintaining the fairness of artificial intelligence.

3. The Object of the Construction of Librarian Professional Competence in the Age of Artificial Intelligence

The goal of professional competence construction for librarians in the era of artificial intelligence refers to the level of professional competence and quality requirements that librarians should achieve under the background of artificial intelligence, and it is also the direction and guidance of professional competence construction for librarians.

Based on the connotation and composition of librarians' professional competencies in the era of artificial intelligence, this article believes that the goal of professional competence construction for librarians in the era of artificial intelligence can be defined from the following four aspects:

(1) Enhancing the level of foundational competencies

Foundational competencies are the core and foundation of librarians' professional competence, as well as the premise and condition for other competencies. In the era of artificial intelligence, librarians should possess solid theoretical knowledge of library and information science, knowledge of literature resource management, information organization and retrieval, information services, information technology application, as well as skills and qualities that correspond to them, such as literature retrieval skills, data analysis skills, information evaluation skills, information utilization skills, and ethical literacy.

(2) Enhancing the level of innovation competence

Innovation competence is crucial for librarians to adapt to changes and challenges brought by the era of artificial intelligence, and it is also an important approach to improve the service level and competitiveness of libraries. In the era of artificial intelligence, librarians should possess qualities such as creative thinking, innovative consciousness, and innovative behaviors. They should discover, analyze and solve problems, propose new ideas, methods, and models, and continuously try and verify them in practice.

(3) Enhancing the level of collaborative competencies

Collaborative competency is a necessary condition for librarians to achieve cross-disciplinary integration and resource sharing, and it is also an effective means to improve work efficiency and quality. In the era of artificial intelligence, librarians should possess qualities such as team consciousness, communication skills, coordination skills, and collaboration skills, and flexibly apply them in different scenarios to effectively communicate, coordinate, and collaborate with others.

(4) Enhancing the level of learning competencies

Learning competency is a guarantee for librarians to adapt to changes and developments in the era of artificial intelligence, and it is also a way to achieve lifelong development and self-improvement. In the era of artificial intelligence, librarians should possess qualities such as a sense of continuous learning, updating knowledge, and improving self-quality, such as learning consciousness, learning methods, and learning strategies, and continuously reflect on and summarize their work[3-4].

4. The Content of the Construction of Librarian Professional Competence in the Age of Artificial Intelligence

The contents of professional competence construction for librarians in the era of artificial intelligence refer to the specific measures and methods taken to achieve the goals of professional competence construction for librarians in the era of artificial intelligence. They are the implementation pathway and guarantee mechanism of professional competence construction for librarians. Based on the components of professional competencies for librarians in the era of artificial intelligence, this article believes that the contents of professional competence construction mainly include the following aspects:

(1) Strengthening the training and updating of professional knowledge and skills

Professional knowledge and skills are the basic conditions for librarians to engage in library and information services, and they also form the foundation for other competencies related to artificial

intelligence. Therefore, it is necessary to strengthen the training and updating of professional knowledge and skills for librarians, so that they can master the basic theories, concepts, methods, and norms of library and information science, be familiar with the characteristics, classification, acquisition, and use of literature resources, and grasp the operational methods, processes, and skills of information organization and retrieval, information analysis and evaluation, information services, and information management. They should also have a basic understanding of the concepts, principles, technologies, applications, ethics, and laws of artificial intelligence, have the skills to use artificial intelligence devices and systems, and be able to use artificial intelligence for data analysis and knowledge innovation, as well as interact and collaborate with artificial intelligence. Training and updating can take various forms, such as conducting special lectures, seminars, and training courses, providing online courses, video tutorials, e-textbooks, etc. through network platforms, encouraging autonomous learning, participating in project research, exchanging experiences, etc.

(2) Enhancing the cultivation and exercise of innovation and collaboration competence

Innovation and collaboration competence are key factors for librarians to respond to changes and challenges in the era of artificial intelligence, as well as an important way to improve the level and competitiveness of library services. Therefore, it is necessary to enhance the cultivation and exercise of innovation and collaboration competence for librarians, so that they can have creative thinking, innovation awareness, and innovation behaviors that enable them to discover problems, analyze problems, solve problems, and propose new ideas, methods, and modes. They should also have teamwork awareness, communication skills, coordination skills, and cooperation skills to communicate effectively with users, colleagues, and other institutions. Various forms of cultivation and exercise can be adopted, such as conducting innovation thinking training, innovation method guidance, and innovation case analysis. Encouraging participation in innovation project applications, innovation competition evaluations, and innovation achievements exhibitions. Establishing cross-departmental and cross-institutional collaboration platforms, and implementing collaborative projects and sharing experiences.

(3) Strengthening the guidance and supervision of learning competence and responsibility

It enables librarians to continuously learn, update their knowledge, and improve their own quality, as well as cultivating learning awareness, learning methods, and learning strategies. They should also have a sense of responsibility, professional ethics, and legal awareness towards themselves, users, and society, paying attention to ethical and legal issues related to artificial intelligence, such as protecting user privacy, respecting user autonomy, preventing AI abuse, and maintaining AI fairness. Various forms of guidance and supervision can be adopted, such as developing personal learning plans, participating in professional training, and reading professional literature. Establishing personal files, conducting regular assessments, and providing rewards and punishments as incentives[5-6].

5. The Pathways for Librarian Professional Development in the Era of Artificial Intelligence

The pathways for librarian professional development in the era of artificial intelligence refer to the specific paths and methods taken to achieve the professional development of librarians in the era of artificial intelligence, and are the actual form of the professional development of librarians. According to the goals and content of the professional development of librarians in the era of artificial intelligence, this article believes that the pathways for the professional development of librarians in the era of artificial intelligence can be explored from the following four aspects:

(1) Strengthening the training and education of librarians

Training and education are the basic means to improve the professional competence of librarians and are also necessary conditions for adapting to the changes in the era of artificial intelligence.

Librarians in the era of artificial intelligence should receive systematic, continuous, and multi-level training and education to update knowledge, enhance skills, broaden horizons, and strengthen innovation.

The content of training and education should cover basic competence, innovation competence, collaboration competence, and learning competence, and the form of training and education should be diversified, including online and offline, centralized and decentralized, self-directed and guided, etc. The main body of training and education should be diversified, including library internal, book and information industry, universities and research institutions, corporate bodies, and other forces.

(2) Strengthening the practical and innovative competence of librarians

Practice and innovation are important criteria for testing the professional competence of librarians

and are also the driving force behind the development of libraries in the era of artificial intelligence. Librarians in the era of artificial intelligence should actively participate in the practice of various work and services of the library, to improve their professional level, increase accumulated experience, solve practical problems, and meet user needs. At the same time, librarians in the era of artificial intelligence should be brave to try various innovative attempts to expand service areas, optimize service models, improve service quality, and enhance service influence. Practice and innovation should be user-centered, problem-oriented, effect-based, and principle of shared.

(3) Strengthening collaboration and communication among librarians

Collaboration and communication are effective ways to promote the improvement of professional competence of librarians and a necessary condition for realizing cross-border integration in libraries in the era of artificial intelligence. Librarians in the era of artificial intelligence should strengthen their cooperation and communication with their peers to share resources, exchange information, learn from each other and help each other. At the same time, librarians in the era of artificial intelligence should also strengthen their cooperation and communication with experts and scholars in other fields, enterprise institutions and other related parties to broaden their horizons, gain knowledge, learn from experiences, and seek cooperation. Collaboration and communication can take various forms, such as participating in various academic conferences, seminars, training courses, using online platforms for communication, discussion, and sharing, and establishing cooperative projects and platforms across departments and institutions

(4) Strengthening the evaluation and motivation of librarians

Evaluation and motivation are important means to ensure the improvement of professional competence of librarians and a necessary condition to stimulate the enthusiasm of librarians in the era of artificial intelligence. Librarians in the era of artificial intelligence should receive reasonable, scientific and diversified evaluation and motivation mechanisms to reflect work effectiveness, promote competence improvement, increase sense of achievement, and stimulate creativity. The content of evaluation and motivation should cover work performance, professional ethics, innovative contributions and other aspects. The forms of evaluation and motivation should be diversified, including self-evaluation, peer evaluation, user evaluation, expert evaluation, etc. The subjects of evaluation and motivation should be diversified, including various forces such as the library internal, the library information industry, social organizations, and so on.

6. Conclusion

The era of artificial intelligence has brought new challenges and requirements to librarians, but also provided them with new opportunities and space.

Librarians should establish correct professional concepts, actively adapt to the changes in the era of artificial intelligence, constantly improve their professional competence, and contribute to the high-quality development of libraries.

At the same time, libraries should also create a good environment and conditions for the professional competence development of librarians. Through training and education, practical innovation, collaboration and communication, evaluation and motivation, libraries should support and guide librarians to integrate, promote, and develop together with artificial intelligence.

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