**EduVision: Journal of Innovations in Pedagogy and Educational Advancements**
**Volume 01, Issue 10, October, 2025**
brightmindpublishing.com
**ISSN (E): 3061-6972**


# THE ROLE OF ARTIFICIAL INTELLIGENCE IN DEVELOPING THE PROFESSIONAL COMPETENCE OF A FUTURE TEACHER

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**Abstract**
Improving knowledge and skills in artificial intelligence is currently becoming a major national priority. Developing these skills is also essential for future teachers. Furthermore, the use of artificial intelligence technologies helps teachers quickly and effectively analyze data, develop curricula that meet individual student needs, and optimize the learning process. At the same time, artificial intelligence offers extensive opportunities for developing pedagogical strategies and equipping teachers with the skills necessary for professional growth.
This article analyzes articles on the competencies, literacy, and professional development of future teachers in this area, and attempts to explore the relationship between these concepts and digital competencies and digital literacy.

**Keywords**: Education, artificial intelligence, competence, digital technologies, knowledge, skills, qualifications.

## Introduction

As is well known, various new educational technologies have emerged over the past few decades, the most recent of which is artificial intelligence (AI) [1].
In recent years, along with the rapid development of artificial intelligence and its application in various fields, new opportunities for its use in the educational process have opened up. In particular, it can become an effective tool for developing professional competencies in students studying in fields such as Artificial Intelligence and Information Systems.
One of the main advantages of using artificial intelligence in education is its ability to adapt to the individual needs of each student. Traditional teaching methods rely

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on standardized programs and approaches that do not always take into account the individual characteristics of each student. Artificial intelligence makes it possible to create personalized educational programs that address the specific needs of each student. This allows for the most effective education, taking into account their preferences and needs.

Therefore, as the field of artificial intelligence-based education develops rapidly, one of the pressing issues is developing the skills of future teachers to participate in the design and implementation of educational programs, as well as the creation of integrated educational systems that support artificial intelligence.

This raises the question of defining the relevant knowledge, skills, and qualifications at all levels of education and clarifying their place in the competency framework for school and university graduates.

## Literature Review

Thus, in the analysis of sources for identifying recurring problems, including B.I. Toktarova, O.B. Rebko[2], M.N. Evstigneev[3] and others, the need to define the competencies of artificial intelligence for teacher training is emphasized; in the studies of N.A. Pakhtusova and others, the need for new teacher competencies that go beyond information technology and digital competencies is substantiated[4], and several models of such competencies have been developed, the most famous of which are the models of Long and Madzherko[5] and UNESCO[6].

It is also recognized that artificial intelligence is not a separate technology, but "computers that perform cognitive tasks that are typically associated with the human mind, in particular, learning and problem solving"[7].

## Research Methodology

Indeed, artificial intelligence is finding various applications in education, including chatbots, intelligent tutoring, and automated assessment systems. These AI-based systems create significant opportunities for all participants in the educational process [8]. Therefore, to educate the next generation capable of making inclusive and diverse contributions to AI development, we need to provide future teachers with the opportunity to learn about AI through curricula and professional development programs focused on AI and information culture.

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Therefore, the methodology of our study consists, firstly, of searching, analyzing, systematizing, and summarizing publications on the issues of literacy and professional training of future teachers in the field of AI, and secondly, of identifying the following areas in the field of AI: AI competencies; digital competencies; AI literacy; digital literacy; AI competence; and is devoted to studying the conceptual area of knowledge and skills associated with digital competence.

**Research Results**

It is worth noting that the role of professors in scientific research on artificial intelligence has been proven to be extremely important and multifaceted [9]. First, professors serve as sources of information for effective learning. Their contribution to professional development allows us to use teacher-related variables, such as teaching quality and engagement, to improve the accuracy of predictions, and second, professors provide valuable information about students and their behavior, which facilitates the implementation of AI.

Today, many educators are directly involved in checking the accuracy of AI algorithms by manually evaluating tasks and setting assessment criteria. Finally, they are providing pedagogical recommendations on the selection of AI-based educational materials and solving technical problems of AI-based teaching to optimize the design and usability of such systems.

Thus, the following can be highlighted as the main criteria for the formation of AI competencies in connection with the development of the continuous education process:

1) the widespread implementation of the State Program of the Republic of Uzbekistan “Digital Technology-2030”, aimed at improving the skills of personnel in all areas;

2) the fact that classes on artificial intelligence are being offered for students of higher educational institutions in the departments of “digital technology”;

3) the need to develop the knowledge, skills and qualifications of teachers in this area.

Also, artificial intelligence literacy includes mastering a new type of interaction with computing technology based on dialogue and collaboration. The ability of

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artificial intelligence systems to adapt to individual needs and imitate human interaction distinguishes them from other digital tools.

According to the results of the research, at the stage of applying artificial intelligence to education, it proves to be a useful tool for improving the effectiveness of the teaching process. Artificial intelligence can be used to monitor students in real time, reduce their workload, and provide them with immediate and personalized feedback. It can also help teachers analyze optimal teaching activities based on the analysis of student data. At the assessment stage, AI demonstrates its value by predicting and evaluating teacher performance with greater accuracy than traditional linear regression models. This allows for the automation of assessment and evaluation processes, providing teachers with insights into the effectiveness of teaching practices.

However, in terms of artificial intelligence:

- many aspects of teacher literacy and qualification requirements have not been fully studied;
- there is no single definition of the terms “competence” and “competence” in the field of artificial intelligence in the context of education;
- artificial intelligence literacy is based on digital literacy;
- the development of the former is possible only with the development of the latter.

## Conclusion

In general, the results obtained show that artificial intelligence has the potential to significantly optimize various aspects of the educational process, providing benefits at each stage of the educational journey.

Working with an artificial intelligence system requires the use of digital devices and information, computer and communication literacy, which are usually considered components of digital literacy.

## References

1. Bonk C.J., Wiley D.A. (2020) Preface: Reflections on the waves of emerging learning technologies. Educational Technology Research and Development, №68 (4). P.1595-1612.

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brightmindpublishing.com
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2. Toktarova V.I., Rebko O.V. Digital Competencies of Teachers in the Field of Artificial Intelligence: Analysis of Models and Requirements // Information and Education: The Limits of Communications. 2023. No. 15(23). Pp. 155–158.
3. Evstigneev M.N., Sysoev P.V., Evstigneeva I.A. Competence of a Foreign Language Teacher in the Field of Artificial Intelligence // Foreign Languages at School. 2024. No. 3. Pp. 90–96.
4. Pakhtusova N.A., Uvarina N.V. Actualization of the Problem of Future Teachers' Readiness to Apply Artificial Intelligence Technologies in the Context of Digitalization of Education // The World of Education – Education in the World. 2023. No. 4(92). Pp. 216–223.
5. Long D, Magerko B. What is AI literacy? Competencies and design considerations //CHI'20: Proceedings of the 2020 CHI conference on human factors in computing systems, Honolulu, USA, 25–30 April 2020 / ed. R. Bernhaupt, F. Mueller, D. Verweij, et.al. New York : Association for Computing Machinery, 2020. P. 1–16. https://doi.org/10.1145/3313831.3376727
6.AI competency framework for teachers. UNESCO, 2024. https://doi.org/10.54675/ZJTE2084
7. Baker T., Smith L. (2019) Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges. Retrieved from Nesta Foundation website. P. 115-125 [in English]
8. Chiu T.K., Meng H., Chai C.S., King I., Wong S., & Yam Y. (2021) Creation and evaluation of a pretertiary artificial intelligence (AI) curriculum. IEEE Transactions on Education. №65 (1). P. 30-39.
9. Zhienbaeva S., Zhumabekova F., Kerimbaeva R., Salimbaeva S., Taitelieva L., Bulshekbaeva A. Preparation of preschool education specialists for innovative activities in preschool organizations. The World Journal of Educational Technologies: current issues]. №14 (3). 2022. P. 619-629.