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Improving the Professional Compensation of Future Elementary School Teachers Using Artificial Intelligence Tools

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Abstract: The article discusses improving the professional compensation of future elementary school teachers using artificial intelligence tools. Analysis of original foreign sources considering the possibilities of general education in the context of digitalization. The advantages of using artificial intelligence in the educational process, in particular pedagogical agents: individualization of learning, tutoring, identifying gaps in students in primary school, assistance in choosing a learning path, creating a smart school.

Keywords: primary school, artificial intelligence, modern education system, schoolchild, professional competence of a teacher.

Introduction. In recent years, our country has been implementing comprehensive reforms in all areas. Long-term strategies with clear goals and indicators have been adopted and are being consistently implemented. The "Digital Uzbekistan — 2030" strategy approved by the Head of State and the rapid introduction of artificial intelligence technologies and their widespread use in our country have established the possibility of using digital information and ensuring its high quality, creating favorable conditions for training qualified personnel in this area [1]. To this end, efforts have been launched to create a convenient and acceptable ecosystem for the development of innovative business models, products and service delivery methods in the field of artificial intelligence technologies, their rapid introduction and implementation in the identified priority sectors and areas. The reason is that artificial intelligence technologies are one of the most rapidly developing promising areas of digital technologies.

The Ministry of Innovative Development is implementing a number of tasks set by our Government to create conditions for the accelerated introduction of artificial intelligence technologies. In particular, within the framework of state programs for scientific activity, a total of 24 practical, innovative, fundamental and international projects on the development of artificial intelligence with a total cost of 38.9 billion soums and a duration of 2021–2024 are being implemented. In accordance with the Decree of the President of the Republic of Uzbekistan No. PD-60 dated January 28, 2022 "On the Development Strategy of New Uzbekistan for 2022–2026", as well as in order to implement priority tasks to bring the field of information and communication technologies to a new level, a resolution of the President of the Republic of Uzbekistan was signed.

Research in the field of artificial intelligence began in the middle of the last century. The English mathematician and cryptographer Alan Turing is considered the author of the first research in this area. In the 80s of the XX century, Artificial Intelligence began to be recognized as a discovery. Scientists began to develop textbooks in this area. Also, in 1997, the famous chess program "Deep Blue" was created, which defeated the World Chess Champion Garry Kasparov. In these years, a 6th generation computer project based on neural networks was being developed in Japan. After that, attention to Artificial Intelligence increased. From large companies to military institutions, they began to finance this area. As a result, the number of new technologies increased, competition intensified, and Artificial Intelligence tools became more perfect.

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Today, the content and methods of teaching need to be transformed into a new format that will meet the needs of the XXI century. While education is facing the challenge of modern technology, the development of artificial intelligence is what can most influence what education will look like in the future and expand its capabilities to respond to modern challenges. Artificial intelligence has the potential to significantly increase the efficiency of the education system, personalize the learning process according to the individual needs of students and significantly reduce the administrative burden on teachers. Artificial intelligence will allow individualization of learning, which a teacher in a class of 30 students or more is not able to do, especially in primary school, and provide formative assessment on a completely new level.

Results and discussion. Research in artificial intelligence and machine learning can also make a positive contribution to pedagogical disciplines and psychology by determining how people learn and how the thought processes of learning occur. For example, artificial intelligence algorithms can accurately determine which parts of the learning materials are less clear to students in the primary grade or where they make more mistakes. Ultimately, they can adapt the learning to each student in primary school. Online educational systems and entire digital platforms using artificial intelligence already help future primary school teachers evaluate students' work, such as essays. Some studies have shown that algorithms evaluate more objectively than the best teachers. For example, they are free from the personal bias that a future primary school teacher may sometimes have. Artificial intelligence does not have to process all of a student's work in primary school, only its design, which a live teacher then continues to work on. At present, however, this means that the submitted work must be in electronic form, so these systems are used mainly in higher education. It is through human-machine collaboration with artificial intelligence, rather than the replacement of the teacher by a machine, that many visionaries see the future of learning.

From a pedagogical perspective, it seems more meaningful to use artificial intelligence to develop competencies that will enable people to overcome learning difficulties, so that artificial intelligence replaces the skills that are the basis of important cognitive abilities. Artificial intelligence can be thought of as the ability of computer programs to work in a similar way to the human brain, that is, without predetermined programming. Although artificial intelligence has not yet reached the level of the human brain, it can use almost unlimited capacity and copy quickly. Therefore, if artificial intelligence can be trained to act as an individual teacher, one can very quickly provide such a teacher to each person and switch learning from the masses to the individual.

Czech researcher O. Neumayer gives examples of existing scientific developments in artificial intelligence for school education in collaboration with primary school teachers. Thus, a company (start-up) called SmallStep has created an artificial intelligence technology that will automatically create educational and training texts from any text source in any field of knowledge. SmallStep is currently testing a technology for teaching native language in primary school. It is enough to “feed” the technology with a large number of articles in the native language in the subject area, and it will itself generate educational exercises and quizzes, called learning subjects. Then another artificial intelligence technology tracks the progress of each student, prepares exercises for him, fully adapted to his abilities and successes, which ensures the most effective learning trajectory. A primary school teacher monitors the overall development of the student online through control interviews. Thanks to technology, the teacher can interact with a much larger number of students.

Another example is a startup called Illumina in the field of teaching mathematics in primary schools. Mathematics is quite problematic for every child. School education is not enough, and more homework is needed, but not everyone has the conditions for this. The Illumina startup has prepared a wide range of computer games for teaching mathematics, which use artificial intelligence to interact with the student, pursuing specific learning goals. Artificial intelligence hidden in computer game entertainment will be able to teach problem areas to an elementary school student (for example, learning fractions, division, multiplication) more effectively than if parents sat with him for several days. The student will choose the right moment for learning, and parents will have time to play or talk with him. Startup Smallstep and Illumina are part of the Czech artificial intelligence accumulator AI

Startup Incubator. So far, this is only the beginning of such learning systems, but scientists believe that the fundamental rationalization of learning will have a huge impact on humanity as a whole. These technologies have no bandwidth limitations, and in the future, anyone with a basic computer and an Internet connection will have the opportunity for individual learning.

Although all the possibilities of using artificial intelligence in education have not been revealed, scientists have made some conclusions about five main changes that should occur in education with its help:

1. Creating an adjustable learning environment. Artificial intelligence makes education adaptable and flexible. Every person is different: for some, it is easier to read texts and understand visual information, while for others, it is easier to perceive and remember information by ear. Artificial intelligence can help to adjust the learning environment in such a way that it is most productive for a particular student. The educational impact of this adaptability and flexibility is enormous. Traditional educational systems and curricula do not take into account the abilities and capabilities of students sufficiently. Artificial intelligence can create a learning environment that will adapt to the needs of an individual in learning and make his or her learning more effective.
2. Increasing efficiency. Artificial intelligence can speed up learning processes and reduce manual work associated with education. Unfortunately, some administrative tasks, often called other things, can really take up most of the time of a teacher or a student. Artificial intelligence can automate these processes, increasing the efficiency and quality of education. In the future, teachers and students will be freed from many labor-intensive and unproductive processes. For example, students and teachers can reduce the time spent on paperwork and other administrative tasks (preparation of curricula, methodological developments by the teacher) and save their time for real teaching.
3. Educational platform based on artificial intelligence (AI). With artificial intelligence, students can access an educational platform that is not only tailored to their needs, but can also teach them in areas where human teachers cannot. For example, AI learning platforms usually operate on the basis of information that has been collected from several sources, carefully analyzed, and then verified. A human tutor cannot be aware of trends and events at the same level as artificial intelligence.
4. Learning through play. Learning through play has already become popular in preschool and primary education. Children learn how the world works and functions from some educational games. However, this creative approach to learning can also be implemented at higher levels of education, helping students develop the skills they would like to acquire.
5. Teaching children with special educational needs. When it comes to students with learning difficulties, with special educational needs, problems can be solved thanks to artificial intelligence, which makes learning not only individualized, but also targeted. Its algorithms are designed to help people with special needs in the most effective way.

Although much progress has been made in understanding how pedagogical agents support learning, much remains unknown. The field needs to develop an empirically grounded research base on which types of pedagogical agents are most suitable for which groups of learners and in which contexts. For example, are there groups of learners or contexts for which pedagogical agents are not only unsupportive but actually harmful? Are there groups of learners or contexts for which pedagogical agents are likely to be particularly beneficial? Experience accumulated over the past decade through many projects shows that pedagogical agents have a strong stimulating effect on learners aged 6-14, and they are particularly useful as non-player characters in cultural learning applications.

Conclusion. Thus, the study of original foreign sources made it possible to present the possibilities of education in the context of modern civilizational challenges, namely digitalization. New digital technologies, such as the use of artificial intelligence in teaching, pedagogical agents as one of the types of artificial intelligence, allow for the individualization of the educational process, making the

educational environment flexible and adaptable, thereby taking into account the abilities and capabilities of each student, increasing the effectiveness of teaching, easing the workload of future primary school teachers, assisting them in assessing educational activities and preparing educational documentation.

At the same time, it is indicated that the use of digital technologies should be controlled and safe for students. Artificial intelligence also helps teachers update their knowledge and skills, personalize and effectively organize the educational process. These technologies provide opportunities to learn innovative pedagogical methods, create materials tailored to the needs of students, and optimize the teaching process. As a result, they develop the professional compensation of future primary school teachers and improve the quality of education.

References

1. Lex.uz “National Database of Legal Information of the Republic of Uzbekistan”
2. Alijon M., Rakhmonjon A. & Asilova S. (2023). Psychological Solution to Problems Related to Work Stress in The Educational Process. Kokon University Newsletter, 854-860.
3. Idikova A.B. & Kolosova O.G. (2024). Artificial intelligence as a tool for teachers' labor motivation. Economy and Business: Theory and Practice, (4-2 (110)), 39-45. doi: 10.24412/2411-0450-2024-4-2-39-45
4. Gorbunova N. V., & Boyko I. (2022). Use of artificial intelligence in the management system of the professorial teaching staff of a higher educational institution. Problems of Modern Pedagogical Education, (77-1), 121-124.
5. Yo’ldashev, A. (2022). Possibilities of artificial intelligence in education. Academic research in educational sciences, 3(11), 726-729.