DEVELOPING SCHOOL PRINCIPALS' ARTIFICIAL INTELLIGENCE COMPETENCES: A PROGRAM ANALYSIS OF A MANAGEMENT COURSE (UZBEKISTAN)

Normatov Sultan. *Doctor of Philosophy in Pedagogical Sciences, PhD.*
National Institute of Pedagogical Skills named after A. Avloni, Tashkent.

Abstract. *This thesis analyzes the scope, content, time allocation, and integration level of artificial intelligence (AI) elements with other modules within the official curriculum and program of the management training course organized for candidates for the position of director at state general secondary education institutions. Based on the analysis results, proposals have been developed to further enhance the professional competencies of school principals regarding AI.*

Keywords: *artificial intelligence, school principal, management course, digital competence, curriculum, professional development, educational management.*

Today, artificial intelligence (AI) technologies are actively integrating into all levels of educational management. This is opening new opportunities for school principals in their professional activities, particularly in areas such as data analysis, decision-making, document management, and monitoring pedagogical processes. Therefore, it is critically important to scientifically analyze the extent to which competencies in digital technologies and artificial intelligence are reflected in the content of management training courses organized for both candidates and current directors of state general secondary education institutions.

The curriculum and program developed by the A.Avloni National Institute of Pedagogical Excellence and approved by Order No. 144 of the Minister of Preschool and School Education dated April 16, 2026, "Improved curriculum and curriculum of the management training course for candidates for the position of director of state

general secondary educational institutions" (144 hours, one month), serve as the subject of analysis as an official regulatory document in this field.

The purpose of the study is to analyze the volume, content and location of artificial intelligence elements in the curriculum and program of the management training course and to develop reasonable proposals for further developing the AI competencies of school principals. Based on this goal, the following tasks were set. Quantitative analysis of the place of the AI module in the overall module structure of the course, qualitative analysis of the content of the AI module, assessment of the time distribution (synchronicity) of AI topics in the educational process, determination of the level of integration between AI and other modules of the course, and formulation of substantive and methodological proposals based on the results.

The curriculum consists of a total of 12 modules and a final test, which total 144 hours. The module “Digital Technologies and Artificial Intelligence (AI) in Management” is allocated as a separate module VII, with a total volume of 10 hours, which is only 6.9% of the total course load. Table 1 below shows the volume and share of hours for all modules.

Table 1. Structure of the improved curriculum of the management training course for candidates for the position of directors of state general secondary educational institutions.

№	Module Name	Hours	Share (%)
1	Education Management	24	16.7
2	Managing and Developing the Teaching-Educational Process	20	13.9
3	Human Resource Management (HR)	16	11.1
4	Leader's Self-Development and Continuous Professional Development of Teachers (CPD)	12	8.3

5	Managing Financial Relations	12	8.3
6	Digital Technologies and Artificial Intelligence (AI) in Management	10	6.9
7	Leadership in Education and Change Management	8	5.6
8	Recordkeeping and Accountability	6	4.2
9	Community and Parent Engagement	6	4.2
10	Organizing Inclusive Education	6	4.2
11	School Practicum	6	4.2
12	Practical Assignments Consultation	6	4.2
13	Final Assessment	12	8.3

As can be seen from the table, the AI module ranks sixth in terms of volume among the 12 main modules and is allocated significantly less time than such large modules as "Educational Management" (24 hours), "Management of the Educational Process" (20 hours), and "Human Resources Management" (16 hours).

The content of the module includes two topics: “Digital Competence in Management” (4 hours) and “Using Artificial Intelligence Systems” (6 hours). Both topics are organized in the form of 100% practical training, and no theoretical hours are allocated - this is a positive aspect of the approach focused on practical skills. The content of the program includes the use of specific chatbot tools such as ChatGPT, DeepSeek and Claude AI to analyze educational data and make management decisions, as well as the skills of writing prompts to comply with the ethics of artificial intelligence and create management resources. Since there are not enough popular and free specialized artificial intelligence applications for the systematic organization of

management processes, this content fully meets the requirements of today's development of AI technologies.

The time allocation plays an important role in the subsequent content analysis. The AI module is placed in the 3rd and 4th weeks of the course, that is, at the final stage of the learning process (6 and 4 hours, respectively). This limits the ability of students to apply the acquired skills in AI tools in other practical parts of the course - in particular, in topics such as strategic management, financial management, management decisions and human resource management and assessment, which are covered in weeks 1-3. Also, the “School Practice” module coincides with the AI module (week 3), and students may not have time to fully develop their knowledge and skills in AI before going to practice. This analysis was carried out based on the indicated sequence of the modular structure in the curriculum. An analysis of the lesson plans of management training courses revealed that in 70% of cases, AI topics are placed in weeks 1-2 of the course. This directly indicates a difference in the order of AI-related topics in the curriculum and the timing of these topics being introduced to students in management courses.

The introduction to the course program specifically emphasizes the development of AI skills as one of the general objectives of the course, and this goal is actually implemented within a separate independent module. Other modules — “Management Decisions”, “Evaluation of Education Quality”, “Evaluation of Human Resources Performance”, “Management of Financial Relations” — do not specifically address the use of AI tools, that is, the level of interdisciplinary (cross-cutting) integration is not high. When analyzing the content of the program from the point of view of module effectiveness, the topic “Using Artificial Intelligence Systems” focuses on covering three main areas in 6 hours — the use of chatbot tools in analyzing educational data and making decisions, the ethics of artificial intelligence, and prompt writing skills. In practice, it is difficult to master such a wide range of content in a deep and practical

way in 6 hours, as each area (for example, prompt engineering or ethical rules) may require separate, solid practical exercises. Therefore, there is a partial imbalance between the content of the module and the time allocated to it.

A number of educational literature and resources have been developed based on the curriculum and program [4; 5; 6]. The analysis showed that separate textbooks have been published for each module and their content is constantly being improved. The content of these educational literature fully reflects the content of the modules and topics specified in the curriculum and program.

Looking at international experience, in school principal training programs in developed countries (for example, leadership academies in OECD countries), digital and artificial intelligence competencies are taught not as separate modules, but as integrated into all management disciplines - within complex areas such as "data-based decision-making", "digital leadership". This approach allows students to perceive AI tools not as a separate technique, but as a tool for solving everyday management tasks. In the management course under analysis, AI is still presented as a separate, relatively isolated module, which may limit its long-term practical effectiveness. Also, the issue of training and methodological support of the module deserves special attention. Since artificial intelligence tools (such as ChatGPT, DeepSeek, Claude AI) are being updated at a rapid pace, it is necessary for the professors and trainers conducting this module to constantly improve their skills. Otherwise, the content of the program risks becoming obsolete within a few months. The program text does not specify any specific requirements for trainers to be trained or certified in a specific AI.

Methodologically, the program involves the use of project and experience-sharing methods through independent modules such as “Practical Task Consultation” and “School Practice”. Directly linking these two modules with the AI module can have a more effective impact on the preparation of trainees for the final assessment. If the prompt writing and analytical skills mastered within the AI module are inextricably

linked to the projects and presentations carried out during the “Practical Task Consultation” and “School Practice”, trainees will have the opportunity to test theoretical and practical knowledge in a real management situation.

The analysis shows that while the presence of a standalone and fully applied AI module in a management course is a positive development, its size, placement within the course, and level of integration with other modules require further adaptation to today's rapidly evolving technological requirements. There are several areas for improvement in the AI component of the curriculum. In this regard, it is advisable to (a) increase the module hours from the current 10 to 14 hours (up to 10 percent of the total), for which it is possible to allocate training partially focused on AI technologies from the hours of practical assignment consultations and school practice, (b) integrate AI topics into other modules “Management Decisions”, “Strategic Management”, “Evaluation of Education Quality”, “Evaluation of Human Resources Activities” and “Financial Relations Management” and include separate practical tasks on data analysis, forecasting and reporting using AI tools in these modular topics, (c) develop clear criteria (rubrics) for assessing AI competence in the final assessment. It is also important to establish ongoing support after the course is completed. In this regard, given the rapid pace of AI technologies, it is important to organize professional collaboration teams (PLCs) and short-term retraining micro-courses for graduating directors.

It is recommended to develop an internal code of ethics for the use of AI at the school level, linking the content of the AI module with the topics “Ensuring Child Safety and Well-being” and “Standards for Working with Students’ Personal Data”. In the long term, it is recommended to use the opportunities to approach the integrated model in international practice by partially integrating some of its elements (for example, data-based decision-making) into the structure of larger modules such as

"Educational Management" and "Management Decisions", while maintaining the content of the AI module as a separate section.

The implementation of the above proposals will serve to develop the professional competencies of school principals in artificial intelligence in a systematic, consistent, and practice-oriented manner, as well as to bring the quality of management of general secondary educational institutions to the level of modern digital requirements.

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