

A SYSTEM OF INDIVIDUALIZED LEARNING METHODS AND DIDACTIC TOOLS BASED ON ARTIFICIAL INTELLIGENCE

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Abstract. This thesis examines a system of individualized learning methods and didactic tools for teaching the subject “Contemporary History of Uzbekistan” through artificial intelligence technologies. Particular attention is paid to considering learners’ individual levels of knowledge, developing historical thinking and critical thinking, comparing historical sources, and reducing potential risks arising from the use of artificial intelligence in education. The proposed methodological system combines adaptive learning, interactive dialogue, multimedia and visual reconstruction, critical historical thinking and media literacy, formative assessment, and project-based research methods.

Keywords. artificial intelligence, individualized learning, adaptive learning, didactic tools, history education, historical thinking, critical thinking, media literacy, fact-checking, digital education.

Today, the development of the educational process through digital technologies and the organization of instruction based on learners’ individual needs and levels of knowledge are becoming important pedagogical tasks. In particular, the emergence of artificial intelligence technologies in education is expanding opportunities to individualize learning tasks, adapt educational content, identify learners’ knowledge gaps, and generate learning materials according to their level of achievement.

This process is also particularly important for history education. When teaching the subject “Contemporary History of Uzbekistan,” it is important for learners not only to remember historical events, but also to analyze them, compare different historical sources, identify cause-and-effect relationships among events, and express independent opinions about historical processes. From this perspective, developing individualized learning methods based on artificial intelligence is one of the promising directions for improving the methodology of teaching history.

Therefore, within the framework of the research, it became necessary to provide the developed functional model with appropriate methods and didactic tools for its implementation in practice. At the next stage of the research, particular attention was paid to developing a system of practical methods and didactic tools for teaching “Contemporary History of Uzbekistan” based on artificial intelligence while taking learners’ individual characteristics into account.

The study identified the potential of interactive-dialogic, individualized (adaptive), multimedia and visual reconstruction, critical historical thinking and media literacy, formative assessment, and project-based research methods for organizing history education through artificial intelligence.

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In developing individualized learning tasks, mechanisms were used to determine learners' existing levels of knowledge and adapt subsequent tasks according to identified "knowledge gaps." In this process, the principle of scaffolded complexity was applied, which involves gradually increasing task difficulty while taking into account learners' individual development dynamics.

To develop historical thinking and critical thinking, a system of didactic tools aimed at verifying historical information was developed. In particular, based on the principle of "two-stage/two-source verification," the system includes fact-checking exercises, activities involving the hierarchy of historical sources, and tasks for comparing "two interpretations" presented in different sources and evaluating their reliability.

The study also paid special attention to enriching history education with regional historical and cultural materials. In particular, opportunities were considered for using materials related to historical and cultural heritage sites in Khorezm Region, including Ichan-Kala in Khiva and the QalajiQ fortress area. The use of virtual museums, layered maps, and oral history interviews creates opportunities to connect general national historical knowledge with local historical and ethnographic materials.

The study also identified a number of challenges that may arise when artificial intelligence technologies are used in history education. These include:

- inaccurate or distorted presentation of historical information by artificial intelligence, known as the "hallucination" phenomenon;
- learners accepting information generated by artificial intelligence as correct without verification, referred to as automation bias;
- weakening of independent and critical thinking skills as a result of excessive reliance on ready-made answers;
- digital inequality in access to technological opportunities;
- challenges related to ensuring the privacy of personal and other data in the educational process.

To reduce these risks, the methodological system incorporates a "two-stage verification" rule, a process-oriented assessment principle, an "offline-first" approach, and mechanisms for continuous professional development of teachers in the pedagogical use of artificial intelligence technologies.

Thus, the system of methods and didactic tools developed for teaching "Contemporary History of Uzbekistan" based on artificial intelligence contributes to taking learners' individual levels of knowledge into account, developing historical and critical thinking, analyzing historical sources, and expanding opportunities for independent activity in a digital learning environment. In addition to utilizing the didactic potential of artificial intelligence, the system also incorporates mechanisms for managing the pedagogical and information-related risks that may arise from its use.

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