

## THE ROLE OF MODERN TECHNOLOGIES IN THE DEVELOPMENT OF THE KARAKALPAK LANGUAGE

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**Abstract.** This article examines the role of modern technologies in the development of the Karakalpak language. The study analyzes the influence of the Internet, mobile applications, electronic resources, and artificial intelligence-based programs on language preservation, learning, and dissemination. It also highlights the significance of digital environments in increasing the use of the Karakalpak language among youth and enhancing its lexical and grammatical richness.

**Keywords:** Karakalpak language, digital technologies, artificial intelligence, internet, online education, electronic dictionary.

**Introduction.** In today's era of globalization, the development of languages is closely linked to modern technologies. The Internet, mobile applications, electronic resources, and artificial intelligence (AI)-based programs serve as essential tools for preserving, learning, and promoting national languages. The Karakalpak language is no exception. The use of a language in a digital environment is one of the main factors determining its vitality and level of development.

Linguist David Crystal notes: *"The Internet does not destroy language; rather, it creates new forms of it."* (Crystal, *Language and the Internet*, 2001). This observation illustrates that national languages are gaining new opportunities in the digital era.

Moreover, American linguist Noam Chomsky emphasizes that language is a primary means of human thought and cultural expression, and that its development depends on social and technological environments. Thus, modern technologies provide new conditions for the advancement of national languages.

**Literature Review.** The relationship between language and technology has been widely studied. David Crystal highlights that the Internet introduces new linguistic forms rather than harming language development. Noam Chomsky underscores the intrinsic link between language, human thought, and society. Manuel Castells, a scholar of information society, notes that modern technologies have fundamentally transformed knowledge dissemination (Castells, 1996). These theoretical perspectives provide a foundation for understanding the development of the Karakalpak language in digital contexts.

**Research Methodology.** This study employs analytical, comparative, and descriptive methods. Scientific sources were examined to analyze the influence of modern technologies on the Karakalpak language. Internet resources, electronic dictionaries, and online learning platforms were evaluated to demonstrate their role in language development. The results confirm that modern technologies are among the key factors influencing language progress.

**Analysis and Results.** Information technologies have significantly facilitated the study and research of languages. Through electronic libraries, digital texts, online dictionaries, and automatic translation systems, users can access large volumes of information in a short period.

According to Manuel Castells, *"New information technologies are fundamentally changing the ways knowledge is produced and disseminated"* (Castells, 1996). This transformation has influenced linguistics, bringing research to a new level.

Today, AI-based programs enable the study of foreign languages, text analysis, speech-to-text conversion, and various linguistic analyses. Technologies such as Google services and AI systems like Deepseek and ChatGPT have elevated language work to a new stage.

The Internet has expanded the reach of the Karakalpak language. Social networks, blogs, and video platforms have increased the amount of content in Karakalpak, promoting its use among youth.

*“Language emerges through communication. It operates through speech at specific times and is applied in different social domains”* [4.13]. Therefore, developing language through modern tools is a key task.

Mobile applications play an important role in language learning today. Online courses, video lessons, and interactive exercises allow the Karakalpak language to be studied not only in Karakalpakstan but also in other countries.

George Siemens, a theorist of digital learning, emphasizes: *“Technologies have changed the way people live, communicate, and acquire knowledge.”* This has a direct impact on language education.

Electronic dictionaries, text-checking software, and speech recognition systems make language learning more convenient. Programs such as Tilmoch.uz and From-to.uz significantly contribute to the development of the Karakalpak language. Tilmoch.uz translates from Uzbek into Karakalpak or other Turkic languages, highlights orthographic errors, and can also translate into foreign languages using AI. From-to.uz offers similar functionality.

The lexical structure of the Karakalpak language is closely linked to its historical development. Its vocabulary consists of: words common to Turkic languages, national lexical units unique to Karakalpak, loanwords from Arabic and Persian, and words borrowed through Russian.

The language system also includes synonyms, antonyms, homonyms, and phraseological units that play important stylistic roles. During its evolution, new words—neologisms—continually emerge.

Computational linguist Christopher Manning writes: *“Large volumes of digital text enable linguists to analyze language patterns in ways previously impossible.”* The creation of electronic corpora and digital dictionaries in Karakalpak linguistics represents an important future direction.

The development of the Karakalpak language is also closely tied to the nation’s cultural heritage. Karakalpak literature and folklore hold a significant place. Literary traditions associated with the renowned poet and thinker Ajiniyaz continue to the present day. Modern technologies allow for digitization, preservation, and wide dissemination of this valuable heritage. Electronic libraries and online archives provide broad access to historical sources.

Digital technologies create new opportunities for the Karakalpak language. Online textbooks, scientific articles, dictionaries, and educational materials are widely available, allowing students, researchers, and teachers to quickly and conveniently access essential resources.

E-learning systems serve as important tools for language instruction. Online platforms, video lectures, interactive tests, and multimedia materials enhance the effectiveness of learning. Distance learning technologies also enable the study of the Karakalpak language not only locally but internationally.

Computational linguistics has introduced new approaches to language research. Electronic text corpora, automatic analysis programs, and translation systems facilitate deeper study of the language’s grammatical and lexical features. These technologies accelerate research and produce new scientific results.

Modern technologies are thus a crucial factor in the development of the Karakalpak language. The Internet, AI, mobile applications, and digital platforms expand opportunities for preserving, learning, and promoting the language. Promoting the use of the mother tongue among youth, increasing electronic resources, and digitizing scientific research are among the key tasks.

**Conclusion.** In summary, modern technologies play a significant role in the development of the Karakalpak language. Digital learning, online resources, electronic dictionaries, linguistic software, and social networks contribute greatly to language learning and popularization. As

highlighted in scientific sources, in addition to studying the phonetic, lexical, and grammatical systems of the language, its development through modern technologies is one of the pressing tasks of today. In the future, creating a digital corpus of the Karakalpak language, developing AI-based translation systems, and improving educational platforms will contribute to its advancement at an international level.

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