ARTIFICIAL INTELLIGENCE IN DIGITAL PEDAGOGY: AN ANALYSIS OF PODCAST AUDIENCES

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Abstract: This article explores the role of digital pedagogy and artificial intelligence technologies in the analysis and optimization of educational podcasts. The research demonstrates the potential of AI tools to identify audience interests, topics, and behaviors, thereby personalizing content and increasing its effectiveness. Digital resources and media pedagogy facilitate interactivity in content creation, evaluation, and the educational process. The article also specifically analyzes the role of Uzbek platforms in advancing education, supporting scientific research, and preserving and promoting the local Uzbek language. Furthermore, the article provides recommendations regarding the risks of digital passivity, maintaining content quality, and organizing a conscious learning process with the aid of AI.

Keywords: Digital pedagogy, artificial intelligence (AI), podcasts, media pedagogy, digital resources, Uzbek platforms, education.

Introduction. Modern education is actively integrating digital technologies, expanding the scope of traditional learning. The use of digital tools fundamentally transforms the educational process, increasing its efficiency while also placing corresponding demands on participants' level of digital competence.

The novelty of the research lies in the development and approbation of artificial intelligence methods for analyzing the audience of educational podcasts - a promising but understudied format in Russian pedagogy, which began to develop in the media space in 2017 and has since shown rapid growth [1; 28]. Educational podcasts are becoming an important pedagogical tool, providing the opportunity to disseminate knowledge in a convenient and accessible format. At the same time, the effectiveness of educational content directly depends on understanding the interests and preferences of the audience, and traditional methods of data analysis (surveys, focus groups) have a number of limitations: low processing speed, subjectivity, and high cost.

The purpose of this article is to explore the potential of applying artificial intelligence in pedagogical activities to analyze the preferences of educational podcast audiences, as well as to develop practice-oriented recommendations for optimizing educational content. The article examines methods of using AI to identify the thematic interests of listeners of educational podcasts and discusses the advantages and challenges associated with this technology. The work systematizes the key benefits and risks of using AI in this field, which contributes to the development of digital didactics and improves the quality of educational content.

Materials and methods. This study employed data collection and analysis methods using AI tools. Data were automatically collected from social networks, comments, podcast

statistics, and user behavior. Natural Language Processing (NLP) and machine learning algorithms were utilized to identify the audience's key topics, sentiment, and interests. According to J.M. Nazirov, digital pedagogy enables the creation of an individualized and interactive learning experience for students, which is crucial for the in-depth analysis of a podcast audience [4; 607-610]. M.E. Mamarajabov highlights the role of digital tools in engaging students in classroom activities and their potential to increase the effectiveness of the pedagogical process [8; 8].

Uzbek platforms, including UzSummarize, ChatGPT, Imkon AI, AI Assistant (uzbekai.uz), and UzBrainAI, were utilized as the primary tools for the analysis. These platforms offered capabilities for analyzing texts, drawing conclusions, generating content, and adapting it for the audience. They were also employed to evaluate and optimize the effectiveness of podcast content within the context of digital and media pedagogy. According to the research of S.V. Ivanova and O.B. Ivanov, the use of AI technologies is an important tool not only for optimizing educational content but also for reducing audience digital passivity and ensuring conscious learning [5; 16-23].

Results and Discussion. Modern automation technologies in media production are transforming various spheres of public life, including the consumer habits of today's youth. These changes affect every stage of content creation - from finding and processing information to writing texts, interacting with audiences, and publishing finished materials. While journalists and bloggers previously used automation tools only sporadically, their work is now practically impossible without the use of algorithms, artificial intelligence, and robotic solutions. Machines are now capable of performing both individual tasks and entire production cycles, fundamentally changing the media environment and, consequently, the behavior of its consumers. This technological shift demands a re-evaluation of content creators' professional skills and a study of new media consumption patterns among young people, who are increasingly encountering automated news feeds, personalized recommendations, and AI-generated content [2, p. 265].

Artificial intelligence is an intellectual artificial system, a product of human creativity, that performs the function of logical reasoning. This term also applies to any technology created by human thought that incorporates characteristics typically associated with human consciousness, such as the ability to study and solve problems that arise [3; 236]. The most important feature of artificial intelligence is its ability to select, evaluate, and implement the most optimal actions to achieve a set goal. Today, it consists of a set of algorithms and software systems designed to perform various tasks and is capable of handling many jobs that the human mind can perform.

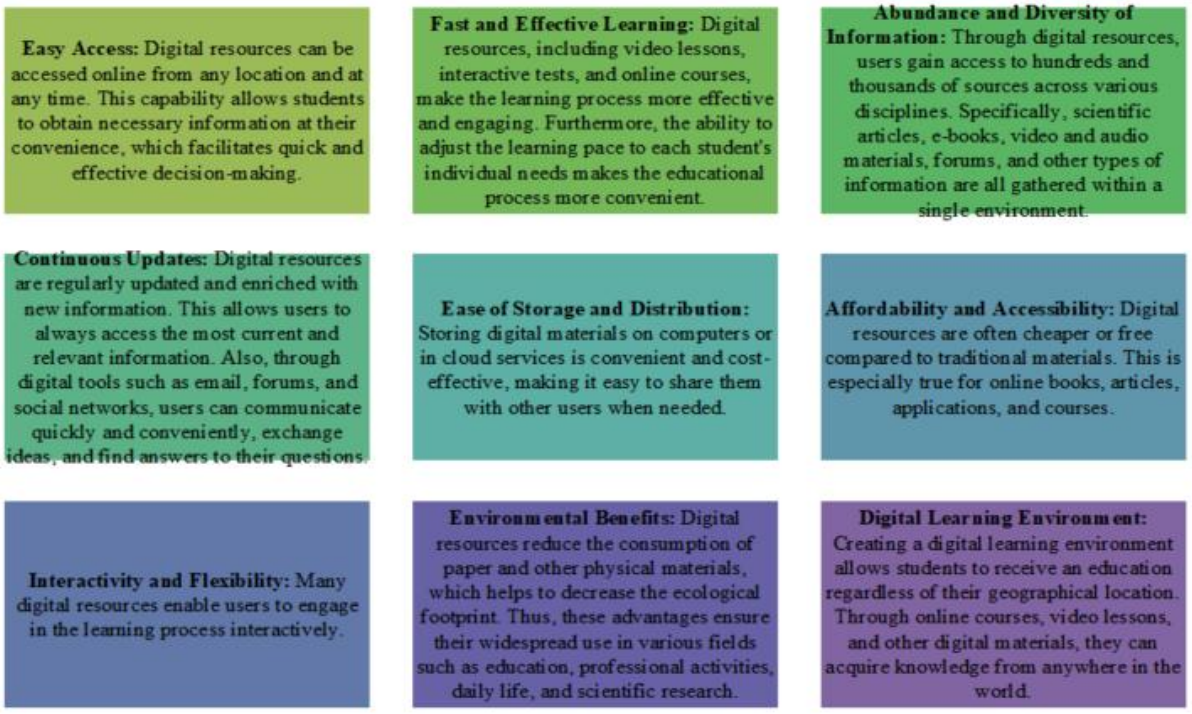
In recent years, the concept of "digital pedagogy" has emerged in both domestic and international scientific research. This term originated in the late 1990s and early 2000s, when digital technologies began to be actively integrated into the educational process. Its formation is linked to the development of the internet, e-learning, multimedia tools, and interactive teaching methods.

In today's modern education system, to effectively utilize digital technologies and digital pedagogy in the classroom, it is first necessary to deeply understand the essence of digital pedagogy. According to Uzbek researcher J.M. Nazirov, digital pedagogy strives to

create meaningful experiences for learners by using existing educational technologies as well as new technologies introduced over time. This involves teaching through virtual tools such as online discussion forums, video conferencing platforms, collaborative documents (e.g., Google Docs), game-based activities, and simulations. [4; 607-608] Through these digital technologies, teachers aim to develop their teaching methods and provide meaningful learning opportunities for students by actively engaging them in educational discussions and projects centered on relevant topics within their respective fields of study.

Domestic and foreign researchers evaluate digital pedagogy in various ways: some view it as a revolutionary stage in the development of education, while others, with cautious skepticism, focus on the potential risks of digitalization [3; 4; 5; 6; 7; 8]. For instance, researcher M.E. Mamarajabov states, "Digital pedagogy is not only an approach based on teachers' skills in using technology, but it also creates a foundation for future teachers to use technology as facilitators to shape thinking abilities and develop students' affective aspects" [8; 8]. Researcher J.M. Nazirov, however, considers the ability of digital pedagogy to engage students in classroom activities as one of its main advantages. In his view, digital tools allow teachers to create a learning environment with features such as multimedia presentations, interactive web pages, and video lessons. These can be used as supplementary material in the classroom or as an integral part of the lesson. Additionally, online resources help students assess their level of knowledge by receiving individual feedback on their work [4; 610].

In conjunction with this, it is also necessary to specifically address the concept of digital resources, which is inextricably linked to the concept of digital pedagogy. The concept of a digital resource encompasses not only any material available in electronic form on the internet, but also software applications and electronically compiled databases. These resources serve users across various fields, offering them numerous conveniences. Researcher J.M. Nazirov classifies the benefits of digital resources as follows [4; 609-610]:



As digital pedagogy studies the impact of technologies on education, it naturally encompasses the media sphere, since modern digital educational tools have media characteristics. For this reason, the need arises to consider media pedagogy as a field that focuses on the specific aspects of using media technologies in the educational process.

Thus, media pedagogy, as a practical continuation of digital pedagogy, offers the following:

- tools for working with specific media formats (podcasts, video materials, interactive platforms);
- methodologies for evaluating the effectiveness of media content;
- strategies for adapting media technologies to suit pedagogical tasks.

As noted in the article "Axiological and Moral-Ethical Aspects of Using Artificial Intelligence Technologies in the Education System" by S.V. Ivanova and O.B. Ivanov, the rapid development of artificial intelligence and digital tools not only creates new educational opportunities but also gives rise to serious anthropological and socio-psychological risks. In their view, these risks include increased digital addiction, decreased cognitive independence, and the transfer of agency to algorithms, where humans delegate key cognitive functions to them. These worrying trends are particularly relevant for digital learning formats, including podcasts, which on one hand expand access to knowledge, but on the other, demand a conscious approach to content development [5; 19].

The issue of digital anthropology becomes particularly prominent in the context of educational podcasts. The audience for this format is highly diverse, and its active engagement directly depends on how well the content aligns with the listeners' needs and interests. Without a thorough analysis of preferences and priorities, there is a risk not only of diminishing the educational impact but also of exacerbating the passive consumption of information - a state researchers criticize as "gadget addiction." Therefore, using artificial intelligence technologies for audience research serves not only as a tool for content optimization but also as a method to reduce the risk of digital passivity and foster conscious, meaningful interaction with educational materials.

Now let's analyze the ways artificial intelligence can be used for data collection and analysis.

1. Automated Data Collection. Modern artificial intelligence tools can automatically gather data from various sources, including social networks, reviews, comments, listening statistics, and user behavior.

2. Filtering Relevant Information. Through machine learning and natural language processing (NLP) methods, key themes, sentiments, and trends in audience interests are identified.

3. In-depth analysis of media texts. Content can be tailored to the audience through text tonality analysis, thematic clustering, and predicting interests based on listener behavior.

4. Creating recommendations based on the data obtained. Artificial intelligence not only enables data collection but also helps develop recommendations for content improvement, which simplifies the authors' work and enhances the quality of podcasts.

It should be emphasized that these methods of applying artificial intelligence were first implemented in 2016 on the YouTube video hosting platform, which was later banned in the

Russian Federation. This platform's algorithms played an important role in the distribution of ultra-long-form video content. As early as the mid-2010s, Google specialists were actively implementing AI algorithms to solve a range of tasks, including: automated data collection and processing; audience segmentation based on individual and group characteristics; content analysis for compliance with user queries; and ranking materials by relevance and viral potential.

These technologies established the conceptual foundation for modern recommendation systems and digital content personalization. Their high efficiency is achieved through a comprehensive analysis of behavioral metrics, including viewing history and search queries, processing user demographic characteristics, and a multidimensional comparison of content units that considers audience behavioral patterns. Key optimization factors included not only user data but also parameters controlled by content creators (such as publication timing). As a result, the developed artificial intelligence algorithms not only transformed the recommendation system of a specific platform but also triggered a paradigm shift in content ranking principles across the global digital space.

It is worth noting that these new capabilities can be beneficial beyond just creating quality podcasts in the fields of educational policy and pedagogy. Their potential enables content creators to select the most relevant topics and formats, adapt them to the demands and characteristics of the target audience, and solidify specific content features within a thematic or format niche, thereby increasing the likelihood of success.

For example, one of the local AI platforms is **UzSummarize.** UzSummarize is an advanced platform designed for analyzing and summarizing modern texts, and is particularly notable for its capabilities in the Uzbek language. The platform supports multiple languages while also allowing users to upload materials in text, PDF, and image formats. Technically, UzSummarize reads texts, identifies their main points, and enables the user to generate and edit a summary. As a result, the process of preparing academic articles, reports, or educational materials is significantly simplified. Moreover, the fact that the platform is free ensures it is accessible and open to a wide audience. Overall, UzSummarize is a reliable tool for quickly analyzing academic and educational materials in Uzbek and generating effective summaries.

ChatGPT is an advanced artificial intelligence platform developed by OpenAI, capable of understanding and generating natural language. This system analyzes users' text queries and generates clear and logical answers, while also performing tasks such as restructuring data, writing articles, summarizing, and creating creative content. Technologically, ChatGPT operates on a transformer architecture trained on a vast amount of text data. This enables it to deeply analyze text, understand context, and create natural responses that closely resemble human communication. The platform also supports multiple languages, providing users with interactive and individualized answers on various topics. Overall, ChatGPT is a reliable and convenient tool for rapid text analysis, summarization, and effective content creation in scientific, educational, and professional fields.

As part of the study, the most popular digital platforms available to Russian users were selected and classified according to their degree of artificial intelligence technology implementation - from comprehensive integration to the fragmented use of individual AI functions (Table 1).

Table 1

Comparative Analysis of AI Tools for Working with a Podcast Audience

Tool/Service	AI Functionality	Description
UzSummarize	– Can work in Uzbek and several other languages. – The ability to upload text, PDFs, and even images; – Ability to read texts in Doc and PDF formats, edit key ideas, and summarize; – free	The first platform in Uzbekistan capable of summarizing in the Uzbek language using AI.
ChatGPT	– Text analysis; – ability to understand context and generate a response; – article and content generation; – Ability to work with large volumes of data; – ability to work in multiple languages.	Intelligent search with feedback; – interactive and flexible
Imkon AI	– AI chatbots, – business process automation, – data analysis, – providing educational tools.	A platform of artificial intelligence solutions adapted to the conditions of Uzbekistan.
Salom AI	– AI chatbots, – Text analysis, – coding, – web search, – Voice Assistant; – Transforming ideas into high-quality images.	An AI assistant with full support for the Uzbek language.
UzBrainAI	– Autonomous agents, – STT (speech-to-text), – TTS (text-to-speech), and other advanced features are available.	– - an AI platform that provides artificial intelligence tools for business and communication.

In their research, researchers Marina Zaitseva and her student Vasily Makeev [9; 45] select the most popular digital platforms available to Russian users and classify them based on the criteria for the level of implementation of artificial intelligence technologies (Table 2):

Table 2

Tool/Service	AI Functionality	Description
DeepSeek	– Analysis of large text arrays; – Identifying behavioral patterns; – Forecasting trends.	Working with long context, comprehensive analysis.

Perplexity AI	– NLP analysis of reviews/comments; – Generation of analytical reports.	Intelligent search with feedback;
Podsqueeze	– Audio transcription; – Generation of promotional materials; – Identification of key themes; – Assistance in publishing transcripts to blogs.	Paid service, promotion automation.
Brand Analytics	– Mention monitoring; – Sentiment analysis; – Demographic analysis; – Collection of feedback from a wide range of sources; – Focus primarily on the Russian market.	A corporate tool for big data analytics. High cost and oriented primarily toward corporate clients.
VKontakte (VK Video)	– Personalized recommendations; – User behavior analysis; – Automatic subtitle generation; – Emotional response analysis; – Publication time optimization.	The largest Russian platform with deep AI integration. Free basic functionality, premium analytics for business accounts.

Researchers Zaitseva Marina and her student Makeev Vasiliy determined that the Russian social network VKontakte has its own video hosting, which is built on similar mechanisms. This can also be considered one of the advantages of implementing the podcast format as a tool for educational policy [9; 45].

Conclusion. Thus, artificial intelligence is gradually becoming a mass tool in the battle for audience attention. On the one hand, this allows for a significant increase in the volume of content produced for various audience groups and promotes relevant topics on a larger scale. On the other hand, there is a risk of standardizing shows and the emergence of "talking heads" devoid of authorial and creative originality, which could nullify experimentation. In the long term, this could limit the audience for educational podcasts and confine certain topics exclusively to narrow segments. Provided that authors maintain creative control and use AI merely as a tool to enhance the accuracy of analytical decisions, there is significant potential for expanding the audience and effectively fulfilling the educational functions of the media formats in question.

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