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EFFECTIVE METHODS OF INTRODUCING DIGITAL EDUCATIONAL TECHNOLOGIES INTO THE MANAGEMENT OF THE TRAINING SYSTEM OF INDIVIDUAL ATHLETES OF UZBEKISTAN

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Abstract
The article studies the methods and directions of using digital educational technologies introduced in world practice in the management of the training system of individual athletes, and identifies the possibilities of their use in the conditions of Uzbekistan.

Keywords: Management, sports management, individual athlete training system management, management effectiveness, system management, digital management, management transformation.

Introduction

In modern sports relations, including the sports system, in ensuring the effective participation of individual athletes in high-profile events and competitions at the global level, there is an increasing need not only for the physical preparation of athletes, but also for the simultaneous use of the functional, psychological and mental-intellectual capabilities of an individual athlete in a balanced manner and their development in a coordinated manner. In the context of the increasing importance of this situation in improving the practice of managing the system of training individual athletes at the global level, the need for scientific research in this area is becoming increasingly urgent, and this requires the implementation of such scientific research in the conditions of Uzbekistan.

Relevance of the topic

In general, it can be said that the specificity of the process of managing the system of training of individual athletes is characterized not by the fact that this practice is not aligned with a certain system of standards, but by the fact that it is aimed at reducing the negative impact of the personal abilities of each individual athlete, genetic potential, level of physiological and psychological preparation, and the sphere of influence of external factors. This increases the need to study the possibilities of using dynamic approaches that allow forming a highly adaptable management practice in the management of the system of training of individual athletes in the conditions of various economic systems, including today's Uzbekistan. Therefore, we found it necessary to develop scientific proposals and practical recommendations aimed at radically improving and developing the practice of Uzbekistan based on a systematic analysis of the scientific approaches widely used today in the practice of managing the system of training of individual athletes.

The level of study of the problem

Specific characteristics, principles, forms, organizational and economic mechanisms of the practice of managing the system of training athletes in the economic literature, scientific concepts dedicated to it J. March, P. Blau, Ch. Barnard, A. Etzioni, R.N. Lussier, E. It is reflected in the scientific research works of foreign scientists like Ekstin.

Foreigner R.K. Khairullin, A.N. Popov, V. Pudich, G.R. Latfullin, S.A. Shulmin, S.S. In the scientific works of scientists like Filippov, the optimization of state participation in the management of the system of training athletes, the possibilities of creative use of advanced foreign experience in the country's practice, and the priority directions of implementation of specialization in sports directions based on the regional approach were studied.

Local economist K.Sh. Ziyadullaev, B. Makhmudov, M.R. Boltaboev, Sh.F. Sultonov, A.A. Tillakhodjaev, etc. studied issues such as the formation of the practice of managing the athlete training system in Uzbekistan and its national characteristics of its development, priority areas for improving the sector, and the economic mechanism for managing the athlete training system in general.

In the context of the liberalization of market economic relations in Uzbekistan, scientific research on effective methods of using digital educational technologies in managing the individual athlete training system, improving the economic mechanism for implementing this type of management, and implementing modern approaches to managing the individual athlete training system through digital educational technologies has not been studied in a comprehensive and systematic manner by domestic economists. This serves as the basis for choosing the topic of this research.

Research methods

The methods of induction and deduction, systematic-theoretical analysis, logic and historicity, analysis and synthesis, comparative and selective research, grouping, and monographic analysis were used in the research process.

Analysis and results

The types of digital learning technologies provide the opportunity to introduce them into the practice of managing the training system of individual athletes and to determine in advance the state of economic efficiency that can be achieved. In particular, J. J., a distant foreigner, on researching the methods of using digital technologies in the management of the training system of individual athletes in economic science. Santomier[1], T. Senkal [2], H. Jiang[3], G.G. Salman[4], S. Akkaya [5] V. Chai[6], Ch. Based on the systematic analysis of the results of the scientific research of economists such as Lee [7], we have managed to determine the differences between the methods of using digital educational technologies, data collection and monitoring, data-based analysis, online education and training platforms, virtual and augmented reality, biomechanical analysis, individualization based on artificial intelligence, and management methods based on digital technologies.

Our research has allowed us to explain the methods of using digital educational technologies in managing the training system of individual athletes in the following order:

The data collection and monitoring method is currently mainly a digital educational technology that allows you to constantly monitor the physiological state of the athlete based on his clothing and various sensors installed on his body (Wearable), such as his heart rate, physical activity, and oxygen consumption. It should be noted that the use of this digital educational technology in managing the training system of individual athletes has made it possible to achieve higher results in terms of control, accuracy, and efficiency in system management compared to traditional management, and the data in this area are presented in Table 1;

1-table Advantages of using data collection and monitoring methods based on sensor devices (Wearable) of digital education technology in managing the training system of individual athletes [1]

№	Indicators	Traditional educational methods	Educational method based on digital technologies
1.	Control	It is monitored at certain time intervals	Control regularity is ensured
2.	Accuracy	Accuracy of data collection and monitoring is moderate	Accuracy of data collection and monitoring is high
3.	Efficiency	The maximum cost of this route is 65 percent	The efficiency in this direction will increase to 90 percent

The use of digital learning technologies in the management of the training system of individual athletes, in the implementation of a data-driven analysis method, will ensure the integration of platforms based on Big Data databases and various automated analytical and analytical digital programs into this database, which will enable a deep analysis of the athlete's performance and the development of individual plans for optimizing the loads for physical and tactical training exercises set for him;

online education and training platforms will be required to provide a plan of physical exercises to be performed by the athlete using digital technologies such as LMS (Learning Management System), analyze the athlete's movements by creating video recordings, and remotely control the athlete's performance of any training exercises. It is worth noting that this method of managing the training system of individual athletes, which became widespread during the Covid-19 pandemic, has a stable development trend in the post-pandemic conditions;

As a result of the continuous development of the practice of using VR / AR digital educational technologies in managing the training system of individual athletes, a method of virtual and augmented reality has been formed, which allows the athlete to prepare for competitions by simulating the environmental conditions during the competition and modeling technical movements in advance. It should be noted that this method, along with increasing the speed of the athlete's reaction in managing the training system of individual athletes, expands the possibilities of forming his immunity to various psychological pressures;

In the practice of applying the biomechanical analysis method in the management of the individual athlete training system, by using Motion Capture, that is, digital technology for

[1] Compiled by the author

capturing the athlete's movements, it is possible to identify technical errors and shortcomings made by the athlete and work on them, thereby increasing the effectiveness of his movements; In the practice of using the individualization method based on artificial intelligence (AI) in the management of the individual athlete training system, it is significantly more effective than traditional methods due to the fact that it automatically develops a sports training plan that corresponds to the athlete's individual physical, mental, physiological, biomechanical and tactical potential based on AI algorithms and improves it over a specified period of time based on indicators related to the athlete's recovery and development process, as well as expanding the possibilities of predicting the results that can be achieved in accordance with the developed individualized athlete program (Table 2).

2-table. Advantages of using digital education technology based on artificial intelligence (AI) in individualization in managing the training system of individual athletes [2]

№	Indicators	Traditional educational methods	Educational method based on digital technologies
1	Possibility of planning	It is generally planned based on the age, gender and weight category of the athlete	Based on the individual aspects of the athlete, a personal training plan is developed
2	Accuracy level	Based on the set general goals and objectives, the accuracy will be equal to 70 percent	Since it is based on individual capabilities, the accuracy is 95 percent
3	Efficiency level	Average efficiency is achieved	Chances of success are significantly higher

It is worth noting that studies by international organizations operating in the global sports sector have revealed that current trends in managing the training system of individual athletes include the use of digital technologies based on artificial intelligence (AI) analysis, the management of athlete training workloads, the development of new skills in athlete training, and the management of the integrated athlete training system, as well as a significant increase in the number of athletes being trained through educational technologies based on artificial intelligence (AI) analysis (see Figure 1);

[2] Compiled by the author

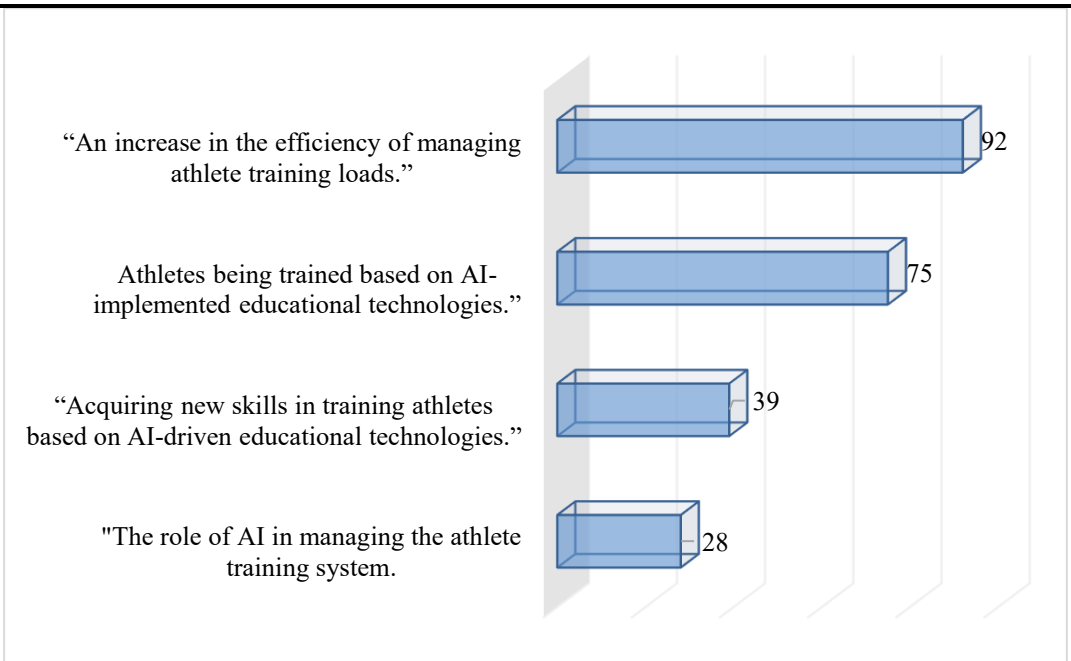

Figure 1. Global trends achieved through the use of educational technologies based on artificial intelligence (AI) analysis in managing the training system of individual athletes (in percent, results of a comparative analysis of statistical indicators for the period 2024-2025)[8]

Due to the application of a management mechanism based on digital technologies in the practice of managing the individual athlete training system, this process is structurally composed of the following stages: data collection, analysis of the collected data, making management decisions based on the results of the analysis, and using control and monitoring tools for the implementation of the decisions made, which allows us to explain this process based on the following (1) economic model:

〖SB〗_RT=M_Data→T_(Data Analysis)→Q_Decision→〖N&M〗_Feedback (1)

Where:

〖SB〗_RT – the state of application of the digital technology-based method of managing the individual athlete training system in practice;

M_Data – data on the state of use of digital educational technologies in managing the individual athlete training system;

T_(Data Analysis) – the results of data analysis on the state of use of digital educational technologies in managing the individual athlete training system;

Q_Decision – a system of management decisions and indicators for their target parameters (planned to be achieved) based on the results of data analysis on the use of digital educational technologies in managing the training system of individual athletes;

〖N&M〗_Feedback – the results of control and monitoring of the results of the decision-making process on the achievement of the target parameters developed.

Conclusions and suggestions

In general, the use of digital educational technologies in managing the training system of individual athletes is gradually developing in Uzbekistan due to the implementation of state programs on the modernization of local sports schools, the formation of electronic databases and their mutual integration, as well as the development of online educational platforms.

The differences between the current state of management of the system of training individual athletes using digital educational technologies in the conditions of Uzbekistan and the practices of leading countries in the world, including the USA, Western Europe, and Asia (see Table 3), indicate that such technologies are being used partially or incompletely in the country.

3-table. Comparative analysis of the practice of Uzbekistan and leading foreign countries in using digital educational technologies in managing the training system of individual athletes [3]

№	Digital Education Technologies	Usage in leading foreign countries	The situation in Uzbekistan	
			Level of application	Explanation
1.	Sensor Technologies (Wearable Devices)	Widely used	Low level	Only used in professional sports
2.	Video and Image (Capture Motion) Analysis	Very high priority	At a medium level	Some sports federations and athletes use it independently
3.	LMS Learning Platforms	Very high priority	Low level	In the stage of systematic development
4.	Artificial Intelligence (AI) Technologies	Very high priority	Implementation is underway	Test projects are being developed
5.	VR / AR Simulator Technologies	Moderately used	Not available	
6.	Big Data Analytics Technologies	Widely used	Not available	
7.	Blockchain Technologies	Moderately used	Not available	

This situation highlights the need to prioritize addressing systemic problems such as the lack of widespread use of digital educational technologies in managing the training system for individual athletes in Uzbekistan, the high cost of technological support, staff shortages, and the underdevelopment of digital infrastructure and culture. It should be noted that the failure to resolve the above problems related to the practice of using digital educational technologies in managing the training system of individual athletes in the country has a negative impact on the development of methods for their use in the following areas:

Disruptions in the operation of the technological support system for using digital educational technologies in managing the training system of individual athletes, including the import of outdated or obsolete technologies, the slow progress of processes related to their mastery, as well as the increasing volume of investment demand, are increasingly increasing dependence

[3] Compiled by the author

on imports and slowing down the pace of development of the practice of using digital educational technologies in managing the training system of individual athletes;

the lack of personnel with high professional potential in the use of digital educational technologies in the management of the system of training individual athletes, as well as the lack of development of special educational programs in the country's higher education institutions for training specialists with a high possibility of training individual athletes based on the use of digital educational technologies, has a negative effect on the effectiveness of these processes;

disparities between the development indicators of the republic's regions in terms of digital infrastructure education limit the possibilities of introducing digital educational technologies into the practice of managing the training system of individual athletes in the regions of the country;

Due to the lack of development of digital culture not only among athletes, but also among experts and sports coaches, various misunderstandings and contradictions in organizing the use of digital educational technologies in the management of the training system of individual athletes have a negative effect on the effectiveness of social factors of digital transformation processes in the field.

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