Research on the Practical Mode of Artificial Intelligence Empowering College Physical Education

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Abstract: Against the background of the digital transformation of higher education, artificial intelligence technology has brought brand-new opportunities for the reform of college physical education. In response to the actual needs of current college physical education, this paper comprehensively analyzes practical problems encountered in the application of artificial intelligence to assist physical education teaching, such as insufficient intelligent interactive experience, weak data support for personalized training, and inadequate resource allocation and integration. On this basis, it explores ways to establish a practical mode of artificial intelligence empowering college physical education from three aspects: integrating teaching data mode, constructing a human-machine collaboration mode, and establishing a dynamic evaluation mechanism. The research results have important theoretical and practical value for promoting the intelligent upgrading of college physical education, improving teaching quality and the level of personalized education.

Keywords: Artificial intelligence; College physical education; Practical mode

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Introduction

Artificial intelligence technology is reshaping the form of education, and college physical education is in a critical window period for digital transformation. Traditional physical education has obvious deficiencies in precise guidance, process evaluation, resource adaptation and other aspects, which is difficult to meet the needs of education in the new era. However, the application of AI technology in physical education is still in a state of scattered exploration, lacking a systematic practical mode and an operable implementation framework. Based on the actual situation of college physical education, this paper focuses on how intelligent technology can be integrated into the whole teaching process, conducts a systematic analysis from three aspects: demand, problems and paths, and strives to establish a universal and operable practical mode of AI empowering physical education, so as to provide new ideas for the reform of college physical education.

1.Practical Needs of College Physical Education

With the continuous advancement of the education digitalization strategy, requirements for the intelligent transformation of college physical education have been put forward. The traditional physical education mode can hardly meet the growing personalized and diversified learning needs of students. Students need more targeted teaching guidance in motor skill learning, physical health improvement, exercise habit development and other aspects. College physical education has long been faced with practical problems such as insufficient teaching staff, large class sizes and lack of process evaluation. Improving quality and efficiency has become the core demand of teaching reform. The participation of artificial intelligence technology provides technical possibilities for realizing precise teaching, personalized training and digital evaluation[1]. Analyzing the practical needs of college physical education is the basic premise for exploring the AI-assisted practical mode and the logical starting point for promoting the high-quality development of physical education. Only by accurately grasping the changing trend of the demand side can a practical and promotable AI-empowered physical education mode be established, injecting sustained impetus into the reform of college physical education.

2.Practical Problems in Artificial Intelligence Empowering College Physical Education

2.1 Insufficient Teaching Experience in Intelligent Interactive Application

At present, the application of intelligent technology in college physical education mostly stays at the basic level

such as motion capture and data recording, with obvious deficiencies in the fluency and naturalness of human-machine interaction. Existing intelligent systems cannot accurately grasp the individual differences in students' movement details, and the feedback content is often too standardized, lacking precise guidance for specific wrong movements. When using intelligent devices, students often feel troublesome operation, slow response and rigid interaction experience, which makes it difficult to generate motivation for continuous use[2]. Teachers are also faced with complex system operation and unintuitive data presentation. Intelligent tools fail to integrate into the classroom teaching process, but instead increase the teaching burden. The lack of intelligent interactive experience reduces the actual effect of technology assisting physical education.

2.2 Weak Data Support for Personalized Training Promotion

The effective implementation of personalized training relies on comprehensive, continuous and high-quality student sports data. In current college physical education, data collection methods are relatively single, mostly relying on periodic tests or manual classroom records, lacking dynamic tracking of students' daily exercise, sports load, skill evolution and other processes. The existing data dimensions are limited and cannot cover students' physical fitness, technical movements, psychological state and other aspects of information, resulting in an incomplete student sports profile. Insufficient data analysis ability also restricts personalized training. Intelligent systems can hardly extract valuable training suggestions from limited data, and personalized guidance is often only a formality. The weak data foundation makes it impossible to realize real individualized teaching. Therefore, there is an urgent need to build an intelligent data collection and analysis system covering in-class and after-class activities and the whole process, break down data silos, realize accurate depiction and dynamic tracking of students' sports performance, and provide solid data support for personalized training.

2.3 Inadequate System Integration for Resource Allocation Optimization

College physical education involves various types of resources such as venues, equipment, class hours and teaching staff. The optimal allocation of these resources needs to rely on data intercommunication and collaborative scheduling among various systems. At present, all kinds of intelligent platforms usually operate independently. For example, there is a lack of effective connection among the educational administration system, physical health system and venue management system, thus forming information islands. The data of resource utilization cannot be shared in real time, conflicts often occur in course scheduling and venue allocation, and the response to equipment allocation is also lagging behind. The lack of system integration ability not only limits the further improvement of resource utilization efficiency, but also hinders the intelligent support for teaching decision-making.

3.Construction Path of the Practical Mode of Intelligent Empowerment for College Physical Education

3.1 Integrate Teaching Data System and Optimize Interactive Experience

Establishing a multi-source integrated teaching data mode is the basic support for improving intelligent interactive experience. It is necessary to open up data channels of classroom collection, wearable devices, physical fitness tests, after-class exercise and other aspects to form a dynamic database covering the whole process of students' sports activities. On this basis, machine learning algorithms are used to conduct in-depth analysis of movement posture, sports load and skill development trajectory, so that the intelligent system can accurately identify individual movement deviations and generate targeted feedback. The design of the interactive interface should follow the actual needs of teaching scenarios, simplify the operation process, improve the response speed, and enable teachers and students to use intelligent tools naturally and smoothly. The two-way optimization of data and interaction will effectively improve the teaching experience of human-machine collaboration.

3.2 Construct a Human-Machine Collaboration Mode and Strengthen Support for Personalized Training

The human-machine collaboration mode integrates teachers' professional judgment with intelligent data analysis.

In this mode, the intelligent system collects students' sports data, identifies movement deviations and gives preliminary training suggestions. Teachers review and adjust these suggestions based on their own experience, so as to formulate more targeted personalized training programs. In this division and collaboration mechanism, the advantages of technology in data processing are demonstrated, and the irreplaceable role of teachers in emotional encouragement, movement demonstration and on-site guidance is also retained[3]. If human-machine collaboration is effectively implemented, it can provide continuous and accurate training support for each student. In addition, this mode can also improve teaching efficiency, reduce the burden of repetitive work on teachers, allow teachers to focus more on creative teaching and humanistic care, and promote physical education to move from an experience-driven paradigm to a new paradigm driven by both data and experience.

3.3 Establish a Dynamic Evaluation Mechanism and Promote the Integration of Resource Systems

The dynamic evaluation mechanism focuses on the continuous tracking of students' sports process and growth trajectory, so as to break through the limitations of traditional outcome-based evaluation. With the help of intelligent platforms, information on classroom performance, training data, physical changes and other aspects is collected in real time, forming a dynamic growth file of students' physical education learning. The evaluation results can not only be used to feedback teaching effects, but also reversely promote the precise allocation of resources such as venues, equipment and class hours. The system automatically pushes appropriate training content and venue arrangements according to individual differences of students to achieve on-demand resource distribution. The linkage mechanism between dynamic evaluation and resource scheduling helps to effectively improve the overall operation efficiency and education quality of college physical education.

4.Conclusion

Artificial intelligence has injected new momentum into the intelligent transformation of college physical education. Based on teaching practice, this paper faces practical problems such as poor intelligent interactive experience, lack of personalized training data and insufficient resource allocation and integration. Starting from three dimensions of data integration, human-machine collaboration and dynamic evaluation, it systematically explores the practical path of AI empowering physical education. Intelligent technology is not a substitute for teachers, but stimulates teaching vitality and improves education efficiency through complementary collaboration. Facing the future, we should continuously promote the unification of data standards, interconnection of platforms and improvement of teachers' digital literacy, so that artificial intelligence can truly take root in physical education practice and serve the healthy growth and all-round development of students.

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