

ARTIFICIAL INTELLIGENCE (AI) IN THE CONTEXT OF PHYSICAL EDUCATION

Prof. Amitkumar P. Khandekar

Asst.Prof. Department of Phy.edu

Nabira Mahavidyalaya, Katol Dist-

Nagpur

Email Id.-amitkumark20@gmail.com

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Abstract :

Physical education in higher education institutions is constantly undergoing a process of exploration and development. It is necessary for students to adapt to the intense market competition of today's society and to develop talents in physical education in line with societal needs. Numerous theoretical studies have been conducted on various teaching methods, most of which focus on introduction, analysis, and evaluation, while there are fewer practical research studies on intensive classroom teaching. Therefore, a comprehensive understanding of general colleges and universities will help in better understanding new ideas for sports reform, thereby improving teaching and learning behavior in general colleges. The needs of students in all institutions are forcing them to face increasing competition in career choices and employment. As a result, they are experiencing more and more stress in life, studies, and emotionally. The deep integration of artificial intelligence and big data, mutual encouragement, and continuous innovation has created a historic opportunity for smart sports classes. Improving physical education teaching in universities is conducive to promoting the informatization of physical education classes. This is an educational process or social activity aimed at promoting the culture of physical education, strengthening physical and mental development, and cultivating good moral character and social adaptability. This paper elaborates on the use and importance of artificial intelligence in the context of physical education.

Keywords : artificial intelligence, smart sports classes, educational process, teaching methods

Preface :

The implementation program for physical education reform in schools should be clear and well-structured, with key points, strong relevance, and high practicality. Hasty P.A. believed that physical education should be a part of the public school curriculum. Yıldızlar believed that professional sports practice contributes to the development of individual abilities. Hodges believed that researchers have found that children of all ages have low health-related fitness knowledge (HRK). Improving physical education fields such as HKK for students often requires comprehensive efforts. Silverman reviewed prevalent theoretical models in attitude research. Fernandez-Rio studied kickboxing teaching. The physical education reform method



they proposed is not sufficiently intelligent, and this paper optimizes it by combining artificial intelligence and big data. Artificial intelligence is a crucial driving force for a new round of technological revolution and industrial transformation. Romping highlighted the emergence of early smart technologies. Liu presented a comprehensive review of artificial intelligence algorithms. Having a believes that sensor nodes can collectively detect events using technologies such as artificial intelligence. Burton provided links to AI resources for teachers. Polina encouraged continuous monitoring of patients' health. Their research on artificial intelligence is relatively limited, and they will explore AI further in the future. By analyzing the use of AI terminal equipment, the basic situation of AI physical education classes, and the challenges and opportunities facing intelligent physical education classes, this paper explores a scientific and rational construction path for intelligent physical education classes and provides support for further intelligent class research. It provides a useful reference for the theory and practice of physical education in colleges. Through questionnaire surveys, this paper investigates college students' use of game apps and wearable devices, as well as the use of AI game terminals, to provide data support for AI game class research. Using SPSS analysis, the use of game apps and wearable devices for game-assisted class teaching is analyzed, which provides a foundation for artificial intelligence game class research.

The Need for AI in Education :

- **The Need for Personalized Learning :** India's education system serves over 250 million learners. In this landscape of social, linguistic, and cognitive diversity, a "one-size-fits-all" model is ineffective. AI offers a solution to this challenge. For example, the DIKSHA platform provides students with content tailored to their learning pace and needs through AI-based recommendation systems.
- **Teacher Shortage :** The shortage of teachers, particularly in inspirational and rural districts, impacts the quality of education. Initiatives like Swift Chat AI in Uttar Pradesh are partially addressing this gap by assisting para-teachers with lesson planning and doubt resolution.
- **Skills-Curriculum Gap :** The current economy demands analytical, digital, and problem-solving skills, while the education system is still largely based on rote learning. AI modules in Tinkering Labs are attempting to develop computational thinking among students.
- **Equity and Access :** Linguistic and regional barriers create inequalities in access to quality education. Initiatives like AI Bharat are bridging this gap by making advanced STEM content available in Indian languages.

The Relationship between Teaching and Student Needs in Physical Education :

Students participating in sports activities are always motivated by their own needs. The purpose of school physical education is to train general students, not just athletes. Their primary needs for physical education classes include balancing a stressful academic environment, relaxing the mind and body, focusing on fitness, and incorporating recreation. The goal of physical education should be to energize the mind, activate muscles and bones, and strengthen the body. Students can learn the fundamentals of physical fitness and continuously improve



themselves by utilizing various fitness methods in different natural environments and life situations, so that they remain physically and mentally healthy during their studies and benefit from it in their lives after graduation. If we want to develop diverse models of physical education teaching, we cannot be limited to existing teaching models. Instead, we must change our mindset, shift our perspectives, boldly embrace new educational and psychological theories, and adopt new methods to create a new physical education teaching environment.

Integration of artificial intelligence :

A major paradox in the field of physical education is the contradiction between the diversity of physical education concepts and teaching objectives and the uniformity of physical education models. The integration of artificial intelligence technology into physical education is both a focal point and a challenge for physical education, gradually transforming abstract and vague concepts into concrete steps and indescribable macroscopic systems into microscopic details. For example, in the process of teaching basketball, it is difficult for physical education teachers to describe jump height, shooting strength, and related skills in precise language. Even after repeated demonstrations, it is difficult to ensure that every student remembers the fundamental elements of the movements. Due to a limited understanding of the jumping and shooting sequences, students often make mistakes in jumping or synchronizing their jumps during actual practice. With the addition of artificial intelligence technology, this complex and seemingly difficult problem becomes simple and easy to understand. In the entire process of screening jump shot techniques, the physical education teacher only needs to explain the key points and difficulties, and students can easily understand the skills in each jump shot step, which helps students learn the technical fundamentals. From the above points, it can be seen that the application of artificial intelligence technology in physical education not only overcomes the monotony and lack of three-dimensional understanding of traditional teaching, but also ensures that students can grasp the important and difficult points of the activities in a comfortable environment, resulting in a multiplier effect. Such a teaching process not only enhances students' willingness to learn but also reduces the teaching pressure and difficulty for teachers, ensuring an active classroom environment and improving students' learning efficiency. The intelligent service platform for AI sports classrooms in colleges and universities, which includes an AI terminal equipment platform, a stadium AI platform, and a health cloud management platform, fully reflects a people-centered approach. It organically integrates the three elements of smart sports classrooms in colleges and universities: people (students, teachers, parents, experts, and scholars), terminals (smart devices), and places (sports venue equipment). Through the cloud (health cloud management) and stadium (sports venue) information platform (smart terminal equipment), it provides an intelligent, information-based, and integrated service support environment for sports classes. This has transformed the traditional concept of education, provided the latest and most effective educational resources for learners, and had a significant impact on the current education system.

Smart sports classroom :

The smart sports classroom is based on cloud computing, big data, the internet, the Internet of Things, and other scientific and technological support. The intelligent teaching



method of intelligent push, information management, and process evaluation in the classroom is realized through the "cloud-library-terminal" intelligent service platform. Based on the characteristics of the main structure of smart sports, the main construction of the smart sports classroom is from bottom to top, including the basic construction layer, data processing layer, end-user service layer, and teaching implementation layer. The AI terminal equipment platform is a collection of various intelligent terminal equipment tools. The AI terminal equipment platform is the terminal and front end of the intelligent sports information platform in colleges and universities. It is the basic tool and means for teachers and students to conduct intelligent sports classroom teaching. On the one hand, the function of the intelligent terminal equipment platform is to collect data, integrate information, and send the data to the health cloud management platform through the internet. On the other hand, it also provides feedback and presentation of cloud data analysis results: networked learning, breaking through the limitations of time and space; personalized learning to meet the differences among students; shared learning for rational allocation of resources; and engaging learning to enhance learning enthusiasm, etc. For different purposes, the intelligent terminal platform can be divided into student terminals, teacher terminals, environmental terminals, and even parent terminals, and a management terminal can be configured. Smart terminals refer to the smart terminal devices used by students for physical exercise in smart sports classes, such as sports apps and wearable smart devices. Teachers' intelligent terminal devices include attendance machines, score testing devices, and score entry devices. Environmental terminal devices include physical monitoring smart devices and electronic timers.

Conclusion :

To change the unfavorable situation of physical education (PE) teaching, we hope to develop a fully functional intelligent college PE curriculum teaching system with the help of AI and big data. In this way, students' interest in learning can be enhanced, their self-study ability can be cultivated, the teaching effect of college PE courses can be improved, and PE teaching can be reformed, thereby fully realizing the important role of college PE courses. The effect of sports AI teaching reforms is significantly better than that of the control groups that have not yet implemented AI teaching reforms, which can effectively promote the continuous implementation of teaching reforms. To actively and effectively promote and implement diversified teaching reforms in physical education, we need to strengthen the training of physical education teachers' awareness and abilities in diversified teaching, activate the source of high-quality teachers for diversified physical education, and strengthen the supporting force of diversified physical education. This has created an excellent learning platform for sports learners worldwide, helping them understand a new way of learning.

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