Reform of Teaching Path of Physical Education in Colleges and Universities under the Background of Digital Sports Development

Yuan Wang, Yuhong Wang*
School of Physical Education, Kunming University, Kunming 650214, Yunnan, China
**Corresponding Author.*

Abstract: In the context of the rapid development of digital sports, the reform of physical education teaching paths in universities has become an important approach to improving teaching quality and meeting the diverse needs of students. This paper systematically analyzes the characteristics and advantages of digital sports, exploring its profound impact on the concepts, content, methods, and evaluation systems of physical education teaching in universities. The research finds that digital sports, with its interactive, real-time, and intelligent features, has driven the transformation of physical education teaching concepts from "teacher-centered" to "student-centered," emphasizing personalized teaching and interdisciplinary integration. In terms of teaching content, digital sports has enriched teaching resources, achieving updates and expansions in teaching content. In terms of teaching methods, new teaching models such as blended online-offline teaching and flipped classrooms have emerged, stimulating students interest and initiative in learning. At the same time, digital sports has also promoted reforms in the teaching evaluation system, adopting process-oriented and diversified evaluation strategies to more comprehensively assess students learning outcomes. Finally, this paper proposes specific reform implementation strategies and evaluation methods, providing valuable references and insights for the reform of physical education teaching paths in universities.

Keywords: Digital Sports; University Physical Education; Teaching Reform; Personalized Teaching; Online and Offline Integrated Teaching

1. Introduction

1.1 Rise and Development of Digital Sports

Digital sports, the product of the deep integration of digital technology and sports, is gaining prominence globally with the rapid advancement of information technology. Especially with the widespread application of technologies such as the Internet, big data, and artificial intelligence, the vigorous development of digital sports has been significantly propelled. It not only brings about profound changes to the competitive forms of traditional sports but also demonstrates unprecedented potential and vitality in various specialized fields such as sports education and sports entertainment[1].

From the rise of esports, we can see the disruption of traditional competitive sports by digital sports. Esports, with its unique competitive format and wide participation, has gradually gained social recognition and popularity among young people. It not only requires superb skills and strategies but also imposes extremely high demands on participants psychological qualities and teamwork abilities, becoming a new form of sports competition.

Smart fitness is an innovative application of digital sports in the field of physical exercise. With the help of intelligent fitness equipment and systems, people can engage in fitness training more scientifically and efficiently. These devices and systems can monitor the exercisers physical condition and exercise data in real time, offer personalized fitness plans and feedback, thereby helping exercisers better achieve their fitness goals.

Virtual sports events and digital training are also important components of digital sports. Virtual sports events provide participants with a brand new competitive experience by simulating real sports competition scenarios and rules. Digital training utilizes advanced digital technologies to conduct comprehensive

and multi-dimensional monitoring and analysis of athletes training processes, helping coaches to formulate training plans and adjust training strategies more accurately[2].

In the field of physical education in higher education institutions, the introduction of digital sports has undoubtedly brought about unprecedented innovation to traditional teaching models. Traditional physical education is often constrained by conditions such as venues, equipment, and faculty, whereas digital sports breaks these limitations and provides students with richer and more diverse sports learning resources and experiences. Through digital teaching methods and platforms, students can more conveniently access sports knowledge, skills, and information, thereby enhancing their learning outcomes and interest[3].

Digital sports also provide universities with a more scientific and precise evaluation and feedback mechanism for physical education teaching. By leveraging digital assessment tools and data analysis technologies, teachers can gain a more comprehensive understanding of students learning situations and issues, promptly adjust teaching strategies and methods, and improve teaching effectiveness and quality. This data-driven new model of physical education teaching not only helps enhance students sports literacy and comprehensive abilities but also promotes the modernization of physical education in universities[4].

The rise and development of digital sports is an inevitable result of the deep integration of information technology and the sports industry. Its unique charm and boundless potential are leading the transformation and development of the global sports industry. In particular, the application and promotion of digital sports in university sports education will bring about profound changes and innovations to traditional teaching models, promoting the continuous progress and development of sports education[5].

1.2 Current Situation and Challenges of Physical Education in Colleges and Universities

College physical education teaching is facing unprecedented challenges. These challenges are mainly reflected in teaching methods, teaching resources and students needs.

In terms of teaching methods, traditional university physical education often focuses on the transmission of sports skills, achieving teaching objectives through teachers demonstrations and students imitation exercises. This teaching approach overlooks students individual needs and interest cultivation, leading to a lack of initiative and enthusiasm among students in their physical education studies[6]. With the continuous updating of educational concepts, more and more scholars and teachers begin to realize that physical education is not only the transmission of skills, but more importantly, it is to cultivate students interest in physical education, exercise habits and lifelong sports awareness[7].

In terms of teaching resources, physical education in higher education institutions also faces numerous limitations. On one hand, due to restrictions on teaching funds and facilities, some universities struggle to provide adequate sports equipment and diverse sports venues, which affects the quality and effectiveness of physical education. On the other hand, the singularity of teaching methods is also a significant factor limiting the development of physical education. Although new teaching methods such as multimedia and online instruction have been applied to some extent in higher education physical education, overall, innovation in teaching methods remains insufficient to meet the diverse learning needs of students[8].

With the diversification and personalization of students sports needs, traditional physical education has become increasingly unable to meet these demands. Modern college students requirements for physical education are no longer limited to mastering a few sports skills; they hope to improve their physical fitness, shape a good physique, cultivate teamwork spirit, and strengthen willpower through sports learning. Therefore, physical education in higher education institutions must keep pace with the times, continuously innovate teaching models and methods to meet the diverse sports needs of students[6].

In response to the above challenges, physical education in universities urgently needs to undergo innovation and reform. Firstly, in terms of teaching methods, greater emphasis should be placed on meeting students personalized needs and fostering their interests,

adopting diverse teaching approaches and methods to stimulate students interest and enthusiasm for learning. For example, new teaching models such as gamified instruction and competitive teaching can be introduced, allowing students to acquire sports skills and cultivate their interest in physical education in a relaxed and enjoyable atmosphere[7].

In terms of teaching resources, universities should increase investment to improve sports teaching facilities and provide adequate sports equipment and diverse sports venues. At the same time, they should actively promote innovation in teaching methods by introducing modern teaching tools such as multimedia and online instruction to enrich teaching methods and formats, thereby enhancing teaching effectiveness and quality[8].

In response to the diverse sports needs of students, physical education in higher education institutions should focus more on cultivating students overall qualities and abilities. Besides imparting sports skills, it should also strengthen the content of sports theory teaching and sports cultural education, enhancing students sports cultural literacy and overall qualities. At the same time, it should actively organize extracurricular sports activities and competitions, providing students with more practical opportunities and platforms for demonstration, promoting their all-round development[9].

The current status and challenges of physical education in higher education institutions cannot be ignored. To promote the innovative development of physical education in higher education institutions, it is necessary to actively respond to challenges, innovate teaching methods and approaches, optimize the allocation of teaching resources, and meet students diverse sports needs. Only in this way can the important role of physical education in higher education institutions in fostering students healthy growth and lifelong sports awareness be truly realized.

1.3 The Necessity and Significance of Reform Research

In the thriving era of digital sports, the necessity of reforming university sports teaching approaches has become increasingly prominent. Digital sports, as the deep integration of information technology and sports, not only transforms traditional sports competition and viewing methods but also brings unprecedented opportunities and challenges to the field of sports education. By introducing the concepts and technologies of digital sports, university sports teaching is expected to achieve innovative breakthroughs, thereby enhancing teaching quality and efficiency, and meeting the increasingly diverse sports needs of students.

The introduction of digital sports can promote innovation in university physical education. Traditional university physical education is often limited by conditions such as venues, equipment, and faculty, while the application of digital technology can break these restrictions. For example, through virtual reality (VR) technology, students can conduct simulated training at any time and from any location, experiencing various sports scenarios, thereby enhancing the interest and effectiveness of learning[10]. In addition, the application of big data and artificial intelligence technology can also help teachers to analyze students learning situation more accurately, formulate personalized teaching plans, and realize teaching according to their aptitude[11].

The reform of physical education teaching pathways in higher education institutions can also improve teaching quality and efficiency. The introduction of digital sports can optimize the teaching process, reduce unnecessary teaching steps, thereby enhancing teaching efficiency. For example, through online teaching platforms, teachers can release teaching resources and tasks in advance, allowing students to engage in autonomous learning anytime and anywhere, thus achieving the flipping of the teaching process and improving the relevance and effectiveness of classroom instruction[12]. In addition, digital technology can also enrich teaching methods and forms, such as using multimedia technology to make vivid teaching materials, stimulate students interest and enthusiasm for learning.

More importantly, the reform can meet students diverse sports needs and stimulate their interest in sports. The demand for sports among contemporary college students is no longer limited to traditional sports skills and knowledge learning; they are more pursuing personalized sports experiences and comprehensive physical and mental

development. The introduction of digital sports can provide more diversified sports choices and experiential methods, such as esports and smart fitness, thereby meeting students different needs and igniting their enthusiasm for sports[10].

Reforming the pathways of physical education in higher education institutions has profound significance. It not only promotes innovation and development in physical education teaching, improving teaching quality and efficiency, but also meets students diverse sports needs, promoting their all-round development. Therefore, we should actively explore and practice the application of digital sports in higher education physical education, contributing to the cultivation of high-quality talents for the new era. At the same time, it is necessary to pay attention to potential challenges and issues during the reform process, such as the transformation of teachers concepts and the integration of teaching resources, requiring the formulation of practical and feasible implementation strategies to ensure the smooth progress of the reform[10,13,14].

2 Transformation of Physical Education Teaching Concept under the Background of Digital Sports Development

2.1 Characteristics and Advantages of Digital Sports

Digital sports, as a product of the deep integration of information technology and sports, has demonstrated distinct characteristics and significant advantages. Its core features include interactivity, immediacy, and intelligence, which collectively bring about revolutionary changes in sports teaching and training.

Interactivity is one of the prominent features of digital sports. Through digital platforms, students are no longer confined to traditional physical education classes but can participate in sports activities anytime and anywhere, engaging in real-time interactions with coaches and teammates. This interactive approach not only enhances students engagement and interest in learning but also helps coaches better understand students needs and feedback, thereby adjusting teaching strategies and improving teaching effectiveness. For example, in some university physical education courses, attempts have been made to use digital platforms for online instruction, allowing students to submit assignments and participate in discussions while coaches can provide real-time guidance and feedback[15].

Timeliness is another major highlight of digital sports. Traditional sports teaching often suffers from delayed information feedback, while digital sports can record students movement data in real time, providing coaches with immediate feedback. This instant feedback mechanism helps coaches promptly identify issues with students and offer targeted guidance. At the same time, students can understand their own performance through real-time data, thereby better adjusting their training plans and improving training outcomes. For example, in the field of smart fitness, wearable devices can monitor users heart rate, step count, and other movement data in real time, offering personalized fitness recommendations[16].

Intelligentization is an important trend for the future development of digital sports. Leveraging advanced technologies such as big data and artificial intelligence, digital sports can provide personalized training plans and guidance based on students physical conditions and athletic levels. This intelligent teaching not only embodies the educational philosophy of teaching according to individual aptitude but also helps to stimulate students interest and potential in learning. Moreover, intelligence can assist coaches in optimizing the allocation of teaching resources and improving teaching efficiency. For example, in some universities physical education teaching, intelligent analysis systems have already begun to be used to analyze students movement data to formulate more scientific and reasonable training plans[16,17].

The characteristics of digital sports such as interactivity immediacy and intelligence bring advantages to physical education in universities. Introducing these concepts and technologies can promote teaching innovation meet students diverse needs and promote their physical and mental health. Therefore universities should explore reforms in physical education to adapt to the development of the times.

2.2 Transformation of Sports Teaching

Concept

Driven by digital sports, the concept of physical education is undergoing a profound transformation. This transformation is mainly reflected in the migration of teaching center, the emphasis on personalized teaching and the advocacy of interdisciplinary integration.

Traditional sports teaching concepts often focus on the teacher with emphasis on the transmission and training of sports skills. In the context of digital sports, the center of sports teaching is shifting towards students. The interactive, real-time, and intelligent characteristics of digital sports enable students to participate more actively in sports teaching, achieving real-time interaction with coaches and teammates, thereby improving learning outcomes and interest[18]. This transformation not only enhances the subject status of students in physical education teaching, but also encourages teachers to pay more attention to students needs and feedback, forming a more democratic and equal teaching atmosphere.

Digital sports also emphasizes the importance of personalized teaching. Through digital platforms teachers can provide personalized training programs and guidance based on students physical conditions exercise levels and interests. This personalized teaching approach not only helps improve students athletic skills and physical fitness but also fosters their autonomous learning abilities and innovative spirit[19]. Compared with the traditional "one size fits all" teaching mode, personalized teaching can better meet the diversified needs of students and promote their all-round development.

Digital sports also advocates the integration of interdisciplinary approaches, closely combining sports with information technology and health sciences. This interdisciplinary integration not only enriches the content and methods of physical education but also enhances the scientific rigor and effectiveness of sports instruction. For example, by introducing knowledge from exercise physiology, nutrition, and other health sciences, teachers can provide more scientific guidance for students exercise and recovery; while through the application of information technology, teachers can more conveniently obtain students learning data and feedback, thereby promptly adjusting teaching strategies and methods[20]. This interdisciplinary integration has injected new vitality into the comprehensive development of physical education.

The development of digital sports has profoundly transformed the philosophy of physical education, including the shift in teaching focus, emphasis on personalized instruction, and advocacy for interdisciplinary integration. These changes bring opportunities and challenges to higher education sports teaching, providing higher quality sports education services. To adapt to these changes and promote continuous teaching development, universities and teachers need to update their educational concepts, enhance teaching skills, strengthen interdisciplinary collaboration, and jointly promote innovation and progress in higher education sports teaching.

2.3 Reorientation of Physical Education Teaching Objectives

In the context of digital sports, the repositioning of sports teaching objectives is particularly important. This repositioning not only concerns skill development but also focuses on the comprehensive development of students. Traditional sports teaching objectives mainly concentrate on improving students sports skills and competitive levels, while the introduction of digital sports adds a new dimension to this.

Digital sports platforms provide students with richer sports resources and experiences. For example, through virtual reality technology, students can engage in sports training in a simulated environment. This immersive learning approach not only increases interest in learning but also more effectively enhances skills[21]. At the same time, the instant feedback mechanism of digital sports also enables students to know their training effect in time, so as to adjust their learning strategies and improve their learning efficiency.

Digital sports not only focuses on skill development but also emphasizes enhancing students physical and mental health and overall qualities. By monitoring students physiological data using smart devices, teachers can more accurately understand students conditions and formulate personalized training plans. This helps improve students physical health and enhances their self-awareness and management abilities.

Digital sports extend physical education beyond the playground and gymnasium, integrating into students daily lives. Through mobile applications and wearable devices, students can exercise and learn anytime, stimulating interest in sports and fostering a healthy lifestyle. Under the context of digital sports, the goals of physical education are redefined, leveraging abundant resources and experiences to enhance students sports skills, physical and mental health, and overall qualities. This aligns with the educational philosophy of the new era, laying a solid foundation for students future development.

3. Innovation of Physical Education Content and Methods under the Background of Digital Sports Development

3.1 Update and Expansion of Teaching Content

The development of digital sports brings new vitality to university physical education teaching, updating and expanding the teaching content. Utilizing advanced technology, traditional teaching content has been innovated, introducing cutting-edge sports knowledge. The interactivity and immediacy of digital sports provide convenience for teaching. Virtual competitions allow students to experience real scenarios, enhancing competitive levels, teamwork, and strategic awareness. Online courses break the limitations of time and space, improving learning efficiency. Digital sports promote the realization of personalized teaching content. Intelligent analysis helps teachers customize training plans and teaching content for students, stimulating interest in learning and assisting students in achieving self-transcendence in sports. Digital sports facilitate the integration of interdisciplinary teaching content, such as combining sports with computer science and biomedicine, developing innovative courses to enhance students overall qualities and innovative practical abilities. The development of digital sports provides impetus for updating and expanding university physical education teaching content, building a rich and diverse, personalized teaching content system that meets student needs and enhances sports literacy and comprehensive abilities.

3.2 Innovation and Practice of Teaching Methods

Digital sports has driven innovation in physical education teaching methods in universities. While traditional methods improve skills, they often overlook individual differences and interest stimulation. Digital sports offers more possibilities for teaching innovation. The integration of online and offline teaching is a crucial approach under digital sports. By combining online resources with offline practices, it breaks down time and space constraints, optimizes resource allocation, and enhances efficiency. Teachers release materials online while focusing on key explanations and practical operations offline.

Under the flipped classroom model students engage in autonomous learning before class and use the classroom for discussion and problem-solving stimulating interest and initiative in learning cultivating critical thinking and innovative abilities. Digital sports also promotes innovation in other teaching methods such as VR technology experiences sports scenarios big data and artificial intelligence analyze learning situations providing personalized teaching suggestions. Teachers need to update their educational concepts enhance their ability to apply information technology and adapt to the needs of digital sports teaching. Schools should strengthen facility construction providing advanced equipment and environments. Digital sports offer broad space for innovation in university sports teaching methods. Applying new teaching methods meeting personalized needs stimulating interest in learning improving teaching quality.

3.3 Reform of Teaching Evaluation System

In the context of digital sports, the reform of the teaching evaluation system is particularly important. Traditional sports teaching evaluation systems often focus excessively on students final grades or skill levels, overlooking their efforts and progress in the learning process. This evaluation method may lead to students frustration and unfair assessments, as each students physical fitness and skill foundation are different.

To more comprehensively evaluate students learning outcomes, the teaching evaluation system under the background of digital sports should adopt process-oriented and diversified

evaluation strategies. Process-oriented evaluation means that teachers need to pay attention to students performance in the learning process, including their learning attitudes, efforts, and progress. This evaluation method can more accurately reflect students actual learning situations, providing teachers with timely feedback to help them adjust their teaching strategies to meet students needs.

Diversified evaluation involves considering students learning outcomes from multiple perspectives. Besides skill levels students physical and mental health teamwork ability innovation ability and other aspects should also be included in the evaluation system. For example students teamwork ability can be assessed through team projects they participate in or their innovative sports activities or training methods can be evaluated through innovative sports activities proposed by students.

To achieve this reform, universities can leverage the advantages of digital technology to establish a comprehensive and dynamic teaching evaluation system. This system can track students learning progress and performance in real time, providing teachers with detailed data analysis to help them evaluate students more accurately. At the same time, this system can also offer personalized learning suggestions and feedback to students, helping them better understand their learning situation and identify areas for improvement.

Overall, the reform of the teaching evaluation system under the background of digital sports is an inevitable trend. By adopting process-oriented and diversified evaluation strategies, we can more comprehensively evaluate students learning outcomes, stimulate their learning motivation, and promote their all-round development.

4. Construction of Sports Teaching Resources and Environment under the Background of Digital Sports Development

4.1 Development and Utilization of Sports Teaching Resources

In the context of the rapid development of digital sports, the development and utilization of sports teaching resources in universities are particularly important. To meet the demand for teaching resources in digital sports, we need to approach it from multiple aspects and comprehensively strengthen the integration and optimization of resources.

Integrating high-quality teaching resources through digital platforms is crucial. We can leverage technologies such as the Internet and cloud computing to build an efficient sports teaching resource sharing platform. On this platform, teachers can upload and share their teaching materials and videos, while students can access these resources anytime and anywhere for self-directed learning and reinforcement. This not only addresses the issues of resource dispersion and inconvenience in traditional sports teaching but also effectively improves the utilization rate of teaching resources, achieving optimal resource allocation.

Analyzing students sports data using big data technology is also a crucial step. With the popularization of smart wearable devices and sports apps, students sports data has become increasingly accessible. We can leverage this data to conduct in-depth analyses of students exercise habits and physical condition, thereby providing personalized training recommendations and guidance for each student. This not only helps improve the relevance and effectiveness of physical education but also stimulates students interest in sports, promoting their all-round development.

We should also focus on developing sports teaching resources with local and school-specific characteristics. Each place and school has its own cultural heritage and resource advantages, which we can leverage to create unique sports teaching resources. For example, introducing traditional local sports projects into classrooms or utilizing school facilities to conduct distinctive sports activities. This not only enriches the content of physical education but also enhances students sense of belonging and identity, thereby improving the overall effectiveness of sports teaching.

The development and utilization of sports teaching resources in universities under the background of digital sports is a systematic project that requires us to approach it from multiple aspects, strengthening the integration and optimization of resources. By building digital platforms, utilizing big data technology, and developing distinctive teaching resources, we can better meet the demands of digital sports on teaching resources, promoting

innovation and development in university sports teaching.

4.2 Optimization of Physical Education Teaching Environment

The rise of digital sports requires optimizing the sports teaching environment and utilizing technological means to enhance the convenience and efficiency of learning. Smart sports venues achieve intelligent monitoring and management of facilities through Internet of Things (IoT) technology ensuring that students can exercise safely in a comfortable environment. Meanwhile, the introduction of VR technology brings innovation to sports teaching breaking time and space constraints and providing personalized training guidance.

The optimization of the sports teaching environment also includes the construction of online teaching platforms and communities enabling students to access diverse resources and communicate with global peers broadening their horizons and stimulating their enthusiasm for learning. Overall the optimization of the teaching environment under the digital sports context is multifaceted aiming to create an advanced convenient and vibrant learning environment for students through intelligent and technological innovations promoting continuous innovation in sports teaching.

4.3 Sharing and Co-Building of Sports Teaching Resources

Under the vigorous development of digital sports, the sharing and co-construction of sports teaching resources have become an important link in promoting the reform of physical education teaching in universities. The establishment of this mechanism not only helps to alleviate the problem of tight teaching resources but also promotes in-depth exchanges and cooperation among universities, jointly improving the quality and level of physical education teaching.

Sharing high-quality teaching resources and experiences means that universities can break down geographical and inter-university barriers, widely disseminating and applying their advantageous resources and distinctive teaching methods. Through digital platforms, these valuable resources can be centrally displayed for other universities to reference and learn from. This sharing model greatly enriches the content of physical education teaching, enabling teachers to access more diverse teaching methods and concepts, thereby enhancing their own teaching standards.

The construction of a co-built platform provides strong support for the optimal allocation and efficient utilization of sports teaching resources. Universities can rely on this platform to jointly develop and improve the sports teaching curriculum system, teaching methods, and evaluation systems, forming a more scientific and systematic sports teaching system. This co-construction model not only helps enhance the overall effectiveness of sports teaching but also effectively avoids redundant construction and waste of resources, achieving the maximization of resource utilization.

In the process of implementing shared and co-construction mechanisms, universities should fully recognize the importance of cooperation, abandon traditional closed teaching concepts, and actively participate in this mechanism with an open and inclusive attitude. By regularly organizing experience sharing meetings and teaching seminars, continuously deepen cooperation and exchanges between universities, and jointly promote the vigorous development of physical education.

The government and all sectors of society should also provide strong support, offering necessary policy guarantees and financial support for the sharing and co-construction of sports teaching resources in higher education institutions. By establishing and improving relevant laws and policies, clarify the responsibilities and rights of all parties to ensure the smooth implementation and long-term development of this mechanism. At the same time, encourage enterprises and social organizations to actively participate in the development and construction of sports teaching resources, fostering a positive atmosphere of societal attention and support for sports teaching.

The sharing and co-construction mechanism of sports teaching resources is particularly important in the context of digital sports. Through the establishment and implementation of this mechanism, we can effectively integrate and optimize sports teaching resources in higher education institutions, improve teaching quality and

standards, and lay a solid foundation for cultivating more outstanding talents who are physically and mentally healthy and well-rounded.

5. Implementation and Effectiveness Evaluation of Sports Teaching Path Reform

5.1 Strategies for the Implementation of Sports Teaching Path Reform

In the context of digital sports development, the reform of physical education teaching pathways in universities is not only an issue of educational innovation but also a systematic project that requires the joint efforts of multiple parties including the government, schools, teachers, and students. To ensure the smooth implementation of the reform, the following strategies are crucial.

First, it is necessary to seek the support of governments and education authorities at all levels. By formulating relevant policies, clarify the goals and directions of the reform, providing strong policy guidance and institutional guarantees for the reform of university physical education teaching pathways. At the same time, governments and education authorities should increase investment in university physical education teaching, improve teaching facilities, enhance teaching conditions, and create a favorable external environment for the reform.

Second, it is necessary to strengthen the training and education of teachers. Teachers are the key force in the reform of physical education teaching pathways. By regularly organizing training sessions, seminars, and other activities, improve teachers understanding and application capabilities of digital sports and modern teaching methods. At the same time, encourage teachers to actively participate in reform practices, continuously explore and innovate teaching methods and approaches, to meet the new requirements of physical education teaching in the context of digital sports.

Third, it is essential to fully leverage the students role as the main subjects. Students are the objects of physical education teaching, as well as participants and beneficiaries of reform practices. By enhancing publicity and education, guide students to recognize the importance and necessity of reforming physical education teaching methods, thereby stimulating their enthusiasm and initiative for participation. At the same time, encourage students to offer valuable opinions and suggestions, providing beneficial references and insights for reform.

Fourth, it is necessary to establish a comprehensive evaluation and feedback mechanism. Through regular teaching evaluations and feedback, promptly identify issues and shortcomings in the implementation of reforms so as to timely adjust and optimize the reform plan. At the same time, strengthen the summarization and promotion of reform outcomes to provide valuable references and insights for subsequent physical education teaching reforms.

The implementation of sports teaching pathway reform requires the joint efforts and cooperation of multiple parties including the government schools teachers and students. Only through the concerted efforts of the whole society can the in-depth implementation of sports teaching pathway reform in higher education institutions be promoted making positive contributions to the cultivation of high-quality talents who are physically and mentally healthy and well-rounded.

5.2 Effectiveness Evaluation of Physical Education Teaching Path Reform

When evaluating the effectiveness of sports teaching pathway reform, we need to consider multiple dimensions to ensure the comprehensiveness and objectivity of the assessment results. The following are several aspects from which we can conduct an in-depth evaluation:

5.2.1 Student satisfaction survey

Students, as the direct beneficiaries of physical education teaching, are an important indicator for measuring the success of reforms. We can collect students feedback on the reformed physical education teaching through methods such as questionnaires and face-to-face interviews. This feedback not only includes students satisfaction with teaching content, teaching methods, and teaching environment but also their evaluations of teachers teaching attitudes and teaching outcomes. By analyzing these data, we can understand whether the reforms have truly met students needs and whether they have improved their learning experiences and learning outcomes.

5.2.2 Teaching quality assessment

Teaching quality is another important aspect in evaluating the effectiveness of reforms. We can assess whether there has been an improvement in teaching quality by comparing indicators such as academic performance and student skill acquisition before and after the reforms. Additionally, educational experts can be invited to observe and evaluate the teaching process, providing professional suggestions for improvement, which can further enhance teaching quality.

5.2.3 Assessment of students physical and mental health and overall quality improvement

The ultimate goal of physical education is to promote the physical and mental health and all-round development of students. Therefore, we need to evaluate students physical and mental health status, sports skill levels, teamwork abilities, and other aspects. This can be achieved through regular physical fitness tests, mental health surveys, and students enthusiasm for participating in sports activities. By collecting and analyzing these data, we can understand whether the reforms have truly achieved the expected goals and whether they have had a positive impact on the comprehensive development of students.

5.2.4 Teacher feedback and evaluation

Teachers are the direct participants in physical education teaching and their views and evaluations on reforms are also important criteria for assessing the effectiveness of these reforms. We can invite teachers to share their experiences and feelings during the reform process to understand their perspectives on the outcomes of the reforms. At the same time, we can evaluate teachers teaching methods and attitudes to promote their continuous improvement and enhancement.

Through a comprehensive evaluation of multiple aspects including student satisfaction, teaching quality, students physical and mental health, overall qualities, and teacher feedback, we can fully understand the implementation effects of the sports teaching pathway reform. These evaluation results can not only provide us with valuable feedback information but also offer strong evidence for further optimizing and improving sports teaching.

6. Conclusion

6.1 Summary and Contribution of the Study

In the wave of digital sports, this article thoroughly analyzes the necessity and feasibility of reforming the pathways of physical education teaching in universities, systematically elucidating the profound impact of digital sports on all aspects of university physical education teaching. Through detailed research, we find that digital sports not only bring unprecedented opportunities to university physical education teaching but also demonstrate significant advantages and potential in actual teaching practices.

The integration of digital sports has greatly enriched the content of physical education teaching. With the help of virtual reality online courses and other digital resources teachers can design more vivid and interesting teaching content thereby stimulating students interest in learning and enhancing their learning engagement. This transformation in teaching methods not only broadens students knowledge horizons but also subtly fosters their autonomous learning abilities and innovative thinking.

Digital sports have driven innovations in physical education teaching methods. Traditional physical education teaching methods often focus on skill transmission while neglecting individual differences and interest cultivation among students. However, with the assistance of digital sports, teachers can adopt new teaching methods such as blended online-offline instruction and flipped classroom, which place greater emphasis on student agency and practicality, thereby enhancing students autonomous learning abilities and teamwork skills.

Digital sports also brings a new perspective to physical education teaching evaluation. Traditional physical education teaching evaluation often focuses on skill assessment, overlooking students learning process and emotional attitudes. Digital sports, however, advocates for diversified and rocess-oriented evaluation methods, collecting and analyzing students learning data to provide teachers with more comprehensive and objective evaluation criteria, thereby helping students better understand and improve themselves.

6.2 Future Research Direction and Prospect

The integration of digital sports and university physical education has made progress, but it is only the beginning. Facing technological

changes, the future research fields are extensive. The integration of digital sports and physical education needs to be deepened. Currently, the application is superficial, and it is necessary to explore how to closely integrate with teaching processes to achieve deep integration. For example, using virtual reality and augmented reality technologies to enhance the teaching environment and student interest. Case studies on the application of digital sports in teaching need to be strengthened. Practical cases must be used to verify and improve application effects, summarizing effective models for reference by other universities.

The introduction of new technologies into physical education is a future research direction. For example, artificial intelligence and big data can accurately analyze students learning situations and optimize the allocation of teaching resources. Teaching methods need to be innovative. Combining the characteristics of digital sports, develop lively and interesting teaching methods that integrate education with entertainment, such as online-offline integration.

Attention should be paid to the reform of sports teaching evaluation system. Establish a scientific and reasonable evaluation system to comprehensively assess the effectiveness of students and teachers. The integration of digital sports with university sports teaching will become tighter and the research field will broaden. It is believed that digital sports will promote innovation and development in sports teaching.

Acknowledgments

This work was supported by the Yunnan Provincial Department of Education Graduate Project (Grant: 2025Y1125);

The work was supported by China Ministry of Education industry-university cooperative education project (Grant: 230800700253018).

Reference

[1] Zhang Zihan, The Realistic Value and Basic Path of Digitalization in Sports Teaching in Universities Education Information Forum 2023, (07), 30-32

[2] Qiu Zhaofu, Research on the Digital Path of Physical Education Textbooks in Medical Colleges under the Background of Internet + China High-tech Zone 2018, (13):104. CNKI: SUN: GXQZ.0.2018-13-095

[3] Zhang Jianhui, Theoretical Tracing, Multi-dimensional Interpretation and Optimization Path of Digital Empowerment for School Sports Transformation Development Chinese Journal of Education 2024, (01):60-64.

[4] Zhu Guiying, Research on Innovation Pathways of English Talent Training in Higher Education Institutions in the Era of Digitalization in Compilation of abstrabstract of the 15th National Sports Information Technology Conference 2024:1

[5] Zhao Jing, Digitalization Empowers the Value, Dilemma and Implementation Path of Digital Classroom in College Sports Contemporary Sports Science and Technology 2024, 14(16):57-60.

[6] Zhang Jie, Development status and reform methods of physical education teaching in Chinese universities Peoples Pictorial: Lower Monthly 2020, 000(005): P.1-1.

[7] Zhang Chenyi, Research on the Path of Innovation and Reform of Physical Education Teaching in Universities in the New Era in 20 proceedings of 22 Modern Education Curriculum Construction and Teaching Reform Forum (II) 2022:5

[8] Ji Jinshan, Research on the Development Status and Reform Measures of Physical Education Teaching in Universities Literature Youth 2020(1): 2.

[9] Liu, Xiaomei Analysis of the Optimization Path of Physical Education Teaching in Universities under the Background of Integration of Sports and Education in Contemporary sports technology 2024, 14(33): 139-142.

[10] Chen Chao, Theoretical Logic, Practical Dilemmas and Promotion Strategies of Digital Transformation of Physical Education Teaching in Colleges and Universities, Journal of Tangshan Normal University, 2024, 46(03): 114-118.

[11] Wang Xin, Application of Information Technology in Physical Education Teaching in colleges and Universities Cai Zhi 2015(17):1 CNKI: SUN: CAIZ. 0. 2015-17-096

[12] Gaode Xia, Design and Practice of Physical Education Teaching in Universities under the Classroom

Inversion Model Journal of Jiamusi Education Institute 2019, (11):153-154.

[13]Wu Jintao, New Forms, New Fields and New Driving Forces of Physical Education in Universities under the Background of Digital Transformation of Education Sports Science Literature Bulletin 2024, 32(05):136-139.

[14]Xin Su Yun: Theoretical and Practical Path of Digital Teaching of Physical Education Courses in Universities under the Background of Educational Informatization in Proceedings of the 8th China Physical Fitness Training Science Conference 2023:5.

[15]Chen Lei; Lu Chunhong; Chen Xin, Research on the Reform of Teaching Model of Sports Club for Overseas Students in Universities Based on Digital Platform ①--Taking University A as an Example Contemporary Sports Science 2019, 9(11):65-68.

[16]Ren Pengbo, Research on the Innovation and Practice Path of Digital Sports Empowering the Integration and Development of Physical Education in Universities Journal of Hubei Open Vocational College 2024,37(18): 16-18. 10.3969/j.issn.2096-711X.2024.18.007

[17]Cui Haiting,"Digital Sports" professional talent training practice--taking Shandong Sport University as an example in National Sports Information Technology Academic Conference 2014.

[18]Wang Yuzhi, Research on the Development Path of School Sports driven by Digital Sports in Summary Compilation of Papers from the 14th National Conference on Sports Information Technology 2022: 2.

[19]Chen Zhiling, Research on the Digital Construction of Physical Education Teaching Platform in Universities under the Background of "Internet Education" China Legend 2019(29):2.

[20]Zhong Chongxia, Research on the reform of diversified mixed teaching mode in physical education under the background of informatization in Compilation of abstracts from the 11th National Sports Science Conference, 2019:3.

[21]Huang Shuai, Research on "Multi-dimensional and Digital" Teaching Methods of University Physical Education in the Background of "Integration of Sports and Education" in the New Era Contemporary Sports 2022(46): 0099-0101.

