

# Research on the Enhancement Strategies of Digital Literacy and Competence for Sports University Teachers in Chinese-style Modernization

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**Abstract:** In the process of Chinese-style modernization, sports universities are a key component of the sports industry that must closely integrate with national development strategies. This study aims to explore strategies to enhance the digital literacy and competence of sports university teachers, helping them rapidly adapt to and effectively utilize digital technologies, transform traditional educational concepts, and innovate teaching methods. This study focuses on the repositioning of teachers' roles and the application of modern technology, aiming to create a diversified and immersive learning environment for students, meeting personalized learning needs, enhancing interactivity and fun in sports classrooms, and promoting the integration of physical education with other disciplines. The goal is to improve teaching quality and efficiency, promote students' comprehensive development, and drive the high-quality development of sports universities in education modernization and teachers' professional growth, as well as meet the new expectations and requirements of digital transformation for the digital literacy and competence of sports university teachers.

**Keywords:** Digital literacy and competence; Sports university teachers; Chinese-style modernization; Enhancement strategies

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## 1. Introduction

According to the Report of the Party's 20th National Congress, "China is comprehensively promoting Chinese-style modernization to achieve the great rejuvenation of the Chinese nation." By 2035, a modernized education system will be established, building a strong nation in sports, and jointly striving to promote high-quality development in various fields <sup>[2]</sup>. This report for the first time integrates education, technology, and talent as a "trinity" overall plan, marking that digitization of education has become a key task in building a digital China and a strong nation in education. Teachers, as a key resource for the digitalization of education strategies, have

become the focus of educational research. Enhancing teachers' digital literacy to face the challenges of future education is a critical issue that needs to be addressed urgently.

As the main platform for cultivating builders and successors of socialist construction, universities must uphold the concept of talent development that is in line with Chinese-style modernization and meets the requirements of the times<sup>[3]</sup>. The mission of sports universities must be closely integrated with the national development strategy, so it is essential to delve into the connotation of Chinese-style modernization and actively explore new educational models and approaches to cultivate comprehensive talents with a global perspective, innovation ability, and social responsibility. Therefore, strengthening teachers' digital teaching capabilities is not only an improvement of the current educational model but also a proactive response and forward-thinking approach to the future direction of education. Enhancing the digital literacy and competence of teachers in sports universities is key to improving teaching efficiency, promoting students' comprehensive development, and serving as a practical guide for professional development<sup>[4]</sup>. This will also help sports universities smoothly achieve high standards and innovative goals in sports modernization, thereby cultivating a new generation of ambitious, morally upright, outstanding talents, and mission-oriented individuals of the era.

## **2. Value of the enhancement of digital literacy and competence of sports university teachers in Chinese-style modernization**

In the academic field both domestically and internationally, the digital transformation and digital literacy of teachers in sports universities have attracted widespread attention. Previous research has mainly focused on how teachers can apply digital technologies and promote this transformation through training, guidance, and resource support, exploring the impact of digital transformation on teachers' professional development. Scholars have also developed diagnostic tools for digital literacy, aiming to help future sports teachers prepare for qualification exams or participate in customized training programs.

Furthermore, some studies emphasize that university sports education should closely align with national modernization goals. For example, Liu et al. proposed that sports universities should combine modernization goals with sports development theories to enrich theoretical connotations and support the construction of a sports powerhouse. Gu's research pointed out that university sports directly impact the strength of the national sports industry and should develop in synergy with academic education, social sports, professional sports, and international sports. Liu et al. emphasized the crucial role of higher education sports in cultivating sports talents with an international perspective and national confidence.

With the implementation of the "New Generation Artificial Intelligence Development Plan", artificial intelligence technologies such as ChatGPT have been widely applied in the field of education, becoming one of the hot research topics. The application of these technologies not only changes teachers' professional development and work methods but also has a profound influence on reshaping the education ecosystem, enhancing teachers' and students' digital capabilities, realizing flexible learning modes, and establishing emotional connections.

Research has shown the needs and challenges of teachers in sports universities in a digital education environment and widely recognized the enhancement of digital literacy in innovating teaching methods, refreshing subject knowledge, and improving teaching effectiveness. However, current research often relies on quantitative data collection, such as assessing teachers' digital literacy through questionnaire surveys, while overlooking individual differences and the dynamic changes in teaching contexts. Moreover, research on digital literacy and competence enhancement strategies for sports university teachers in line with the requirements of Chinese-style modernization is still limited. Therefore, strengthening the improvement of digital literacy

capabilities is crucial for the professional development of the teachers themselves, as well as the modernization and transformation of the higher education system, teaching, and learning processes.

### **3. Challenges in the enhancement of digital literacy and competence of sports university teachers in Chinese-style modernization**

The development of the internet has brought about digital thinking, distributed cognition, virtual space knowledge dissemination methods, and interpersonal communication methods <sup>[5]</sup>. With the emergence of technologies such as big data, artificial intelligence, blockchain, and 5G, there have been profound changes have occurred in the ways of social production and life. The acceleration of digital industrialization and industrial digitization has posed new requirements on the knowledge, skills, and abilities possessed by the labor force worldwide, leading to a systematic transformation in talent cultivation concepts, methods, and governance systems, which makes the digital transformation of higher education that has become an imperative trend. The New Media Consortium (NMC) Horizon Report from the United States has identified digital literacy as a significant challenge hindering the application of technology in higher education for three consecutive years. Against this backdrop, the enhancement of digital literacy and competence of university teachers has become crucial, especially for teachers in sports universities facing unprecedented challenges.

#### **3.1. Transforming traditional educational concepts and transitioning to “smart teachers”**

With the rapid development of digital technology, digitization is fundamentally reshaping the concepts, methods, and forms of university teaching. The core of the digital transformation of higher education lies in the deep integration of technology with educational teaching, optimizing and transforming the operational space, operating methods, strategic directions, and value propositions of higher education institutions to align with the digital age.

In the process of Chinese-style modernization, teachers in sports universities are challenged to adapt to rapidly changing technological tools and platforms, requiring continuous updating of professional knowledge and skills to keep pace with technological advancements. However, traditional teaching concepts may no longer meet the needs of modern students. Transitioning from traditional “teachers” to “smart teachers” requires teachers to redefine their roles in dimensions such as educational teaching, learning services, and technological applications. Teachers shift from being “gatekeepers of knowledge” to “choreographers of learning”, expanding their mission beyond teaching to include guiding and shaping students’ emotions, attitudes, and values. Additionally, teachers shoulder the responsibility of being mentors for students’ healthy growth in the digital world, helping them understand and navigate the challenges and opportunities presented by the digital world, guiding them in the proper use of digital technology, and fostering their digital literacy and awareness of cyber security.

#### **3.2. Upholding a “student-centered” approach and practicing lifelong learning**

Teachers are the fundamental force in implementing high-quality education, so they need to uphold the educational philosophy of “students in the new era.” The current students, often referred to as the “digital generation” or “digital natives”, have had their cognition, attitudes, behaviors, and habits deeply shaped by technology, posing higher and evolving demands on teachers in sports universities. The “China Education Modernization 2035” initiative advocates for accelerating educational reform in the information age, leveraging modern technology to drive the reform of talent development models <sup>[6]</sup>. Looking to the future, meeting the requirements of digitization in this era brings new challenges to the enhancement of students’ digital literacy,

which in turn presents new challenges for teachers in sports universities.

Therefore, teachers must continuously optimize the discipline and professional structures that align with the new development landscape and focus on nurturing the new generation of individuals who will undertake the great task of national rejuvenation. Furthermore, improving teachers' digital literacy and competence is not only in line with the needs of their personal career development but also a key path towards building a strong sports nation and a healthy China.

### **3.3. Adapting to new paradigms and bridging the technological gap**

With the rapid development of digital technology, teachers in sports universities face a series of challenges in the process of digital transformation. Among them, technological barriers pose significant challenges, particularly in the collection, organization, analysis, categorization, and utilization of data. While modern technology provides new possibilities for innovative teaching methods, there are limitations in effectively integrating digital tools into teaching to enhance student interaction and engagement, as well as achieving accurate analysis of learning situations and evaluation of learning outcomes. In practice, teachers still need to invest substantial time and effort in learning and adapting to these new technologies despite the abundant educational resources and tools provided by modern technology. Therefore, teachers must flexibly utilize these digital tools to guide students properly in applying digital technology and fulfill important tasks such as cultivating their digital literacy.

In summary, teachers in sports universities often demonstrate significant deficiencies in transforming teaching concepts, role transitions, and strengthening digital awareness, technological knowledge, and skills. Additionally, inadequate awareness of the risks and challenges of the digital age highlights the dilemmas and issues that teachers in sports universities face in digital transformation, emphasizing the new competencies and skills that teachers must possess in the digital era to respond to the changes and challenges in the field of education.

## **4. Enhancing strategies for the digital literacy and competence of sports university teachers in Chinese-style modernization**

In the face of challenges in the digital era, sports university teachers need to adopt diverse strategies to improve their digital literacy and competence <sup>[7]</sup>. This is to adapt to the goals outlined in “China’s Education Modernization 2035”, which include intelligent campus construction, the upgrading of talent cultivation models, innovation in educational service modes, and updating of educational governance methods, while also meeting the requirements of international education modernization. The Chinese Ministry of Education released the industry standard “Teacher Digital Literacy” at the first World Digital Education Conference, which clarified the core connotations and index framework of digital literacy, providing clear guidance and direction for sports university teachers to tackle the challenges of educational digitization. The Ministry of Education of China, released the industry standard for “Teacher Digital Literacy” at the inaugural World Digital Education Conference, clarifying the core connotations and index framework of digital literacy. This provides clear guidance and direction for physical education college teachers, as well as robust support and guidance for them to tackle the challenges of educational digitization.

Firstly, teachers should actively transform their educational philosophies and integrate digital thinking. Educators need to understand the latest digital education concepts, explore the integration of digital technologies with sports university teaching, adapt to changes, and embrace the challenges brought about by educational digitization.

Secondly, teachers should pay attention to the needs of students in the new era and strengthen digital applications. By utilizing technologies such as augmented reality (AR) or virtual reality (VR) to create digital scenarios, they can enhance students' learning experiences while also reinforcing ethical standards and responsibilities for digital security in digital activities.

Thirdly, teachers need to integrate knowledge with technological applications to promote digital transformation. Through interdisciplinary collaboration, teachers can enhance their technological abilities, design personalized courses, utilize data analysis for curriculum reform, establish digital education management and evaluation systems, and drive the integration of artificial intelligence with teaching.

Lastly, teachers need to engage in continuous professional development and innovate in digital practices. By improving professional competence through digital practices, participating in digital education resource-sharing platforms, learning from others' experiences, and continuously learning and innovating, they can better address the challenges of the digital era.

In conclusion, sports university teachers should actively embrace change, align educational philosophies with the requirements of the digital era, strengthen teaching principles, explore new teaching methods, enhance international cooperation, focus on student needs, drive educational digital transformation, and promote the improvement of teaching quality. By strengthening education on digital ethics and privacy protection, they can deepen the development of educational digital transformation, making technology a stepping stone to promote holistic human development and the pursuit of a better life.

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## Disclosure statement

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## References

- [1] Jin H, Peng LH, Wang P, et al., 2023, Shaping the Future: Interpretation of the “Horizon Report (Teaching and Learning Edition) 2023” in the New Vision of Artificial Intelligence and Higher Education Reform. *Journal of Distance Education*, 2023(3): 3–11.
- [2] Feng TT, Liu DJ, Huang LL, 2024, Digital Education: Application, Sharing, Innovation: Summary of the 2024 World Digital Education Conference. *China Educational Technology*, 2024(3): 20–36.
- [3] Gu Y, 2023, Real Problems and Practical Paths of Sports Development in Chinese Universities in the Process of Chinese-style Modernization. *Contemporary Sports Science and Technology*, 2023(25): 80–83.
- [4] Gao WB, 2024, Digital Education: Application, Sharing, Innovation: Reflections on the Parallel Forum “Digitization and Construction of Learning Society” at the 2024 World Digital Education Conference. *Chinese Adult Education*, 2024(2): 3–4.
- [5] Chairman of the CCP, 2020, Speech at the Expert Symposium on Education, Culture, Health, and Sport. People's Publishing House, Beijing, 11.
- [6] Zhu ZT, Lin ZR, Wei F, et al., 2023, Digital Transformation of Teacher Development: Platformization, Ecologization, Practice. *China Educational Technology*, 432(1): 8–15.

- [7] Yang MMM, 2022, The Application of Educational Technologies to Facilitate Effective Teaching and Learning at a Teacher's College in Tanzania, thesis, Zhengzhou University. <https://doi.org/10.27466/d.cnki.gzzdu.2021.004449>

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