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Challenges and Paths of University Rouliqiu Course Teaching in the Digital Era

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Abstract: This study aims to explore the challenges and paths for teaching Rouliqiu courses in universities in the digital era. Through methods including literature analysis and logical analysis, this study identifies several limitations within traditional teaching modes: the dominance of linear knowledge transmission through teacher demonstrations, learning chain disruptions caused by rigid temporal and spatial constraints, and insufficient validity due to experience-based teaching evaluations. Blended teaching, anchored in the dual-subject development logic of "meeting students' individualized needs and enhancing teachers' professional competence," effectively overcomes constraints related to space-time organization, resource accessibility, and evaluation systems inherent in traditional teaching. This approach leverages a "technology-driven flexible learning ecosystem" and implements a "scientific transformation based on a three-dimensional evaluation model." It constructs a multi-dimensional interactive learning ecology by deeply integrating online and offline resources, establishing a closed-loop teaching path encompassing "pre-class knowledge internalization, in-class skill reinforcement, and post-class capability transformation." Future efforts are recommended to deepen the application of virtual reality and somatosensory technologies, strengthen the cultivation of teachers' digital teaching competencies, and continuously promote innovation and optimization in Rouliqiu teaching.

Keywords: Digital Transformation, University Rouliqiu Course, Blended Teaching, Physical Education Teaching, Physical Education

1. Introduction

In recent years, with the widespread adoption of "Internet+" technologies, the digital transformation of university physical education has become a critical topic in deepening educational reform. Relevant policies explicitly require the "deep integration of information technology into physical education courses"[1]. Against this backdrop, traditional ethnic sports such as Rouliqiu teaching face new challenges. Traditional teaching models, characterized by unilateral demonstration-imitation by teachers, fixed temporal-spatial structures, and singular evaluation standards[2], struggle to meet students' individualized and diversified learning needs[3]. Although blended teaching has demonstrated effectiveness in university sports such as volleyball and table tennis, its application in Rouliqiu remains underexplored. Therefore, this study aims to investigate the implementation effectiveness of blended teaching in university Rouliqiu courses, providing a basis for innovation in teaching models.

2. Traditional Teaching Challenges in University Rouliqiu Courses

2.1 Single Linear Knowledge Transfer Dominated by Teacher Demonstration

Traditional Rouliqiu teaching follows a linear pathway of "teacher demonstration—student imitation—group practice". Teachers convey technical essentials through live demonstrations and verbal explanations, while students learn through visual observation and physical imitation. This model has significant limitations. First, the quality of teacher

demonstrations depends heavily on their individual skill and expressive ability, often resulting in deviations in action standardization and precision, hindering students' accurate mastery of techniques. Second, in group classes, students have varied viewing angles; those at the back may struggle to clearly observe complex movements such as "arc guidance"[4], leading to incorrect imitation. Third, this model ignores differences in students' cognitive abilities and learning autonomy. Students find it challenging to independently regulate their learning pace, leading to mechanical imitation without deep understanding of movement principles, thus restricting skill internalization efficiency.

2.2 Learning Chain Disruptions Due to Rigid Time and Space Constraints

University Rouliqiu courses rely on fixed class schedules and specialized venues, making it difficult to accommodate contemporary students' dynamic and diverse learning needs[5]. Mandatory participation at specified times and locations often conflicts with students' personal schedules, other classes, and extracurricular activities. Absences cause disruptions in the learning chain, given the continuous nature of Rouliqiu movements—techniques like "left-right winding flips" and "flat side rotations" require progressive training to form muscle memory, with even a single missed session potentially breaking movement logic and continuity. Additionally, fixed teaching spaces deprive students of professional guidance during self-practice, making it difficult to compensate for missed class content, leading to skill stagnation. This model is particularly vulnerable during disruptions such as public health emergencies, significantly impacting teaching continuity.

2.3 Insufficient Validity in Experience-based Teaching Evaluation

The current evaluation system is singularly outcome-oriented, overly reliant on teachers' subjective experiences. Traditional evaluations focus on movement completion and fluidity, neglecting students' understanding of underlying principles, mechanics, and the philosophical essence of Tai Chi inherent in Rouliqiu. Although Rouliqiu emphasizes the principle of "gentleness and uniformity," differences in teachers' technical backgrounds result in inconsistent evaluation standards, reducing objectivity. A deeper issue is the system's prioritization of technical standardization and external form, neglecting the philosophical-cultural essence. The "Rouliqiu Standard Movement Guide" emphasizes embodying the philosophical concept of "softness overcoming hardness" through holistic internal and external harmony[6]. However, current evaluations merely replicate external standards without assessing internal rhythm and cultural understanding.

3. Implementation Paths of Blended Teaching

3.1 Dual-Subject Development Path: Meeting Students' Individualized Needs and Enhancing Teachers' Competencies

Blended teaching utilizes online platforms for personalized education. Teachers can tailor learning plans and resources based on students' progress, abilities, and interests, while students independently select materials and practice methods. This strategy effectively boosts engagement and learning outcomes. Digital technology enables teachers to promptly analyze learning data and dynamically adjust teaching strategies, improving targeted instruction. Integrating fragmented online resources with personalized offline guidance helps students consolidate skills, leverage strengths, and address weaknesses, fostering concurrent development of individual skills and cognition.

Blended teaching also equips teachers with rich resources and innovative tools, enhancing professional capabilities. Online platforms allow real-time tracking of learning progress and precise responses to student needs. Digital resources and case libraries offer references for instructional innovation. This approach necessitates teachers to develop competencies in video recording, resource creation, and data analysis, thereby motivating improvements in digital literacy and teaching skills. Additionally, online platforms foster collaborative teaching and research across time and space, promoting shared experiences and innovation mechanisms that ensure course quality and professional development.

3.2 Temporal-Spatial Expansion Path: Technology-Driven Flexible Learning Ecosystem

Blended teaching transcends traditional time-space limitations. Online platforms provide flexible access to resources, allowing students to independently preview and review technical details through videos and graphical materials outside class hours. Digital technology breaks down complex movements into slow-motion videos, aiding precise technique mastery. Real-time feedback enables immediate action improvement, while classroom recordings facilitate effective skill reinforcement. Open and personalized online resources allow students to arrange learning schedules according to personal pace, enhancing autonomy and efficiency. The integration of online and offline resources optimizes teaching space-time structures, boosting overall effectiveness.

3.3 Evaluation System Reconstruction Path: Scientific Transformation Based on a Three-Dimensional Evaluation Model

Blended teaching constructs a "technique-culture-process" three-dimensional evaluation framework. The technique dimension employs AI-based motion recognition systems (e.g., OpenPose) to quantify movement trajectory, strength, and smoothness, enabling millimeter-level measurement and objective scoring of complex movements like "arc guidance." The cultural dimension adds online theoretical tests and case analyses, requiring students to interpret philosophical concepts such as "softness overcoming hardness" and their manifestation in movements, including thematic essays on "Rouliqiu and Tai Chi culture." The process dimension records behavioral data, including preview duration, review frequency, and participation, integrating them into comprehensive evaluations.

To balance technical quantification and cultural heritage, and avoid formalistic emphasis on process data alone, a dynamic weighting mechanism allocates 40% to technique, 30% to culture, and 30% to process. Multiple evaluators—student self-assessment, peer assessment, and teacher evaluation—are introduced. For example, an anonymous video peer-review module allows students to critique peers' "throw-catch-round" actions, with teachers making final judgments based on AI-generated reports and peer feedback. This comprehensive model combines the flexibility of teacher expertise with the objectivity of technological tools.

4. Conclusion

This study addresses the challenges and pathways of Rouliqiu course teaching in universities, proposing a three-phase closed-loop teaching model—"pre-class knowledge internalization, in-class skill reinforcement, post-class capability transformation"—supported by intelligent teaching platforms. It provides theoretical guidance for the digital transformation of courses, driving resource optimization and personalized development. Future research should deepen the application of virtual reality and somatosensory technologies, enhance immersive learning experiences, and continually upgrade teachers' digital teaching skills to optimize course quality and outcomes.

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