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Research on the Application of Blended Online and Offline Teaching in Cheerleading Course Teaching

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Abstract: *The blended learning of online and offline provides an opportunity to reconstruct the teaching structure of skill oriented physical education courses. However, cheerleading courses have a heavy load of action memory, high requirements for formation coordination, and rely on collective display as the evaluation outlet. Simply transferring online resources is difficult to be effective. This article adopts the methods of literature research and teaching design analysis to sort out the connotation of blended learning and the practical progress of college physical education courses. It proposes a functional division of labor plan based on the law of motor skill acquisition: online cognitive preparation, motor representation establishment and feedback feedback, offline motor practice, error correction guidance and collective display. Based on this, a three-stage process is constructed that is task driven before class, intensive teaching and practice during class, and dual line consolidation after class. Operational designs are provided for content modules, resource forms, and evaluation methods. Research suggests that the value of blended learning lies not in compressing class hours, but in focusing limited offline time on improving action quality and coordination level. Its effectiveness depends on the refinement of task design, the timeliness of video feedback, and the credibility of process evaluation.*

Keywords: *blended learning; cheerleading; college physical education courses; instructional design; formative assessment*

1. Introduction

There is a long-standing tension between the class hours and content capacity of school physical education courses. Cheerleading is based on the synergy of hand position, pace, formation, music, and expressiveness. The memory of a set of movements increases with the number of combinations, and changes in formation require students to continuously adjust their position and orientation. A case study from a university shows that public sports flower ball dance cheerleading courses usually only have 32 hours and 1 credit. Teachers need to complete technical instruction, complete choreography, and display evaluation within the limited hours, which is quite difficult. Traditional classrooms mainly focus on demonstration, imitation, and collective repetition, with a considerable proportion of explanation. Dozens of students practice at the same time, making it difficult for teachers to correct them one by one, and common errors repeatedly occur; Students lack referenceable movement standards after class, making it easy for them to lose shape during practice, and they will have to spend a lot of time correcting old mistakes in the next class. The combination of tight class schedules, large class sizes, significant differences in foundation, and lack of after-school guidance constitute the main obstacles to improving course quality.

The value of blended learning lies in the redistribution of time between speaking and practicing. Putting cognitive content such as action demonstrations, rule explanations, terminology reading, and event appreciation online, and allowing face-to-face time for practice, correction, and presentation, offline classes can shift from transmitting actions to polishing actions. Online resources can be viewed repeatedly, played slowly, and compared with correct and incorrect information, which precisely compensates for the shortcomings of unclear viewing and memorization in group teaching, and also provides a reference for post class self-study.

This article focuses on three issues: how to divide labor between online and offline, and on what basis; How to organize the three-stage process to enable online learning to support offline practice; What are the risks that are easily overlooked during implementation. The research methods mainly include literature review and teaching design analysis, supplemented by comparison of publicly available teaching cases. This article belongs to the application research of instructional design orientation and

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does not make causal inference of effects. The judgments involved are all based on indirect evidence from literature and cases.

2. Literature review and theoretical basis

2.1 Definition of the connotation of blended learning

Blended learning is usually understood as the combination of face-to-face teaching and online learning, and the depth of the combination determines its nature. If online only undertakes data distribution, notification release, and homework collection, it is still an auxiliary tool of traditional classrooms; Only when online learning undertakes cognitive tasks that originally belonged to the classroom, and the content and pace of offline classrooms change accordingly, does blended learning constitute a reconstruction of the teaching structure [1]. If the application of information technology remains at the formal level, it cannot solve the problem of innovative teaching and learning models. From the perspective of learning theory, the rationality of blended learning lies in simultaneously addressing both cognitive construction and embodied practice. The learning of motor skills requires three stages: cognition, connection, and automation. The former relies on clear demonstrations, terminology, and motor representations, while the latter relies on sufficient repetition and immediate feedback. Proficient in the former in online resources, able to watch repeatedly, slow down, freeze frame, and compare right and wrong; Offline classrooms excel in the latter, providing load, space, and immediate intervention from peers and teachers. Corresponding the two according to the stage of skill formation, a hybrid approach is the functional division of labor with inherent basis.

2.2 Practical progress of blended teaching in college physical education courses

The mixed practice of physical education courses in universities has accumulated certain experience and presented a relatively consistent structure [2]. There is a study taking the track and field course of physical education as an example, which divides the course into three modules: self-study before class, guided practice in class, and online and offline consolidation and review after class. After class, students are required to shoot training videos and upload them, and teachers are required to comment on each one. The platform learning situation is included in the assessment. This structure is consistent with the learning rhythm of skill based courses, indicating that the three-stage process has cross project generality.

At the application strategy level, research has proposed to improve teaching content, establish a sound curriculum system, implement layered teaching, collaborate on multiple platforms, and strengthen teaching management, based on the physical education curriculum of universities in Guangxi. Taking cheerleading as an example, the flipped design is described: students collect materials before class, organize them into presentations, and explain and display their own actions during class. This type of design delegates the right to speak to students, compresses the time for theoretical lectures, and incorporates expression and organizational skills into course objectives; When there is a lack of regulation and training, a hybrid approach can easily degenerate into a one size fits all approach.

2.3 Current status and shortcomings of research on cheerleading course teaching

The current research on cheerleading courses can be roughly divided into two categories. A focus on educational positioning and content design. Some studies have summarized the educational goals of cheerleading courses in universities as good character, good learning, good skills, and good temperament, and advocate the combination of online and offline: using WeChat to build communication and push channels, using DingTalk to complete pre class preview and post class video homework submission and correction, and using special applications to obtain rule updates and routine resources [3]. This study confirms the binding of online and offline division of labor with project rules, routine versions, and music material update rhythms, rather than universal resource distribution.

Another organization that focuses on classroom processes and evaluations. Based on the Learning Platform, some college cases divide teaching into three stages: pre class preparation, in class practical interaction, and post class reflection and improvement. In class, it is further divided into six stages: guidance, learning practice, creation, competition, and evaluation, forming a progressive six stage structure; Evaluation combines platform data, teacher evaluation, peer evaluation, and social evaluation. Its advantage lies in putting creativity and competition back at the center of the classroom, transforming collective display attributes into teaching resources; The limitation is that it still relies mainly on

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empirical descriptions, without specifying the time allocation basis between stages, nor explaining how the evaluation criteria ensure consistency.

Previous studies have provided reference structures and tools, but there are still three shortcomings. The division of labor is mostly based on experience, lacking corresponding analysis of the formation stages of motor skills, and online tasks are often disconnected from offline exercises; The resource construction remains at the level where videos are available, without discussing the decomposition logic and version management, which directly determine whether students can understand; Evaluation research tends to focus on multiple subjects and deals less with reliability issues. Without refined criteria for peer evaluation, it is easy to slide towards scoring based on personal feelings.

3. Design of blended learning mode

3.1 Design principles

Pattern design follows four principles. This framework aligns objectives, activities and evaluation criteria to ensure that online tasks are oriented toward observable offline performance. Any content that cannot change the quality of classroom exercises must be deleted. Tasks are divided into online and offline categories according to cognitive and practical attributes. Online approaches are elaborated explicitly, and offline countermeasures are precisely and systematically aligned with them. Practice is the main focus, competition promotes learning, and offline practice time should not be less than half of the total duration. Operability should be prioritized, and the costs of resource development and platform operation shall be kept within an affordable range for teachers.

3.2 Reconstruction of teaching content modules

The content of cheerleading courses can be reorganized according to cognitive load and exercise forms. The knowledge module includes project history, competition rules, scoring dimensions, and terminology; The basic technical modules include hand position, stride, body posture, and rhythm control; The complete set and formation module includes combination connection, formation transformation, and spatial hierarchy; The physical fitness and expressive module includes strength, flexibility, coordination, and facial expression management; The module of creation and rule application includes theme design, music editing, and difficulty selection. The online tasks and offline focus of each module are shown in Table 1.

Table 1. Cheerleading course content modules and online and offline division of labor

Content module	Online tasks	Offline focus	Learning outcomes
Knowledge module	Introduction to rules and scoring tables, appreciation of event fragments, terminology reading test	On site comparison and explanation of rules and ratings	Key points of rules, notes, and identification of rating dimensions
Basic technical modules	Screen splitting demonstration of hand position and pace, slow playback and comparison of accuracy and error	Individual error correction and synchronized rhythm practice	Accuracy of movements and stability of rhythm
Complete set and formation module	Complete action panoramic video, formation route animation	Repeatedly polish the grouping positioning and connection points	Complete set rate, formation accuracy rate
Physical fitness and performance module	Specialized physical fitness micro lesson, demonstration of facial expression and gaze management	Combination exercises under load control	Physical support and performance score
Creation and rule application module	Create a case library, music materials, and key editing points	Group creation, presentation, and peer evaluation	Create a creative plan and display videos

3.3 Three stage teaching process

The process design divides a semester into several teaching units, with each unit progressing in three stages: pre class, in class, and post class. Before class, students watch micro videos, complete pre tests, and submit a simulated video of an action based on a task list as a clue; Teachers identify common errors

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based on platform data and determine the focus of teaching accordingly. During class, compress collective explanations and allocate time for review and correction, new exercises, group creation, and presentation evaluation. After class, video assignments and peer evaluations will be the main focus. Students will complete self correction according to the standards, and teachers will provide sample comments and common feedback. The specific arrangement is shown in Table 2.

Table 2. Three stage teaching process and teacher-student activities

Stage	Student activities	Teacher activities	Main tools	Time suggestion
Before class	Watch micro videos, complete pre-test, submit imitation videos	Publish task orders, analyze learning data, and determine teaching priorities	Teaching platform, task list, pre-test question bank	20 to 30 minutes outside of class
During class	Review and correction, newly taught exercises, group creation, presentation and mutual evaluation	Elaborate on common mistakes, provide touring guidance, organize presentations, and provide feedback	Sound system, venue zoning signage, rating sheet	90 minute classroom
After class	Submit videos on both sides, complete peer evaluation, and expand learning	Sampling comments, summarizing common issues, and pushing resources for expansion	Platform homework area, mutual evaluation form	20 minutes outside of class

The 90 minutes in class can be divided into five segments: 10 minutes for warm-up and activation, 25 minutes for review and common correction, 35 minutes for group practice for new assignments, 15 minutes for creation and presentation, and 5 minutes for summary and assignment. This proportion is based on the principle of more than half of the practice time, rather than actual measurement data; The class schedule and venue can be adjusted, but the practice period should not be less than 45 minutes, otherwise the mixed format will lose the meaning of advancing cognition.

4. Key links in teaching implementation

4.1 Construction logic of online resources

The more resources there are the better. It's about making them understandable, relevant, and useful to students. Micro videos should adopt a four segment structure: panoramic demonstration presenting complete movements and music beats, decomposition demonstration divided into individual hand positions or steps, slow playback and freeze frame presenting the order of force application, and comparison of correct and incorrect presentation of common errors and correction paths. A single video should be controlled within 3 minutes, and the comparison of right and wrong should be placed in the same frame to reduce cognitive switching costs.

The resource repository requires version management. The rules and regulations are updated periodically, and the continued circulation of old versions of videos may create a false impression for students. A feasible approach is to name them at three levels: unit, action, and version. At the beginning of the semester, the current list will be released uniformly, and the old version will be moved to the archive area and marked as discontinued.

4.2 Pre class: Cognitive preparation driven by task sheets

Answer three questions on the pre class task list: what to watch, what to practice, and what to doubt. What points to the observation focus, such as the transition path from upper to lower hand position; Practice what points to the smallest achievable action segment, such as following a slow video to complete four hand position transitions; What is the requirement for students to submit an uncertain point as a candidate topic for intensive lectures in class. The task list converts viewing behavior into verifiable output.

The purpose of pre-test is to expose cognitive biases. The test questions are designed around terminology recognition, rhythm recognition, and action sequence judgment. Questions with high error rates will be directly explained in class. The viewing duration, pause position, and test results recorded by the platform constitute learning data, which teachers use to determine which content can be briefly discussed and which must be repeated. The viewing duration is only a rough proxy indicator of investment and cannot be equated with learning quality.

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4.3 In class: Offline deepening with error correction and presentation as the core

The primary task of the classroom is to correct errors, not to re teach. Teachers classify common errors based on pre class data and use a combination of centralized and comparative demonstrations to address them, followed by group exercises. Heterogeneity grouping should be adopted for grouping, with students with different foundations in each group, and students with better foundations serving as group leaders responsible for rhythm calling; Teachers conduct observation tours and handle issues on three levels: collective commonalities, group commonalities, and individual problems, to avoid wasting time repeating the same sentence one by one.

Practice organization should prevent the appearance from lacking quality. A common phenomenon is that students remember the shape of movements but lose the order of force application, or only focus on walking and lose their hand position when changing formations. A feasible intervention is to break down the set into several connection points, leaving two eight beats before and after each connection point for repeated polishing until the movement and position are synchronized and stable. The presentation is arranged in the later part of the class, using group rounds of presentation and a unified scoring table for mutual evaluation, so that the evaluation criteria can be used once in a real situation.

4.4 After class: Double line consolidation using video assignments as a carrier

The core form of homework after class is video. Require students to take one front and one side shot, with a duration of about 30 seconds, to control the cost of grading and ensure that teachers can see the spatial trajectory of the action. The value of video homework is not just about submitting assignments, it externalizes students' self observation: repeatedly watching their own videos and comparing them with standard videos, the feedback loop is truly closed. A study has adopted the same approach in track and field courses, indicating that this form is transferable in skill based courses.

Peer evaluation and video homework binding. Two people work in pairs, score each other based on a unified scoring table, and write a suggestion for improvement. The results will be included in the regular grades according to a certain proportion. Teachers adopt a sampling based evaluation approach combined with common feedback: several videos are selected each time for frame by frame evaluation, and the rest are responded to uniformly in the form of common questions during class, ensuring targeted feedback without overwhelming teachers with the amount of corrections.

5. Learning evaluation design

5.1 Evaluation dimensions and weights

The evaluation of blended learning must cover both online and offline, process and end, otherwise students will quickly realize that online is not important. The suggested dimensions and weights are shown in Table 3, and each school can adjust them based on credits and class hours.

Table 3. Learning evaluation dimensions, weights, and basis

Evaluation dimension	Weight	Main basis	Evaluation subject
Online learning	20%	Task completion quality, pre-test scores, and participation in discussions	Platform data and teacher spot checks
Classroom performance	30%	Attendance, practice engagement, group collaboration, error correction and improvement	Teacher observation and group recording
Technical assessment	30%	Accuracy of complete set of movements, synchronized rhythm, and proper formation	Teacher double evaluation
Creation and display	20%	Creation plan, display effect, and mutual evaluation participation	Teacher and companion

5.2 Key points for evaluation implementation

The scoring criteria need to be refined to a measurable level. Taking technical assessment as an example, this framework describes accuracy, rhythm, intensity and expressiveness across three hierarchical levels and defines corresponding behavioral characteristics to avoid vague descriptive labels such as "good", "fair" and "average". The skill assessment adopts double evaluation, where two teachers independently score and take the average. When the score difference exceeds the threshold, another

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teacher arbitrates, which is a low-cost method to control reliability.

The use of online data should be restrained. The duration of viewing and the number of logins can serve as warning signals, but they should not be directly converted into high scores, otherwise it will induce the duration of browsing. A more reliable approach is to anchor online grades on output: whether the task list answered three questions, whether the imitation video completed the designated segment, and whether the pre-test errors were corrected. The diversity of evaluation subjects does not mean that responsibilities are dispersed. Teachers still need to be responsible for the final grades, and peer evaluation should have a deviation correction mechanism.

6. Problems and countermeasures in applications

6.1 Formalization of online learning

Formalization is the most common form of degeneration in blended learning: videos are clicked but no one is watching, task lists are copied and pasted, and discussion forums are left with only received content. The cause is not in students' attitudes, but in task design that is too heavy or too empty. The countermeasure is to lower the threshold for single tasks and improve targeting: only look at one action, practice one segment, ask one question at a time, and use random checks in the first two minutes of class to link task completion with classroom progress.

6.2 Teacher burden and shortcomings in ability

The implicit costs of blended learning are concentrated in resource production and grading. If each teacher independently produces a complete set of micro videos, the input-output ratio is not reasonable. The feasible path is the co-construction and sharing of teaching and research rooms: creating content modules according to division of labor, unifying naming and version rules, and forming a reusable resource library; Correction is controlled by sampling precision evaluation and common feedback to control the total amount. The policy document has pointed out that teachers' innovative ability in information-based teaching is insufficient, and training should not be limited to platform operations, but should focus on how to translate course content into online tasks.

6.3 Site conditions and safety risks

Blended learning has increased the practice density per unit time and placed higher demands on site zoning and equipment preparation. When the class quota is large, group practice areas can be divided within the venue using marking lines, and group rotation can be implemented to reduce waiting and collisions. Online previewing can serve as a means of informing venue rules and safety tips, further compressing offline explanation time. However, the compression must be focused on explanation, not warm-up and relaxation.

6.4 Differences in student foundations and stratification

In the same class, there is a significant gap between students with dance foundation and those with zero foundation. Previous studies have advocated using platform data to implement hierarchical teaching, pushing basic action resources to those with weaker foundations and extending tasks to those with better foundations. The key to layering lies not in the quantity of resources, but in the correspondence between task difficulty and evaluation criteria: the basic layer aims to achieve accurate movements, while the improvement layer aims to achieve rhythm changes and formation innovation. The two layers share the same set of display requirements.

7. Discussion

The value of blended learning needs to be understood from the perspective of time structure. It did not increase the total class hours, but instead transferred the classroom time originally used for lectures and demonstrations outside of class, returning the classroom to practice. Whether this transfer can be established depends on the quality of online cognitive preparation: if students do not establish correct motor representations before class, they must demonstrate again during class. The level of refinement of online resources thus determines the lower limit of blended learning. The effectiveness of patterns also

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has boundaries. The automation of motor skills relies on sufficient physical practice and real-time feedback. Online activities mainly serve the cognitive stage and feedback loop, and their marginal contribution to technical performance may be smaller than their contribution to rule understanding, self-learning, and self-evaluation abilities. This judgment is only a theoretical inference based on the law of skill formation and still needs empirical verification; If a quasi experimental design is used to compare the differences in skill scores and learning engagement between blended and conventional teaching in the future, the boundary can be clarified. Compared with existing research, the three-stage process in this article is generally consistent with the practice of athletics and other projects. The in class section draws on the guidance, learning practice, creation, competition, and evaluation structures in cheerleading course cases. The difference lies in emphasizing the use of pre class data to determine the content of the lecture, and binding video assignments with peer evaluation as a routine system, shifting the concept of "learning determines teaching" from the concept to the operational level. The limitations of this article are equally evident. The research is oriented towards instructional design and has not been experimentally tested. The effectiveness judgment relies on indirect evidence; The discussion is based on the context of public sports and elective courses in universities, but does not cover classroom and competitive training scenarios in primary and secondary schools; The evaluation of reliability only proposes the method of double evaluation and standard refinement, without providing actual measurement coefficients. These questions need to be gradually answered through classroom experiments, questionnaires, and interviews.

8. Conclusion

The blended teaching of cheerleading courses should be based on the division of labor in the stage of motor skill formation, with online cognitive preparation and feedback, and offline practice, error correction, and presentation. The two are not the addition of resources, but the rearrangement of teaching structure The operable mode is a three-stage process driven by pre class task sheets, intensive lectures and exercises during class, and post class video consolidation, combined with content modularization, resource versioning, and evaluation process; Half of the practice time, precise lectures based on data, and binding video assignments with peer evaluations are three operational rules that can be directly implemented. The main risks in implementation are the formalization of online learning, overload of teacher burden, blurred safety boundaries, and insufficient evaluation reliability. The countermeasures aim to link task lightweighting with classroom benefits, resource co construction and sharing, sampling and fine evaluation, and process oriented safety plans and double evaluation refinement. Blended learning does not automatically improve teaching quality, it simply amplifies the quality of instructional design. For cheerleading courses, what is worth investing in is not more platform functions, but clearer action decomposition, more accurate error diagnosis, and more reliable evaluation criteria.

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