

Research on Implementation Path of Physical Fitness Teaching in Senior High School PE Class Under the Concept of "Health-First" in the New Curriculum Standard

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Abstract: The 2022 Edition of the General High School Physical Education Curriculum Standards establishes the educational philosophy of "Health First". Physical fitness teaching serves as a vital carrier to cultivate students' core physical literacy and boost their physical and mental well-being. Restricted by conventional teaching mindsets and monolithic evaluation models, current physical fitness teaching in senior high schools is plagued by outdated educational concepts, rigid teaching contents, monotonous training formats and imperfect evaluation mechanisms. Its educational efficiency is insufficient to meet students' physical and mental development needs as well as the demands of curriculum reform. This study intends to optimize the physical fitness teaching system for senior high schools and improve classroom education quality and students' physical literacy. In accordance with the requirements of the new curriculum standards and the actual situation of senior high school physical education teaching, this paper systematically analyzes the existing dilemmas in physical fitness teaching. It constructs optimized approaches from five dimensions: educational philosophy, teaching content, training methods, technological empowerment and evaluation system, and puts forward feasible practical strategies. The primary restrictive factors of physical fitness teaching in current senior high schools are clarified. A scientific, precise and normalized implementation system for physical fitness teaching is established, alongside classroom practical schemes conforming to the new curriculum standards, which effectively addresses the low efficiency and weakened educational functions of traditional physical fitness teaching. The multi-dimensionally optimized physical fitness teaching model can significantly improve the status quo of senior high school physical education classes, strengthen students' physical fitness, and foster students' core physical literacy and awareness of lifelong physical activity.

Keywords: new curriculum standard; health-first; senior high school physical education; physical fitness teaching; classroom implementation; teaching path

1. Introduction

Adolescent physical and mental health constitutes the foundation of high-quality educational development and a cornerstone for building a Healthy China. The new curriculum standard repeatedly stresses that physical education and health courses must adhere to the core educational concept of "health-first". It abandons the utilitarian teaching tendency in traditional PE classes that prioritizes motor skills over physical fitness and exam performance over literacy cultivation. With scientific physical fitness training as the starting point, PE courses are required to comprehensively improve students' physical quality, psychological quality and social adaptability. Senior high school is a critical window period when students' physical quality takes shape, exercise habits solidify and health cognition matures. Scientific and systematic classroom physical fitness teaching can effectively alleviate common problems among contemporary senior high school students such as insufficient physical activity, declining physical fitness and poor stress resistance^[1].

In current senior high school PE teaching practice, physical fitness teaching remains auxiliary, fragmented and exam-oriented. It has not been truly integrated into main classroom teaching, so it cannot give play to its comprehensive educational value of strengthening physique, improving physical condition, cultivating mind and fostering morality. Taking physical fitness teaching in senior high school PE classrooms as the research object, this paper analyzes existing teaching dilemmas and puts forward targeted implementation paths combined with front-line teaching practice. It provides theoretical

references and practical paradigms for improving the quality of physical fitness teaching in senior high schools under the new curriculum standard.

2. Practical Dilemmas of Physical Fitness Teaching in Senior High School PE Classrooms from the Perspective of the New Curriculum Standard

2.1 Biased educational concepts and vague understanding of health-oriented positioning

Educational philosophy serves as the core guidance for classroom teaching, which directly determines the implementation quality and educational outcomes of physical-fitness teaching. The new curriculum standard clearly defines that the goal of physical-fitness teaching is not merely to improve students' sports performance or complete classroom training tasks. Based on the enhancement of physical quality, it should give consideration to students' physical and mental health development, improvement of motor competence, formation of healthy behaviors and cultivation of sports morality, so as to realize the integrated education of "physical fitness, mental cultivation and moral development". Nevertheless, in teaching practice, the teaching inertia formed by long-term exam-oriented education cannot be completely reversed^[2]. Most schools, teachers and students hold prominent cognitive biases. On the school side, more emphasis is placed on academic performance while physical-health education is devalued. PE is regarded as a "minor subject". It is common to squeeze PE class hours and reduce physical-fitness training time for academic subjects, ignoring the vital value of PE teaching for students' sustainable physical and mental development. For teachers, they interpret the "health-first" concept one-sidedly, equating physical-fitness teaching simply with physical-quality training. They pursue the improvement of explicit physical indicators such as speed, strength and endurance, while ignoring implicit health demands including students' psychological state, posture health, sports safety and habit formation. Meanwhile, students generally hold a passive attitude toward training. They regard physical-fitness drills as classroom assignments rather than health needs, lacking awareness of voluntary exercise. As a result, they fail to develop the lifelong-sports concept, which fundamentally deviates from the core original intention of health-oriented education stipulated by the new curriculum standard.

2.2 Homogenized teaching content and inadequate adaptive stratified design

The new curriculum standard advocates that PE teaching should adhere to the principle of teaching students in accordance with their aptitude. Full respect shall be given to individual differences among students. Differentiated, progressive and personalized teaching content should be designed in light of students' physical fitness, sports foundation, interests, strengths and physical-mental characteristics, so that students at all levels can achieve physical improvement on the basis of their original conditions. Senior high-school students are in a stage of differentiated physical development. There are remarkable gender gaps between male and female students in strength, endurance, flexibility, coordination and other physical dimensions. Even within one class, students show obvious stratification in physical fitness due to varied exercise habits and innate physical conditions. At present, the "one-size-fits-all" model prevails in senior high-school physical-fitness teaching, featuring prominent homogenization and simplification of teaching content. Most teachers adopt unified training content, intensity and criteria without targeted stratified teaching design. In class, both underachievers with poor physical foundation and high-achieving students with outstanding physical quality receive identical basic training such as squats, long-distance running and sit-ups, without optimized training schemes considering gender, physical condition and ability differences. Such undifferentiated teaching leads to two extremes: advanced students "cannot get enough" due to insufficient challenging tasks and limited room for capability breakthrough; students with poor fitness "cannot keep up" with high-intensity drills^[3]. They tend to develop fear of difficulties, frustration in sports and even resistance to physical training. Consequently, physical-fitness teaching becomes polarized, and the overall teaching efficiency drops sharply, failing to satisfy the new curriculum standard's requirements of teaching students in accordance with their aptitude and educating all students.

2.3 Solidified training modes and low effectiveness of classroom exercise load

Scientific training modes and reasonable classroom exercise load constitute the key to improving physical-fitness teaching quality. The new curriculum standard requires senior high-school PE classes to build an integrated teaching model of "learning, practicing, competing and evaluating". Through diversified, interesting and scientific training methods, teachers shall properly control classroom exercise

density, intensity and duration. Students can achieve steady physical improvement under appropriate load, as well as experience sports fun and participate in exercises voluntarily. In reality, physical-fitness teaching in senior high schools generally adopts outdated and rigid modes, mostly the traditional formula of “teacher explanation + mechanical repetition + free practice”. Training content is tedious and monotonous with little innovation or appeal. Classroom physical-fitness drills mostly consist of mechanical repetitive exercises, lacking game-based, situational and special-event-oriented design, which hardly motivates students’ participation. Moreover, many teachers lack competence in scientific load regulation, giving rise to two opposite imbalances in classroom physical-fitness training. In some classes, training is formalized and fragmented with inadequate exercise density and intensity; students cannot reach effective exercise thresholds to boost physical health. In other classes, training intensity is pursued blindly regardless of students’ physical tolerance. Excessive load may cause sports fatigue, muscle injuries and even weariness toward PE. In addition, most classroom physical-fitness training is disconnected from special-event PE teaching, lacking targeted transition drills. The training produces limited practical effects and cannot realize mutual promotion between physical improvement and motor-skill acquisition, resulting in low overall efficiency of in-class physical-fitness teaching^[4].

2.4 Backward evaluation system and deficiency of process-oriented educational mechanism

Teaching evaluation serves as a vital instrument for optimizing teaching procedures, inspecting teaching effects and guiding student development. The new curriculum standard advocates constructing a diversified, whole-process and comprehensive PE evaluation system. It breaks the single result-oriented evaluation mode, and focuses on full-process dimensions including students’ progress in physical fitness, in-class engagement, formation of healthy behaviors and development of sports morality, so as to promote learning, practice and education via evaluation. Nevertheless, the current evaluation system for senior high-school physical-fitness teaching lags far behind curriculum-reform demands, with prominent drawbacks such as limited evaluation dimensions, single evaluator subjects and misplaced evaluation priorities. In terms of evaluation dimensions, the vast majority of teachers take final physical-fitness test scores as the sole criterion^[5]. They focus on quantitative final indicators of speed, endurance and strength, while neglecting process-oriented growth such as students’ in-class training attitudes, physical-fitness progress, sports-habit formation and teamwork performance. Thus students’ comprehensive health literacy cannot be objectively reflected. In terms of evaluator subjects, evaluation is dominated by one-way teacher assessment. Mechanisms for student self-assessment, peer assessment and home-school joint evaluation are absent, leading to subjective and incomplete evaluation results. In terms of evaluation orientation, single result-oriented evaluation drives students to pursue test scores excessively, while ignoring daily regular physical-fitness exercises and self-health management. The process-oriented educational value of physical-fitness teaching is largely lost, and evaluation fails to play its guiding, motivating and regulating role in students’ healthy growth.

3. Implementation Paths of Physical Fitness Teaching in Senior High School PE Classrooms Under the "Health-First" Concept of the New Curriculum Standard

3.1 Renew educational concepts and consolidate the teaching orientation of "health-first"

To meet the educational requirements of the new curriculum standard, the primary task is to renew educational concepts for both teachers and students, and thoroughly reverse traditional thinking that prioritizes skills over physical fitness and exam performance over health. Teachers should firmly establish the teaching philosophy of "health priority, literacy-oriented education and all-round development". Physical fitness teaching shall be upgraded from an auxiliary classroom link to a core teaching component. Teachers should clarify its comprehensive value in building physical strength, forging willpower, regulating mental status and cultivating exercise habits. Meanwhile, teachers should highlight students’ principal status and infiltrate health-cognition education, helping students understand the internal correlation between physical exercise, physical-mental health, academic development and lifelong life. Students shall shift from passive training to active exercise, so as to consolidate the "health-first" teaching orientation in classrooms.

For example, in regular PE classes for Grade-10 students, teachers abandon the former mode of "teaching skills first with incidental fitness drills". Classroom structure is optimized, and 10-minute systematic physical fitness training is set as a compulsory module for every class. Before class, short health micro-lectures explain the practical value of physical fitness training in relieving academic pressure, improving body posture and enhancing immunity. In class, exercises are designed for health

development instead of blind pursuit of training volume and test performance. After class, students are guided to record their exercise feelings. Through long-term concept infiltration, students' fixed perception that "physical fitness training is a task" is effectively changed. Students develop the awareness of active fitness and self-discipline, so that the "health-first" concept takes root in PE classrooms.

3.2 Reconstruct teaching content and implement stratified teaching suited to individual aptitude

Against the problem of homogenized teaching content, teachers should build a trinity stratified content system of "basic physical fitness + specialized physical fitness + targeted weakness compensation" based on students' individual differences, so as to teach students in accordance with their aptitude. According to gender, physical fitness test data and sports foundations, students are divided into three groups: basic level, improvement level and specialty level, with gradient training content designed for each group. The basic level focuses on guaranteed training for endurance, flexibility and basic strength; the improvement level emphasizes balanced enhancement of comprehensive physical fitness; the specialty level targets breakthrough improvement of specialized physical fitness. In addition, physical fitness content shall be deeply integrated with specialized teaching of ball games, track-and-field, gymnastics and other events, so that physical fitness supports skill mastery and skills boost physical fitness improvement.

Taking the track-and-field teaching unit for Grade-11 students as an example, teachers complete student grouping based on pre-class physical fitness test data. Students at the basic level carry out low-intensity guaranteed exercises including jogging, static stretching and basic squats to consolidate cardiopulmonary function and basic strength. Students at the improvement level take part in interval running, dynamic core training and combined jumping drills to strengthen comprehensive physical fitness. Students at the specialty level perform variable-speed running, weighted core training and specialized explosive-force training for specialized improvement. Combined with sprint and long-distance running techniques, targeted drills for leg strength and core stability are arranged. These practices consolidate specialized skills and make up for physical weaknesses, effectively solving the adaptability problems caused by the one-size-fits-all teaching mode.

3.3 Innovate training methods and improve the actual effect of classroom physical fitness teaching

To address solidified training modes and insufficient classroom exercise load, teachers shall innovate physical fitness training paradigms, abandon mechanical repetitive drills, and adopt diversified training modes including circuit training, interval training, situational training and group competitions. Classroom exercise structure is optimized to increase effective exercise density. Through interesting, modular and situational teaching design, training dullness is reduced and students' initiative is stimulated. Training intensity and duration are precisely regulated to ensure classroom exercise load meets relevant standards and improve the effectiveness of physical fitness teaching.

For instance, in regular physical fitness classes, teachers design a "fitness challenge circuit training" mode with four stations: endurance running, planks, jump obstacles and flexibility stretching. Students rotate to finish drills in groups. Compared with traditional single jogging, circuit training features rich forms and strong interaction and greatly boosts students' enthusiasm. Short-interval high-frequency interval training is adopted with reasonable work-rest ratio to raise classroom exercise density. Students' heart rate is maintained within the standard range specified by the new curriculum standard. Excessive fatigue is avoided while effective physical stimulation is achieved, thus improving classroom educational effectiveness.

3.4 Empower teaching with technology and construct a precise and scientific cultivation mode

Leveraging the advantages of digital education transformation, smart devices and digital platforms are integrated into the whole process of physical fitness teaching to overcome the drawbacks of traditional experience-driven and vague teaching. A scientific, visualized and precise physical-fitness cultivation mode is constructed. Smart monitoring devices are applied to track students' exercise status in real time and prevent sports injuries. Electronic growth files record changes in students' physical fitness to accurately identify individual weaknesses. Digital demonstration resources standardize exercise movements and improve training quality, realizing adaptive and precise education for all students.

For example, supported by an intelligent PE teaching platform, smart heart-rate bracelets are used in physical fitness classes to collect real-time data including heart rate, exercise duration and steps. Data

are displayed on large-screen terminals. Teachers urge students with low heart rate to increase training intensity, and arrange timely rest for students with excessive heart rate to avoid sports risks. Short-video clips and motion-analysis animations are used to standardize movements such as squats, planks and shuttle runs and correct wrong postures. Background systems automatically generate students' physical-fitness data files, recording training performance of each class and monthly physical-fitness changes, providing accurate data support for stratified teaching and personalized tutoring.

3.5 Optimize the evaluation system and build a multi-dimensional whole-process evaluation mechanism

Guided by literacy cultivation in the new curriculum standard, teachers should break the single summative evaluation mode and establish a trinity multi-dimensional whole-process evaluation mechanism integrating process-oriented evaluation, summative evaluation and value-added evaluation. Multiple indicators are taken into consideration, including students' classroom participation, training attitude, movement quality, group performance, end-of-term achievement and individual progress. Score ranking is de-emphasized while incentive orientation is highlighted. Individual differences are respected to give full play to the diagnostic, incentive and guiding functions of evaluation. Students are guided to attach importance to daily regular exercise and develop lifelong exercise habits.

For example, in semester-long physical-fitness teaching evaluation, teachers reconstruct evaluation criteria: process-oriented evaluation accounts for 50%, covering in-class participation, movement standardization, group cooperation and classroom discipline; summative evaluation accounts for 30%, referring to final physical fitness test results; value-added evaluation accounts for 20%, focusing on progress amplitude from early-semester to mid-semester and late-semester. Extra points are awarded to students with poor physical fitness yet remarkable progress. Multi-dimensional evaluation changes students' one-sided perception of "valuing examinations over daily practice", motivates students at all levels to take exercise, and realizes practice and health promotion through evaluation.

4. Conclusion

"Health-first" serves as the fundamental guideline for senior high school physical education in the new era. Physical fitness teaching is a key starting point for implementing PE-core-literacy cultivation and promoting adolescents' physical and mental health. At present, physical fitness teaching in senior high schools still faces practical problems including biased concepts, homogenized content, solidified modes and backward evaluation systems, which restrict the improvement of PE classroom teaching quality. Under the guidance of the new curriculum standard, senior high school physical education should stay true to the original aspiration of health-oriented education. The classroom physical-fitness teaching system shall be optimized via five approaches: renewing educational concepts, reconstructing stratified content, innovating training methods, empowering teaching with digital technology and improving multi-dimensional evaluation. Efforts should be made to promote the transformation of physical fitness teaching from "exam-oriented training" to "health-oriented education", from "extensive unified teaching" to "stratified precise teaching", and from "classroom-only teaching" to "whole-process literacy cultivation". Students' physical quality, health cognition and exercise competence are improved, and lifelong exercise habits are fostered. Physical education can give full play to its comprehensive educational value of strengthening physique, cultivating mind, fostering morality and empowering students.

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