

Unified Wisdom in Physical Education Classroom: Teaching, Learning, and Assessment in Obstacle Running and Physical Fitness

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Abstract: The integration of teaching, learning, and assessment is the cornerstone of wisdom in the physical education classroom. This study explores the innovative approach of applying this principle in the context of obstacle running and physical fitness. Based on the requirements of the revised Physical Education and Health Curriculum Standards for Compulsory Education (2022 Edition), this research emphasizes the synchronicity between learning objectives, learning processes, and assessments. The methodology involves creating a dynamic learning environment that engages students in experiential learning while aligning with the core competencies outlined in the curriculum standards. Through a case study focused on obstacle course running conducted within a military training camp simulation, this research explores how students experience the challenges and joys of military life, fostering admiration for soldiers and nurturing patriotism. The study demonstrates the effectiveness of seamlessly integrating teaching, learning, and assessment throughout the learning journey, leading to the achievement of health behavior and physical fitness goals among students. In addition, the use of innovative technologies, such as AI-driven assessment systems and IoT-enabled infrared sensing devices, enhances the teaching and assessment process, provides real-time feedback, and encourages active student engagement.

Keywords: Unified Wisdom ; Physical Education Classroom; Obstacle Running; Physical Fitness

1. INTRODUCTION

The integration of physical education and health curriculum, based on the learning needs and interests of students and aimed at all students, embodies the principles of "teaching, practicing, and frequent competition," which emphasizes the integration of learning, practicing, and competing. The key to implementing the new curriculum standards lies in the consistency of "teaching-learning-assessment," which involves the alignment of learning objectives, learning processes, and assessment practices. The 2022 edition of the Compulsory Education Physical Education and Health Curriculum Standards, building on past experience, emphasizes the importance of this consistency and serves as a gateway for transforming formal curriculum into experiential learning for students. This coherence manifests itself in several ways. First, it involves the translation and alignment of the core competencies outlined in the curriculum standards into concrete learning objectives. These objectives serve as guiding principles for educational practice, directing both teaching and learning activities toward specific learning outcomes. Second, the learning or teaching process becomes a form of practical engagement in which students actively participate in activities aimed at achieving the intended learning goals. The learning process thus becomes a critical vehicle for achieving these goals, with alignment between the process and the goals being essential for students to effectively achieve the desired learning outcomes.

In practice, maintaining consistency in "teaching-learning-assessment" means focusing on four key areas. First, attention should be given to translating and correlating the competency objectives outlined in the new curriculum standards with specific learning objectives. This alignment serves as a central and pivotal aspect guiding the transformation of educational practices. Second, formative assessment practices play a critical role in guiding the learning process by providing continuous feedback to students to improve their

understanding and performance. Third, within the learning process, it is essential to ensure the logical sequencing of learning tasks, creating a coherent and structured learning environment conducive to student engagement and comprehension. Finally, post-learning reflection emerges as a critical element in fostering students' overall development, facilitating the consolidation of learning experiences and promoting the cultivation of essential competencies. By emphasizing the coherence of "teaching-learning-assessment," educators can create an integrated and cohesive learning experience that effectively addresses the diverse needs and interests of students. Through thoughtful alignment of learning objectives, active engagement in the learning process, and comprehensive assessment practices, the physical education and health curriculum can become a dynamic platform for fostering holistic development and cultivating essential competencies in students.

2. THE PROPOSED METHODOLOGY

2.1 The teaching has no fixed method; the key lies in finding the right approach

The 2022 edition of the Compulsory Education Physical Education and Health Curriculum Standards emphasizes the importance of "creating rich, colorful, and lively teaching scenarios." It advocates for prioritizing health and assisting students in enjoying the process of active learning and training, enhancing physical fitness, fostering character development, and strengthening willpower. Unlike traditional single-technique teaching methods, physical education classrooms under the backdrop of core competencies require learning and experiencing within authentic contexts.

The case study of "Obstacle Running and Physical Fitness" employs a military training camp as its framework, guiding students to experience the hardships and joys of military life. This approach aims to evoke admiration for soldiers, instill patriotism, and evoke emotions associated with soldierly

qualities such as perseverance, confidence, courage, resilience, and loyalty. From the onset of the lesson, signaled by the assembly call and the commanding voice of the instructor, students are immersed in the role of young soldiers. Following equipment inspection, the experiential journey of the military training camp commences, involving activities such as lying prone, grenade throwing, marksmanship, and military calisthenics. Subsequently, students engage in military skills competitions and demonstrations, culminating in a review of training and competition scenarios. Throughout the experience, whether it be the warm-up before class, the introduction of the lesson, the arrangement of activities during class, the development of skills during obstacle running, or the celebratory conclusion, all teaching and learning activities, as well as the roles and contexts of teachers and students, revolve around the military camp experience, permeating with the spirit of military life. This optimization of the scenario lays a solid foundation for the transformation of the physical education classroom into a new paradigm of smart sports.

Students, within the framework of authentic and engaging scenarios, complete the task of "learning" through self-study, genuine practice, self-assessment, and peer assistance. Additionally, the use of instruments and tablets allows for the recording of students' learning and training situations, enabling them to continuously monitor their progress. This guidance enables students to enjoy the process of learning and training, hone their willpower through challenges, and foster a sense of camaraderie and upward mobility through self-motivation and mutual assistance. Consequently, the comprehensive achievement of health behavior and physical education goals is attained, grounding the core competencies. Thus, through the innovation of information technology equipment, the possibility of perfecting the new paradigm of smart physical education classrooms is further significantly strengthened.

2.2 Seize the moment, and learning becomes easier

The "Compulsory Education Physical Education and Health Curriculum Standards (2022 Edition)" emphasizes the importance of "tailoring teaching to students' needs and interests, targeting all students, and implementing the requirements of 'teaching, practicing, and frequent competition,' focusing on the integration of learning, practicing, and competing." "Teaching" involves adopting a progressive, individualized, and hierarchical teaching approach to impart students with knowledge, skills, and methods related to physical education and health, fostering the formation of good exercise habits and achieving flexible application purposes. It has three progressive indicators: understanding, mastery, and application. "Practicing" entails helping students develop exercise habits through physical practice, grasping the rules formed by sports skills, reasonably arranging practice density, and scientifically positioning exercise intensity. "Practicing" is not only about accumulating quantity but also about ensuring quality. It is not confined to the classroom; it requires the joint participation of in-class and out-of-class activities. The results of "practicing" aim to cultivate habits, master skills, and enhance physical fitness. "Frequent competition" is about fully satisfying students' sports needs in a competitive manner based on their desire to perform. Through games and competitions, students' knowledge, skills, forms, and methods are consolidated, their behavior is regulated, their character is cultivated, and their physical fitness is developed.

In the classroom learning of "Obstacle Running and Physical Fitness," students' tablets present exercise subjects, key points of exercises, micro-lessons, and exercise data statistics, while teachers' tablets visualize the exercise situation of the entire group, switch between various exercise subjects, and assess the classroom. By combining tangible obstacles (physical markers) and intangible obstacles (infrared lines), students complete military obstacle training to cultivate spatial cognitive abilities. The setting of three action modes (circling, drilling, and crossing) and three difficulty levels (low, medium, and high) breaks psychological barriers and attracts students to challenge themselves independently. If the actions are not standardized and touch the infrared lines, the virtual markers emit gentle flashing reminders. Students observe and compare through action replays supported by cameras, repeatedly adjust their positions, and standardize the technical actions of circling, drilling, and crossing. Thus, through innovative learning and practicing methods, a safe pathway is opened for smart physical education classrooms.

2.3 Absorb the old and embrace the new, making evaluation an art

In the past, common physical education classes often involved bulky equipment such as bars, mats, and bamboo poles, along with rigid obstacles and unclear obstacle actions, resulting in dull, intimidating, and inefficient experiences. Even with the later introduction of sports wristbands to monitor students' exercise intensity and density, this only reflected a slight improvement in exercise load. It was challenging to precisely evaluate various sports techniques, let alone effectively stimulate students' learning desires and provide real-time feedback, encouraging them to actively engage in learning and practicing, and resolve cognitive conflicts.

The class "Obstacle Running and Physical Fitness" innovatively developed an AI smart sports statistical evaluation system and IoT infrared sensing devices. It utilized smart sports apps, heart rate wristbands, tablets, and intelligent infrared sound effect sensor camouflage obstacle markers, as well as visual large screens. Through wireless LAN connections between tablets and markers, intelligent sensor recognition, and big data statistics, it achieved visual teaching by organically combining process evaluation with formative evaluation. This not only monitored students' exercise density and intensity but also focused on technological innovation by integrating exercise space, modes, and ecology. It fostered new momentum through informationization and digitization, promoted the integration of traditional sports and smart sports, and created a new model of smart physical education classrooms.

The infrared sensing system recorded the number of successful practice attempts and success rates, using data to drive student learning and practice. Each safe passage through an obstacle resulted in a real-time update on the large screen, with indicator lights providing timely feedback. The large screen not only aggregated practice data for each individual and group but also analyzed success rates. Students and groups identified reasons for failure based on the screen data, corrected their obstacle techniques, and solidified correct actions through muscle memory. Data stimulated group cooperation and mutual learning while adapting teaching methods to individual needs. Leveraging the smart sports big data system, teachers monitored students' exercise states in real-time, conducted heart rate monitoring and warnings, and adjusted exercise intensity and load accordingly, reducing classroom safety risks and enhancing the efficiency of tiered teaching.

In the class, to help students progressively master obstacle running skills, information technology was fully utilized for teaching evaluation. The practice process and results were quantified creatively, making process evaluation and formative evaluation more intuitive and greatly improving teaching effectiveness. Integrated teaching evaluation is not a specific, fixed teaching model but a guiding ideology for classroom teaching design and organization. The class "Obstacle Running and Physical Fitness," with the help of smart educational tools, achieved technological empowerment in teaching, emphasizing the consistency of teaching goals, teacher activities, student learning activities, and teaching evaluation. Overall, it considered teaching, learning, and evaluation, emphasizing the integration of learning, practice, and competition, implementing the requirements of the new curriculum standard, and setting an example for physical education classrooms in the new era.

3. CONCLUSIONS

The exploration of a unified approach to physical education, encapsulated in the principle of "efficient education," within the context of obstacle course running and physical fitness has illuminated avenues for future research and practice. Moving forward, it is imperative to further refine and expand upon the methods and technologies utilized in this study to enhance instructional effectiveness and student engagement. Future research efforts should focus on the continued integration of innovative technologies, such as artificial intelligence and wearable devices, to optimize teaching and assessment processes. In addition, exploring alternative pedagogical approaches and learning environments will enrich our understanding of how best to promote holistic development and physical literacy in students. Furthermore, longitudinal studies are warranted to assess the long-term impact of integrated physical education initiatives on students' health behaviors and attitudes toward physical activity. By taking a comprehensive and forward-thinking approach, we can continue to evolve and advance the field of physical education to ensure that every student has the opportunity to thrive in body, mind, and spirit.

4. REFERENCES

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