DEVELOPING OF PHYSICAL EDUCATION CURRICULUM BASED ON SUPERCOMPENSATION TRAINING TO ENHANCE CHINESE COLLEGE STUDENTS' PHYSICAL ABILITIES

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การพัฒนาหลักสูตรพลศึกษาโดยยึดหลักการฝึก ชดเชยพลังงานขั้นสูง (SUPERCOMPENSATION) เพื่อพัฒนาสมรรถภาพทางกายภาพของนักศึกษาวิทยาลัยจีน

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YULIANG ZHANG

A Dissertation Submitted in Partial Fulfillment of the Requirements

for the Degree of DOCTOR OF PHILOSOPHY

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Graduate School, Srinakharinwirot University

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THE DISSERTATION TITLED

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BY

YULIANG ZHANG

HAS BEEN APPROVED BY THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY
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Author	YULIANG ZHANG
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While college physical education is regarded as a priority in China, current programs have not effectively enhanced college students' physical abilities. This study aimed to develop a Physical Education Curriculum to improve students' physical abilities—specifically strength, speed, endurance, and flexibility—and to evaluate its effectiveness. The study sampled 120 college students from Zhanjiang University of Science and Technology, Guangdong Province, China. Data were collected through literature review and physical fitness tests, and analyzed using content analysis and comparative statistics. The results indicated that while most students exhibited adequate cardiopulmonary function, some demonstrated physical deficiencies, particularly in flexibility. The newly developed curriculum significantly improved students' strength, speed, endurance, and flexibility. Its design followed a systematic approach based on Supercompensation Training Theory, Constructivist Theory, Blended Teaching Theory, and Self-Efficacy Theory. This study has important implications for advancing college physical education, especially in enhancing students' physical abilities. By developing robust measurement tools and theoretical frameworks, it contributes to the literature on physical pedagogy, establishing a foundation for future research and supporting more effective physical education practices in colleges.

Keyword : Physical Abilities, Physical Education Curriculum, Supercompensation Theory, College Physical Abilities

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YULIANG ZHANG

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1
INTRODUCTION

Research Background

As society evolves and times progress, there is a growing need for increased mental and physical knowledge among modern college students. The integration of physical education classes can aid in the overall development of students, both physically and mentally, while also improving their moral and ethical principles, helping them overcome obstacles and achieve success. Local colleges and universities have recently put in considerable efforts to promote health education and enhance students' understanding of health, leading to positive results. However, there are still significant issues in health education, such as limited scope, lack of detail, and inadequate implementation. Some students lack awareness of health, struggle to maintain their well-being, and engage in unhealthy behaviors like lack of exercise, insufficient sleep, inconsistent routines, and poor eating habits, all of which threaten their healthy.

The need of Official Announcements

To further strengthen health education in colleges, enhance students' understanding of health, and support their physical and mental health, it is advised to create customized health education plans based on each institution's situation, offer optional health courses, allocate adequate class time, and award appropriate credits(MEPRC., 2017).However, the impact was minimal, as the physical health assessment results of students revealed a decrease in speed, strength, endurance, flexibility, and sensorial acuity, indicating a decline in students' physiological function. The significance of Physical Education (PE) is underscored through the examination of academic achievements associated with tertiary education, employment, and further studies. The CASE-PE research on the PE curriculum encompasses elements such as abilities, physique, learning outcomes, evaluations, utilization, performance, and training(Hyndman & Pill, 2017). The formulation and enhancement of the physical fitness syllabus can effectively contribute to the enhancement of students' overall physical capabilities. In general, the health and physical conditions of both college and

elementary school students showed marked improvement in the year 2019. Nonetheless, the percentage of college students exhibiting outstanding physical prowess and good health did not see a noticeable increase, with a downward trajectory observed in the physical fitness levels of college students(Li, 2019).The prevalence and proportion of myopia in Chinese teenagers are significant, with an increasing rate of overweight and obesity among primary and secondary school students, while the overall growth trajectory is decelerating. Notably, the deceleration of obesity among young students is most pronounced. Despite this improvement, the downward trend in the physical fitness of college students persists, highlighting the need for enhanced health interventions among students. The reinforcement of physical education initiatives in colleges and universities is crucial. By implementing the Opinions, two Outlines, and three special actions, targeted solutions can be developed to address issues such as declining basic health indicators like vision, obesity, endurance, and speed that are prevalent among young individuals(Liu, 2021). Emphasizing the fundamental mission of instilling moral values in education and prioritizing health, it is essential to uphold the principle of health-first education. The frequency of students' offline activities and exercise habits positively correlates with their learning enthusiasm and confidence in academic performance (Zhao, 2023). Findings from the eighth National Survey on Students' Constitution and Health reveal a gradual increase in the rate of excellent and good physical health among Chinese students, yet challenges persist, including poor vision, high myopia rates, increasing overweight and obesity levels, and diminishing physical fitness among college students(Zhou.Y., 2023).

The need of students' healthy development

In light of the research and updates from the Chinese Ministry of Education regarding the physical well-being of students, it is evident that Chinese students' physical health test scores have been declining annually since 2019. Consequently, significant progress has been made in enhancing public physical education at local colleges and universities to meet the actual needs of students and their mentalwellness.

The study utilized the physical fitness and health test results from 2019 to 2022 for analysis and organization. These efforts serve as a solid foundation for the current research.

Based on the physical health test results of Zhanjiang University of Science and Technology students over the period from 2019 to 2022, the findings are as follows: 1)The rate of achieving excellence decreased from 0.90% to 1.90% to 1.50% to 1.40% over the past three years, with a slight increase from 2019 to 2020 followed by a noticeable decline from 2020 to 2021, with rates of 1.90%, 1.50%, and 1.40% respectivel; 2)The percentage of students achieving a good rating fluctuated between 8.10% to 10.90% to 7.90% to 8.90% each year; 3)The pass rates declined from 77.70% to 72.90% to 71.70% to 70.10% over the four-year period; 4)The rates of students who did not pass the test increased from 13.90% to 14.20% to 18.90% to 19.60% during the same time frame. Overall, the physical health test results over the last four years indicate a consistent decline in students' performance in terms of excellence, good, pass, and fail rates. This trend suggests a concerning deterioration in students' physical health, particularly in terms of physical ability. Developing physical ability is crucial not just for athletes to excel in their sports but also for laying a strong foundation for future training programs.

This implies that there is no substantial physical exercise regimen, solely technical practice, much like fleeting dreams, cannot sustain strength, nor can it attain personal peak performance. Integrating running, leaping, and throwing activities can enhance students' coordination, cognition, and burst power, among others, fostering a significant increase in students' engagement in athletic activities. Implementing a "physical fitness curriculum" across educational establishments necessitates enhancing the enhancement of students' foundational athletic skills, encompassing comprehensive sports aptitude, healthy conduct, and sports ethics.

Summary: Data collection and analysis of students' physical health test at Zhanjiang University of Science and Technology in recent years indicate a decreasing trend in overall physical health. Statistical analysis in Table 2 highlights declining trends

in speed, endurance, agility, and strength qualities for Grades 2021 and 2022. Enhancing students' sports ability is crucial to improving physical health levels and instilling a lifelong sports concept.

The United States National Comprehensive School Physical Activity Program, Active Schools, Presidential Youth Fitness Program, and State Public Health Actions Program advocate for promoting physical activities to promote the health of the next generation(Thomas et al., 2016). It is essential for young individuals to develop proficiency in at least two sports skills, engage in regular physical exercise, enhance their physical fitness, and boost overall health (MEPRC, 2014). The national fitness plan, outlined in the Building A Strong Sports Country initiative, emphasizes prioritizing public health, disseminating accurate fitness knowledge and methods, organizing national fitness events based on current needs and locations, adopting a holistic approach to health, and transitioning from reactive disease treatment to proactive disease prevention (GOSCPRC., 2019) .The Healthy China Action Act (2019-2030), as well as the "Opinions on Comprehensively Strengthening and Improving School Physical Education Work in the New Era," emphasize the importance of meeting the 2030 National Physical Health Standards for Students. It is mandated that physical health management be integrated into the assessment systems of local education authorities and schools. To achieve this, education authorities should implement a comprehensive evaluation system incorporating regular participation, physical activities, competitions, health education, physical fitness monitoring, and specialized sports skill assessments. Furthermore, efforts should be made to explore the inclusion of sports competition outcomes in students' overall quality assessment (MEPRC., 2017)

Focusing on the holistic development of sports and education, promoting the healthy and high-quality advancement of youth sports, Enhance the opportunities for the fusion of education and sports, with collaboration among schools, sports institutions, and community groups to nurture exceptional athletes (“Sports Development Plan for the Next Five Years,” 2021.) As stated in The Sports Illustrated, sports are envisioned to carry the aspiration of national prosperity, a robust sports industry, a strong China, and

overall national well-being, thriving sports industry (GOSCPRC 2018). According to the guidelines of the reform in "Physical Education and Health" teaching, emphasis is placed on bolstering physical activity in physical education, improving students' physical capabilities, and strengthening perseverance. In the training of fundamental sports abilities, students' speed, strength, endurance, flexibility, reflexes, balance, coordination, and other physical attributes should be honed. The intensity of exercise should be tailored appropriately based on age, gender, course content, class format, facility, and weather conditions, with the exercise frequency planned thoughtfully and the activities focusing on basic sports skills systematically promoted (MEPRC 2021).

The aforementioned study highlights the significance of physical education in higher education, as evidenced by curriculum investigations in student physical education across various nations including America and China. Fundamental to the development of motor skills, physical fitness is a crucial academic discipline that significantly impacts student health and well-being.

Oxygen uptake in humans remains elevated above the resting metabolic rate after 5-10 minutes of physical activity (Krogh & Lindhard, 1913). The length of exhaustive exercise is closely linked to the energy stores of the muscles used during the activity (Bergström & Hultman, 1966).In the 1970s, Soviet sports scientists expanded the concept of muscle glycogen supercompensation to the realm of competitive training, introducing the concept of supercompensation in sports training (Jakowlew, 1972).Supercompensation refers to the body's ability to recover and even surpass its initial performance levels under the stress of exercise. The cycle of "load-fatigue-recovery-supercompensation" is beneficial for enhancing exercise capacity (Yakovlev, 1975).Students engaged in physical activity should aim for at least 30 minutes of training per day, 3 to 5 days per week, over a period of 4 to 8 weeks to observe significant improvements in physical fitness (ZuWallack, 2009).This regimen should encompass strength, agility, balance, core training, and other components for a well-rounded approach. By incorporating these exercises, individuals can enhance their physical abilities and reduce the risk of sports-related injuries, ultimately boosting their

competitive edge. This innovative approach to physical training provides athletes, coaches, and fitness enthusiasts with cutting-edge methods to prevent injuries and enhance performance (Moradi & Esmaeilzadeh, 2015).Research demonstrated that physical training effectively reduces social anxiety among college students by focusing on strength and aerobic endurance (Wang, 2019). By adjusting training variables such as exercise items, interval duration, exercise frequency, exercise load, and exercise time in daily, weekly, and monthly programs, individuals can experience a significant qualitative leap in their physical health (Kasper, 2019).Functional training, defined as purposeful learning with a focus on improving motor capacity through individualized exercises, aims to enhance balance, coordination, strength, and endurance for better daily living (Weiss et al., 2010).The training effect, whether positive or negative, can have primary and secondary impacts, emphasizing the importance of proper and timely intervention. Adhering to the concept of "over-recovery," it is essential to ensure that training outcomes are consistently positive (Wu H. P., 2021).

The aforementioned points demonstrate the significance of surplus recuperation in athletics through the lenses of metabolic energetics, physiological adaptation, energy reservoir, fatigue management, and recuperation in the realms of athletic physiology, athletic biology, athletic conditioning, etc. This contributes to the enhancement of athletic performance. Hence, incorporating the theory of surplus recovery in the physical education curriculum can effectively elevate students' athletic prowess and overall physical well-being.

The course development process follows an eight-step model: diagnosing requirements, setting goals, selecting content, organizing content, choosing learning experiences, organizing learning experiences, evaluating, ensuring balance, and prioritizing (Xu, 2002). There is a significant contrast between physical training for adults and teenagers, highlighting the importance of youth sports coaches possessing professional, scientific knowledge and progressive ideologies to optimize exercise and sports training for teenagers based on their physical and mental characteristics. The official implementation of the Compulsory Education Physical Education and Health

Curriculum Standards (2022 edition) has prioritized physical ability as a key teaching component (Qian, 2020).The high-intensity interval training program consists of five intervals and four recovery periods, with each interval lasting until exhaustion, followed by a designated recovery period which can be passive, active (VT speed), short (2 minutes),or long (8 minutes) in duration to effectively control students' weight (Sindorf et al., 2021). When enhancing track and field physical training at universities, the focus is on analyzing the current status and significance of this type of training. Researchers aim to explore methods for promoting track and field physical training. It was highlighted the importance of track and field physical training in universities (Xue, 2022). It is proposed that universities introduce physical ability courses to enhance students' long jump and sprint performance. Moreover, establishing physical ability courses can diversify university curricula and equip students with scientific fitness techniques (Yang, 2020; Zhang, 2015). In the "Evaluation of physical education curriculum with an emphasis on physical training," educators must prioritize students' physical training and enhance their fitness levels through innovative teaching concepts, collaborative training models, and effective training strategies(Huang, 2017; Tao, 2013) .

Summary: The preceding study delves into curriculum design, the creation of physical education curricula, college physical education programs, physical training, functional exercise, and more, with the aim of promoting participation in sports activities tailored to growth. This endeavor enhances students' athletic prowess, physical well-being, and sports proficiencies. As a result, this examination offers ample scholarly resources through a physical education lens, aiding in the creation of physical ability curricula built upon the groundwork laid out in the study. This further encourages the exploration and advancement of students' physical ability levels.

Objectives of the study

The objective of this study are as follows:

1.The main objective of this academic program is to educate students on the principles of physical ability theories and various exercise techniques in order to enhance their overall athletic performance.

2.The primary objective of this curriculum is to promote students' physical wellness through the enhancement of their strength, speed, endurance, and flexibility.

3.The aim of this course is to develop students' understanding of physical ability, promote their engagement in physical activities, and foster qualities of perseverance and determination in their pursuit of fitness goals.

Research Question

1. Can the theories and methods of developing the physical ability curriculum aid students in enhancing their physical capabilities?

2. Does the primary research focus of the physical ability curriculum support the enhancement of students' athletic prowess and physical well-being?

3. How are physical health and physical abilities interconnected?

Significance of the study

1. Implementing a physical abilitycurriculum may assist students in enhancing their athletic capabilities and establishing a strong groundwork for the adoption of a lifelong sports perspective.

2. The integration of a physical ability curriculumcan support students in sustaining a positive mental attitude throughout their academic pursuits and personal endeavors.

3. Participation in a physical abilitycurriculum can contribute to the improvement of students' physical well-being and proficiency in sports techniques.

4. Engaging in a physical ability curriculum may enable students to alleviate negative emotions and uplift their spirits.

Scope of the study

The present study confined itself to the following:

1. The primary emphasis of this research is on the various elements of physical strength quality, speed of body, endurance of physique, flexibility of body, methods of exercise, and intensity of exercise.

2. This study second focuses students' physical ability

1) Body shape: BMI (height, weight)

2) Physical ability: 50m running, 800/1000m, standing long jump, sitting forward bend, pull-ups (male), sit-ups (female).

3) Body function: vital capacity, heart rate.

3.The participants in this study are Class 1, Class 2, Class 3 of the . Accounting Major, which has a total of 120 students who are taught by researchers

Definition of terms

1. Physical ability

Physical ability, as shown in sports, includes strength, speed, endurance, sensitivity, and flexibility of the body. It serves as the foundation for mastering sports techniques and enhancing sports performance. Throughout the training process, the key principles that are typically adhered to include stepping forward gradually, maintaining perseverance, individualized treatment, periodicity, and appropriate workload. This study primarily focuses on physical ability.

2. supercompensation

After participating in sports activities, the body not only restores the energy consumed during exercise, but also goes beyond its original levels by replenishing the functions of various organs and systems.This supercompensation occurs in three stages:

1) Initially, there is compensation during sports

2) Subsequently, there is compensation post-sports

3) Subsequently, there is compensation post-sports

The extent and duration of this surpassing compensation are influenced by the level of energy expenditure. Generally, the more intense the muscle activity and consumption process, the more significant the effects. Engaging in further exercises or training during this phase leads to optimal results and enhanced athletic performance.By leveraging the principles of excessive recovery, it is possible to effectively enhance students' athletic capabilities and promote their overall physical well-being.

3. Physical ability intensity

The intensity of physical ability is defined as the level of force and body tension exhibited during motion. Key elements influencing exercise intensity include: the level of physical activity, the rest period between exercises, the pace of motion, the resistance used in exercises, and the intricacy and challenge of the movements. Proper exercise intensity is capable of positively impacting bodily functions and bolstering physical strength. Physical ability intensity is categorized into three tiers: low intensity, moderate intensity, and high intensity.

Physical ability intensity is the basis for supercompensation with varying intensities resulting in different effects. Light intensity supercompensation shows negligible impact, whereas mid-intensity demonstrates a minor, insignificant effect. Conversely, high intensity generates a notable over-recovery effect with a substantial range.

4. Blended teaching mode

A teaching mode that merges online with offline methods, blending digital instruction with in-person traditional teaching. By strategically integrating both approaches, students engage actively in their learning, transforming the conventional classroom model. This approach encompasses three key elements:

1) Digital educational materials;

2) Face – to – face teaching events;

3) Students' combined online and offline practice sessions and evaluation by instructors.

5. The theory of teaching evaluation

Based on teaching goals, employ diverse strategies to assess teaching progress and outcomes, and conduct value judgment procedures. This involves evaluating the effectiveness of teaching practices. Various evaluation methods such as teacher assessments, peer evaluations, self-assessments, and group evaluations are utilized to assess students comprehensively.The theory of teaching evaluation aids in assessing teaching principles, objectives, content, and execution. It enables students to integrate theoretical knowledge with practical application in physical training. Is the study validated through evaluation? Subsequently, it predicts the future direction and content of training.

6. Students' physical health

The term "students' physical" refers to the quality of a student's physical body, as demonstrated by characteristics in human body structure, physiological function, and overall physical well-being. "Students' physical health," on the other hand, encompasses a thorough assessment of a student's physical well-being, considering factors like physical form, bodily functions, and overall physical condition.

7. Physical ability curriculum

The foundation of different sports activities lies in the learning methods and practices employed. What exactly constitutes the Physical ability curriculum? Why is it important for students to partake in physical exercise via this curriculum? What are the key techniques for exercising and engaging in physical activities? How frequently should one engage in exercise? Lead students towards a healthier lifestyle and assist them in comprehending a curriculum. The Physical ability curriculum is centered on enhancing students' overall athletic prowess and physical well-being, with a focus on fostering both physical and mental health. "What is it - what is done - what is practiced - how is it practiced - how is the effect of practice?" Key components include: Body Mass Index (BMI), speed, endurance, flexibility, and various aspects of bodily functions.

Research framework

Having been a physical education instructor for 15 years, my experience has shown a concerning trend of declining athletic ability and physical health among students. This led me to investigate further by surveying colleagues in the field and analyzing data on sports ability and health issues.The review process involved gathering and organizing relevant literature, drafting and revising the review, and ultimately completing a comprehensive analysis. Research objectives were established, experimental samples were selected, and experimental designs were outlined to address the decline in students' physical abilities and health levels.Prior to implementing the physical ability curriculum, students underwent tests to assess their current physical health and athleticism. The results of the experiment indicated a positive impact on the quality of physical education, students' sports ability, and overall physical health. Students were tasked with completing the curriculum within a semester timeframe to ensure continuity in their physical development.

The research process consists of four parts:

1) Curriculum preparation phase

2) Curriculum design

3) Curriculum implement, evaluation and conclusion

4) Analyze teaching effectiveness and students' learning outcomes. The procedure of the study is shown in Figure 1.

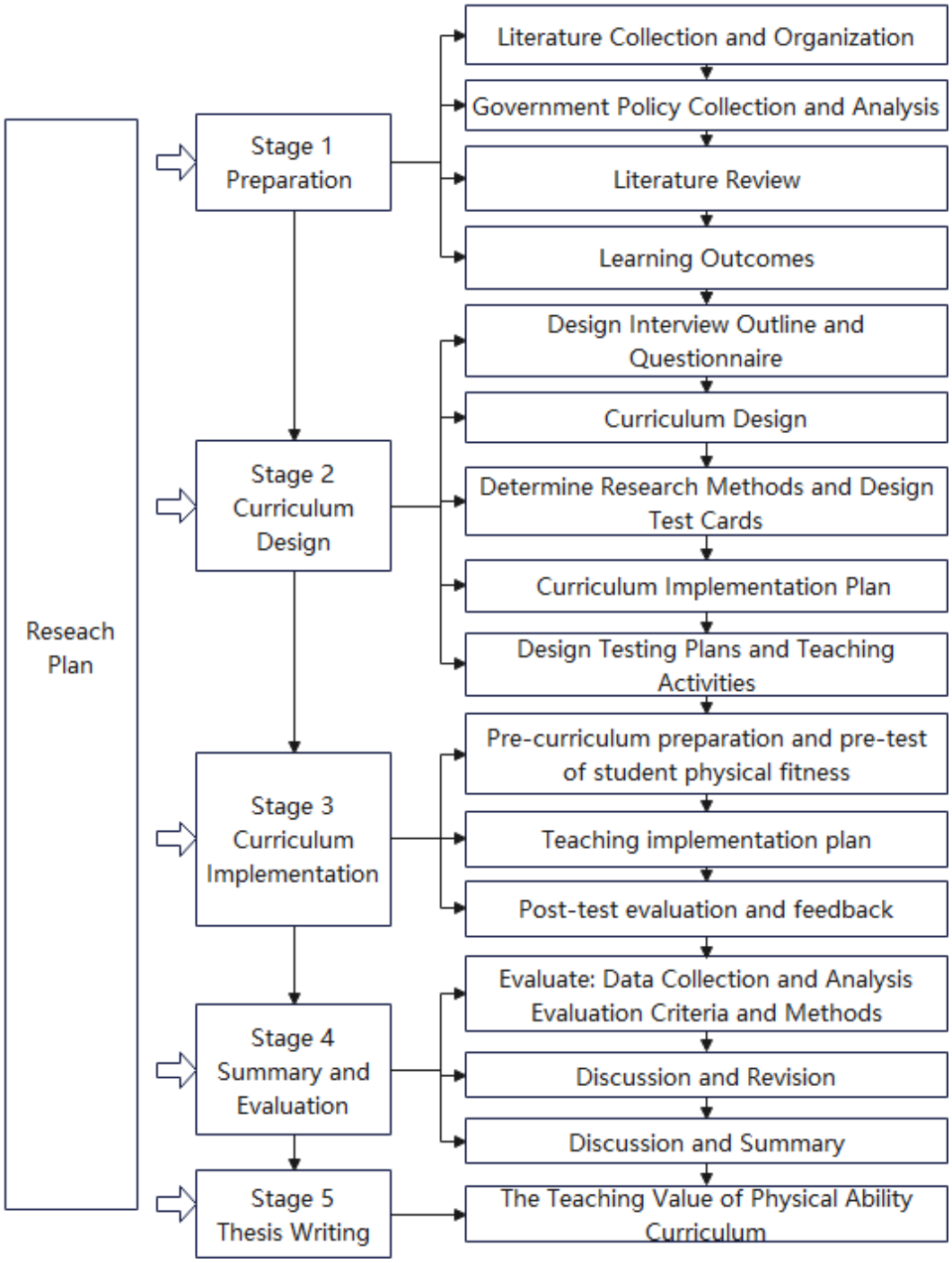

Figure 1 PLAN OF THE STUDY

Research Hypotheses

Through the physical education curriculum, the physical fitness level of college students can be significantly improved, and the effectiveness and feasibility of the physical education curriculum can be validated.

CHAPTER 2
LITERATURE REVIEW

In the "Basic Principles of Curriculum and Teaching," every teacher inv4olved in designing the curriculum considers the curriculum objectives, the content, organization, and evaluation (Arroyo & Garduño, 2004).Gain insight into how cooperating teachers and teacher educators express and comprehend their educational partnerships and their collaborative contributions to PETE practice (Silverman & Mercier, 2015). Limited physical activity leads to health issues, while inactivity wastes physical health potential, with a higher prevalence than those who are regularly active. Individuals with good athletic abilities who participate regularly in sports exhibit significantly better physical health than others (Hardman, 2001).Through assessing physical abilities in high school PE classes every 30 minutes (equivalent to brisk walking)for the development of muscle strength, endurance, flexibility, and bone health, the National Health goal in the United States highlights the crucial role of sports in promoting health-enhancing physical activity (Fairclough & Stratton, 2005). Numerous studies have demonstrated that engaging in sports long-term correlates with improved physical health outcomes, boosting immunity and overall well-being. Physical activity seems to have a lasting positive impact on various health conditions (Echavez, 2022). It is widely believed that physical activities like exercise also boost self-esteem, skills, abilities, body image, and physical health (Biddle, 2016).

In the realm of curriculum development, physical health, and fitness assessment, it is evident that the sports and health curriculum varies across regions and cultures, leading to a lack of student athletic prowess. The current physical education syllabus imposes uniform guidelines for the content taught at each grade level, leaving schools and instructors with little room for individuality in curriculum implementation. As educational reforms progress, certain aspects of physical education programs are falling behind the evolving landscape. The selection of curriculum content in physical education should allow for flexibility, enabling schools to tailor their programs to their specific needs. By focusing on physical education curriculum, students' athletic abilities

and overall health can experience significant enhancements. Regular physical training and active participation can lead to notable improvements in muscle strength, speed, endurance, and flexibility.

Acquiring motor skills is closely linked to physical capability. Exploring ways in which students can engage in meaningful physical activities utilizing modern educational approaches. The goal is to attain a high-quality physical education curriculum with a benchmark of universal reference point(Quay & Peters, 2008) . Enhancing Physical Training underscores the essential role physical training plays in directly impacting athletes' performance; scientific physical training methods should be thoughtfully chosen to enhance their athletic abilities (Liu, 2004). Within the realm of education and instruction, educators are encouraged to explore the implementation of educational theoretical models that support effective teaching methodologies to ensure genuine and impactful learning and teaching experiences in the domain of physical education (Usher et al., 2015). Sport-specific training entails activities that often mimic sports-related skills, including natural movements. However, these exercises can be incorporated through participation in physical activities, segmented into strength and physical training, personal coaching, and physical therapy (Oja et al., 2010). Adopting a scientific perspective on the importance of physical training in track and field, emphasis is placed on the coordination between strength and speed within the human body. Recognizing that specialized strength training forms the foundation of track and field sports, accurately coordinating strength training can enhance performance in running and jumping, underscoring the significance of sports (xie,2018). The "New Concepts in Athlete Physical Training" highlights the importance of enhancing athletes' physical quality, improving strength control, and increasing muscle flexibility. These factors contribute to enhancing physical abilities, technical skills, and extending athletic careers (Yu, 2008). The fundamental principles of physical training for high-level basketball players in our country explore the body's adaptation laws, exercise load principles, and energy compensation. The process of physical training is analyzed using sports training theory, emphasizing adherence to basic training principles (S., 2004).

The National physical ability Association's Nutrition Guidelines discuss the impact of exercise nutrition on performance, recommendations for carbohydrate, protein, fat, water, vitamin, and mineral intake, and nutritional requirements for strength, explosive power, and endurance training. Additionally, the guidelines provide suggestions for nutrition supplementation and developing nutrition plans (Piercy & Troiano, 2018). Physical function is influenced by various factors beyond the exercise itself, including execution mode, athlete characteristics, repetitions, group size, training stage, interaction with other training, current physical and psychological states of athletes, and overall training plan (Siff, 2002).

The FMS methodology suggests that professionals in health and fitness should assess screening data, analyze the findings, and that individuals seeking to achieve positive outcomes—whether patients, clients, or athletes—should determine the most suitable training approach. The concept of "practical functional science" emphasizes the enhancement of movement quality within training regimens, representing a significant shift in the way individuals perceive exercise and training methods (Holfelder & Schott, 2014). By incorporating functional assessments, strength and conditioning coaches can enhance athletic performance in training protocols, leading to improved movement patterns, exercise techniques, functional capacities, and enhancements in various fitness components such as strength, cardiovascular fitness, flexibility, and muscular endurance (Dallolio et al., 2016; Gamble, 2013). The "Body Correction Manual" outlines strategies for recognizing and addressing common postural irregularities through techniques like stretching, massage, trigger point therapy, fascial release, and other modalities, along with guidance for personalized self-training and cultivating positive behavioral habits (Laye et al., 2015). Engaging in physical activity significantly impacts college students' physical self-esteem and overall well-being, resulting in enhancements in both physical and mental healthe (Shang et al., 2021).

The preceding research demonstrates that the acquisition of motor skills is significantly correlated with motor proficiency. A positive association exists between the efficiency in learning motor skills and motor proficiency. Hence, motor skills hold

particular importance in this examination. The physical education course is designed to enhance physical movement capabilities, acquire advanced sports skills, and promote a lifelong sports ethos.This research explored how the physical education curriculum impacted students' athletic performance and evaluated whether 120th-grade students enhanced their athletic abilities in various areas such as Strength, Speed, Endurance, Flexibility, Sensitivity, Training methods, Training intensity, and Nutritional support through sports activities. Additionally, the study assessed the students' attitudes towards sports routines. The aim of this section is to review the literature pertinent to this investigation.

This chapter is divided into three main sections.

1) Curricular development

2) Conceptual framework

3) Concept of physical ability

The initial segment focuses on curriculum development, encompassing the progression of physical education and the importance of physical health within a curriculum. The subsequent segment delves into the conceptual framework, which encompasses elucidating the constructivism learning theory, sports training theory, and blended teaching mode, as well as delving into self-efficacy theory, teaching evaluation theory, and related topics. The final section addresses the notion of physical capability, which includes defining physical ability, providing an overview, discussing classification, outlining basic requirements, discussing the significance and future outlook of physical ability curriculum.

Curricular Development

Civilization possesses its essence; barbarism possesses its physicality. The importance of sports lies in its capacity to "enhance muscle and bone strength", "expand knowledge", "regulate emotions", and "bolster determination", illustrating the sports philosophy of "building national strength through physical fitness “ (Mao, 1917) When designing the curriculum, the study's objectives and processes in Physical Education

Teaching-Learning, the study materials were specified (Jewett, 1980). In the 17th century, physical and mental training were combined in Japan, and in 1872, schools began offering physical education classes, incorporating Psychology (e.g., Hall) and educational philosophy (e.g., Dewey). Throughout the Western Zhou Dynasty in China, the practices of rituals, music, archery, imperial examination, calligraphy, and numerology were key components of physical education, establishing the educational system (Qin, 2012; Zhou, 2011). China officially introduced sports as a subject. The RENXU academic system not only revamped the modern Chinese school physical education curriculum system but also revolutionized school physical education practices post-RENXU academic system (He, 2023)." Holistic development, starting with sports, with a community of athletes" (Yang et al., 2018). Physical education serves as a method for participating in developmentally suitable physical activities with the aim of cultivating physical fitness, advanced motor skills, and overall physical well-being (Kingsland & Isuster, 2020; Singh, 2012). Physical training in university is vital for improving students' physical condition and fostering interest in sports. Emphasizing the cultivation of lifelong sports thought, physical training plays a significant role in the students' overall health and fitness levels (Zhao, 2014). In the study "Exploration of Physical Training in College Physical Education Option Curriculum", colleges and universities have incorporated physical training into the physical education option curriculum. By focusing on students' psychological needs, enhancing the skills of physical education teachers, and refining the physical training system, institutions aim to meet the evolving demands of physical education (Feng, 2007; Sun, 2023). The correlation between physical education students and the curriculum content areas highlights the importance of interpersonal skills, physical activity engagement, role modeling, and motivation for course selection (Spittle & Spittle, 2016) . In the construction of university physical education curriculums, it is crucial to promote college students' interest in sports. This plays a significant role in fostering lifelong sports enthusiasm among students. Moreover, students' physical training greatly impacts their health assessment (Xiao, 2017) .The mid-19th century saw the establishment of the

Physical Education Teacher Training Program in the United States, followed by the formation of the Physical Education Promotion Association in 1885. Consequently, physical education gained prominence in the educational landscape of the country. Sports in the late 17th and early 18th centuries not only served as entertainment but also facilitated the learning of motor skills and promoted healthy physical exercise (Metzler et al., 2013). The establishment of the American Physical Education Review (APER) in 1896 sought to cater to the needs of students and youth through sports (Guedes, 2007).This led to sports skills and performance becoming central to physical education, also referred to as physical literacy (Al Ardha et al., 2020) . The Evolution, Current Status, Problems, Trends, and Future Prospects of Undergraduate Physical Education Teacher Education (PETE)in the United States have been thoroughly examined (Currie-Alder, 2016). Sports literacy, as described, plays a pivotal role in enhancing and maintaining overall physical capabilities (Lundvall, 2015).

As outlined below:

1) Man utilizes strength to enhance the capability of applying muscular force.

2) Man utilizes balance to enhance the capability of preserving the neuro-muscular system.

1) Man utilizes agility to enhance the capability of swiftly and accurately changing direction.

2) Man utilizes coordination to enhance the capacity of combining various movements into unique patterns.

3) Man utilizes endurance to enhance the capacity of prolonging movement over time.

4) Man utilizes kinesthetic sensation to enhance the sense of body or body parts' awareness as they move in space.

At the Higher Education Publishing House of the "School of Physical Education, an integrated sports-centric curriculum model is being developed for various reasons. Six teaching modes have been suggested (Lyu et al., 2022) .

As outlined below:

1) Sports-based discipline curriculum model

2) Physical education curriculum model focusing on students.

3) Physical education curriculum model with a community involvement emphasis.

4) Physical education curriculum model based on integratios.

The physical education curriculum within schools plays a vital role in assisting students in developing the necessary skills and beliefs to incorporate regular physical activity into their daily routines. Engaging in sports on a regular basis can improve one's health-related physical capabilities (Walkley,Holland,Treloar,&O'Connor, 1 9 9 6) . Studies focusing on the perception and learning abilities of elite athletes, professional players, and ordinary students have indicated that individuals with advanced sports skills tend to excel in acquiring and mastering knowledge within complex environments (Faubert, 2 0 1 3) . The assessmentnt of physical health and performance attributes is closely linked to one's exercise abilities, especially when catering to the needs of exercise professionals (McKeown et al., 2014). Our examination of college students' participation in various sports activities and their executive functioning revealed that athletes outperformed non-athletes in certain executive functioning assessments. Diverse exercise experiences may contribute to heightened levels of specific executive functioning domains (Jacobson & Matthaeus, 2014).

The study conducted by the aforementioned researchers indicates that there is a direct correlation between the positive and negative aspects of physical activity energy and the overall state of physical well-being. The research highlights the significant impact of athletic prowess on the physical health of students. An individual's capability to engage in sports and training is a reflection of their overall physical condition, capabilities, performance, skills, and mental resilience. This encompasses both general athletic aptitude ((foundational athletic skills and specialized athletic aptitude (competitively driven athletic skills).This investigation primarily concentrates on the elements of strength, speed, endurance, flexibility, and coordination, and their

influence on the overall health status of students in order to promote lifelong engagement in sports activities. Athletic proficiency within the physical education curriculum encompasses the knowledge, proficiencies, and physical attributes related to physical education. By way of the physical education curriculum, individuals in the community are encouraged to participate in physical activities and cultivate a culture of physical fitness.

Following Charmaz's(2014) grounded theory, a total of 22 physical education instructors from 13 high schools in northern China participated in interviews to offer a distinct perspective on the adoption and response to curriculum modifications (Yin Z. H., 2022).

Physical education objectives, as follow:

Goal 1: Sport participation.

Goal 2: Sports ability and skill.

Goal 3: Physical health.

Goal 4: Mental health and social adaptation.

In promoting the belief that these factors can assist in overcoming barriers (health beliefs model) and offering information on progressing through various stages of behavior change (trans-theoretical model) (Ennis, 2017),it is essential to highlight the relevance of daily instructional planning and exploration for educators. This involves utilizing physical education, sports activities, dance, and adventure activities as avenues for personal and social development, while equipping students for lifelong engagement in physical activities (Ennis, 2017). The implementation of physical best practices involves incorporating health-related fitness education, which aids students in cognitive decision-making and self-motivation, thereby enhancing the link between health and physical education (Conkle, 2019) .

Blended teaching has been widely promoted in universities in the United States, South Korea, and other countries, with continuous development of campus digitization in China (Arabasz & Baker, 2003). A 2009 research report from the US Department of Education emphasized the effectiveness of blended teaching compared

with traditional classroom and online distance learning methods (Means et al., 2009). This teaching mode, guided by constructivism and mastery learning theory, incorporates modern educational technology and encourages self-study before group discussion to enhance students' engagement, questioning, and knowledge construction (Bliuc et al., 2012). SPOC is a cost-effective blended learning model that combines in-person and online teaching to enhance educational quality through targeted online resources (Fox et al., 2014). Blended learning, encompassing cooperative, constructive, and computer-assisted learning, is an innovative approach to education (Dangwal, 2017). By merging traditional and online teaching methods, the blended approach allows teachers to guide, motivate, and monitor students while fostering their initiative, enthusiasm, and creativity in the learning process (Lan, 2020).

Summary: The research conducted by scholars on blended learning mode highlights the benefits of this teaching approach in enhancing teaching quality and effectiveness. By integrating online and offline teaching methods, blended learning broadens students' learning opportunities, strengthens teaching coverage, enriches classroom experiences, and enhances overall student outcomes.

The human body operates as a sophisticated open system, with the ideal time between training sessions not being too long or too short. If the interval is too short, fatigue can accumulate, leading to over-training and diminishing the benefits of excessive training. Conversely, if the interval is too long, the positive effects of training will diminish (Wang, 1998). In the realm of sports training, the body must adapt to loads heavier than the initial stimulus level, resulting in increased material consumption. For proper recovery, the body must surpass the original recovery level and attain a higher level. This discrepancy between the new recovery level and the original is known as supercompensation in sports training (Zheng, 2007). supercompensation is a common occurrence in natural systems, and it does not always correlate with skill growth (Diao, 2007; Zhu, 2005). When the body fails to adapt to the workload, one experiences fatigue. In a week-long training scenario, the following three load performance outcomes can be observed：1) Maintaining a moderate load from Monday to Friday allows the

body to return to normal levels over the weekend; 2) Sustaining a heavy load from Monday to Friday results in a recovery beyond normal levels on Saturday and Sunday; 3) Enduring overload from Monday to Friday may prevent the body from returning to normal or even dip below normal levels on the weekend (Sonnentag & Fritz, 2007). Studying the recovery rule of the 72-hour process after fatigue induced by three-cycle training in a one-week training cycle revealed that the liver index and blood sugar of rats returned to normal levels within 12 hours. Subsequently, there was a phenomenon of supercompensation obersved (Yin, 2007). Investigation into delayed onset muscle soreness demonstrated that intense training over 2 to 3 days can impact physical fitness and training effects, leading to positive adaptation (Luo, 2004; Zhang & Zhang, 2007). The body responds to moderate environmental stimulation by adjusting the internal balance state, with supercompensation oscillating around a specific threshold value. The calculation and application of supercompensation are vital for enhancing athletes' training and performance (Luo, 2001; T., 2017). Understanding supercompensation provides a foundation for improving athletes' abilities through energy metabolism (Bompa, 2011). Specific training targets aim to enhance the body's adaptability for targeted movements (Tumminello, 2016).

Conceptual framework

This curriculum is designed to enhance students' physical abilities, exercise strategies, methods, and overall understanding of physical ability. By forming positive exercise habits, students can embrace the idea of lifelong fitness. The study promotes critical thinking about physical abilities and encourages independent thinking and exercise habits among students. It aims to instill in students the qualities of resilience and perseverance towards achieving their fitness goals.

1. Diagram

In the research process, construction theory, supercompensation, blended teaching theory, self-efficacy theory, and teaching evaluation theory are utilized to establish the theoretical framework of this study. The aim is to enhance the impact of

health and physical education, as well as exercise ability, by utilizing a blend of online and offline modes. Construction theory, which is student-centric, adaptive teaching, and effective teaching reflection, serves as the foundation for this study. By incorporating professional training techniques and tools, educators can guide students in their physical training regimen. This includes designing teaching content, methods, means, intensity, and timing, culminating in a personalized exercise prescription model.

The theory of blended teaching disrupts the traditional approach to instruction by transcending the constraints of time and space within both the "teaching" and "learning" realms. This approach aids in fostering students' passion for physical activities, facilitating the acquisition and mastery of sports-related skills, and enhancing overall physical well-being. Integrating offline instruction with online methods aims to address issues such as low student engagement and insufficient cognitive involvement, leading to varied academic outcomes among learners. Applying the self-efficacy theory can enhance students' intrinsic motivation towards physical exercise and encourage active participation in physical activities. The assessment theory focuses on comprehensively assessing teaching practices and their impact. Evaluation serves as a tool to monitor and enhance the effectiveness of both teachers and students' performance.During the instructional process, educators and students collaborate to promptly revise lesson plans and adjust teaching strategies based on feedback received. This approach effectively ignites and channels students' enthusiasm for learning, thereby fostering a dynamic learning environment within the classroom.

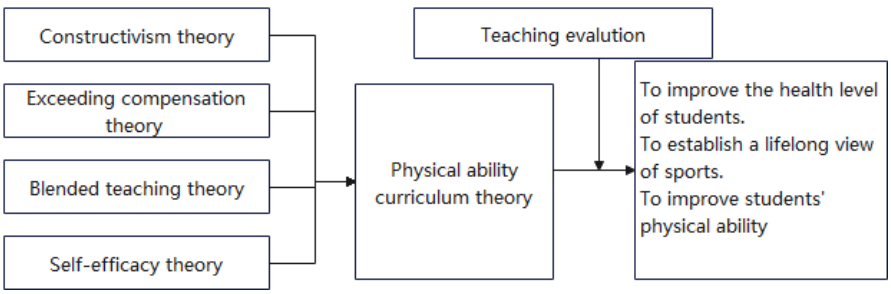

Figure 2 PHYSICAL CURRICULUM THEORETICAL FRAMEWORK

2. Constructivism Theory

Students do not passively acquire knowledge through direct information transmission. Instead, they integrate new information with existing knowledge through experience and social interaction to construct understanding(Roschelle, 1997). Constructivism theory is recommended in teaching, where teachers promote student-created meaning (Bada & Olusegun, 2015). Learners develop knowledge by asking and analyzing questions, solving problems, reflecting, planning, and engaging in student-centered teaching to take control of their own learning(Slavich & Zimbardo, 2012). Through constructivist approaches, learners can effectively master and apply knowledge(Schreiber & Valle, 2013). Teachers should implement educational theoretical models to support effective teaching methods and ensure genuine learning outcomes in physical education(Casey & MacPhail, 2018).

In conclusion, the primary strategy for fostering students' practical skills during instruction is to enhance their passion, allowing them to engage actively using their mouth, hands, eyes, ears, and mind, engaging in, practicing, experiencing, and expressing themselves, and promoting independence, involvement, and collaboration in student learning tasks. Encourage students to participate actively and explore learning willingly, emphasizing the utilization of their drive, enthusiasm, and initiative, guiding them to develop the skills of questioning, investigating, and experimenting in real-world scenarios. Educators merely support and facilitate students' knowledge construction, refraining from direct transmission and indoctrination of knowledge. The theoretical foundation of constructivism underpins the overall research framework, design of implementation strategies, research contents, and assessment methods in this study. It serves as the fundamental theoretical framework for this research endeavor.

3. Supercompensation theory

After engaging in proper physical activity, individual muscles or muscle groups may recover to their pre-exercise state, or even surpass their original level, in terms of muscle strength, structure, and function with adequate rest time(Deeb et al., 1992). The findings indicate that: 1) Muscle glycogen utilization during exercise increases in proportion to the intensity of the stimulus; 2) During a period of recovery, there is a stage where the body consumes more substances than initially, known as supercompensation; 3) The level of supercompensation is linked to the consumption process, and to some extent, the more consumption occurs, the more pronounced the supercompensation effect becomes(Jensen & Richter, 2012; Wagstaff & Doorslaer, 2003). Following 3-5 months of supercompensation training, middle to long-distance running exercises during the " supercompensation " phase have shown to enhance athletic performance(Thomas et al., 2016). Research indicates that phosphocreatine levels recover within 2 ~ 5 minutes after a 100-meter run. Muscle glycogen replenishment takes approximately 15 minutes following an intense endurance workout. Excessive protein restoration post-strength training is typically observed after 3-4 days ("New Immigration," 2009). The supercompensation approach does not represent a specific training technique, but rather underscores a philosophy of enhancing sports performance. By raising the intensity of physical training, expending energy, and repetition of training sessions, athletes have demonstrated significant improvements in explosive power and speed(Luo, 2001; T., 2017). Even after 5-10 minutes of exercise, human oxygen uptake remains higher than the basal metabolic rate(Krogh & Lindhard, 1913). The duration of intense physical activity is highly linked to the energy storage of the muscles engaged in the activity(Bergström & Hultman, 1966). In the 1970s, Soviet sports training scholars expanded the concept of muscle glycogen oversupply to encompass all levels of competitive training and proposed the idea of surpassing compensation in athletic training(Jakowlew, 1972). Surpassing compensation refers to the recovery of the body's movement capabilities to equal or even surpass the initial state under the influence of physical exertion. The cycle of "strain-fatigue-recovery-surpassing compensation" is more beneficial for enhancing physical

performance(Yakovlev, 1975). Physical education students who engage in training for a minimum of 30 minutes daily, 3 to 5 times a week, for 4 to 8 weeks, are likely to experience significant enhancements in physical well-being (ZuWallack, 2009) . The human body functions as a complex system that is open to various influences; thus, the intervals between training sessions should be neither excessively long nor excessively short. Excessively brief intervals can lead to the accumulation of fatigue, resulting in overtraining, while excessively lengthy intervals can negate the positive effects of training(Wang, 1998). In athletic training, the body must adapt to greater amounts of physical stress compared to the original stimulus, leading to increased metabolic demands. The recovery process must surpass the initial recovery level and reach a higher threshold. The disparity between the new recovery threshold and the initial recovery level signifies surpassing compensation in sports training(Zheng, 2007). Surpassing compensation is a common occurrence in the natural system and does not necessarily correlate with the development of athletic skills(Diao, 2007; Zhu, 2005). Never adapting to body fatigue and study, he described three different load performance results in one week of training. The first scenario involves maintaining a medium load from Monday to Friday, with the body returning to normal levels on Saturday and Sunday. The second scenario includes a heavy load from Monday to Friday, leading to recovery beyond normal levels on the weekend. The third scenario entails overload from Monday to Friday, with the body unable to return to normal levels or even dropping below on Saturday and Sunday (Sonnentag & Fritz, 2007). A study on the recovery rule of the body after three-cycle training-induced fatigue found that the liver index and blood sugar of rats returned to normal levels within 12 hours, followed by supercompensation(Yin, 2007). Research on delayed onset muscle soreness indicated that intense exercise for 2 to 3 days affected physical fitness and training effectiveness, leading to positive adaptation(Luo, 2004; Zhang & Zhang, 2007). The body adapts to external stimuli with moderate stimulation, leading to fluctuation in supercompensation and internal environment balance state. Understanding how to calculate supercompensation can benefit athletes' training and performance improvement(Luo,

2001; T., 2017). supercompensation relates exercise to energy, providing a theoretical basis for enhancing athletes' abilities through energy metabolism(Bompa, 2011). Item training aims to enhance the body's specific adaptability to transform it into a desired movement(Tumminello, 2016). It is emphasized that this includes strength training, agility training, balance training, core training, and other comprehensive components. These types of exercises can improve physical capabilities and effectively prevent sports-related injuries. It serves as a crucial tool for boosting competitive performance. This innovative approach to physical training introduces athletes, coaches, and fitness enthusiasts to new methods aimed at preventing injuries and enhancing athletic performance (Moradi & Esmaeilzadeh, 2015). Research on strength and aerobic endurance has revealed that physical training significantly decreases social physical anxiety among college students(Wang, 2019). By maintaining an optimal level of training intensity, adjusting training variables (such as exercise selection, interval duration, frequency, load, and duration) within daily, weekly, and monthly programs can lead to substantial improvements in overall physical well-being(Kasper, 2019). The fundamental principle of functional training can be described as "function is the ultimate goal". Therefore, functional training can be defined as purposeful skill development. Unlike other training modalities, functional training is tailored to each individual, with the overarching goal of improving motor skills. This type of training aims to enhance balance, coordination, strength, and endurance for better performance in daily activities(Weiss et al., 2010). Training outcomes can result in both positive and negative effects. Even in cases of positive effects, there can be primary and secondary consequences. Therefore, it is essential for training to be "appropriate" and precise". Following the principle of "over recovery", the effects of training are mostly positive(Wu, 2021). The concept of "overcompensation" is elucidated through the "wooden bucket" theory. Technology relies on physical strength as its foundation, with the enhancement of performance and preservation of physical well-being being the primary focus of overcompensation(Wu, 2021).

Summary: The aforementioned points demonstrate the significance of excessive recovery in athletic performance through the lens of energy metabolism, biological adaptation, energy storage, fatigue, and recuperation in sports physiology, sports biology, sports training, and related fields. This contributes to enhancing athletic prowess. Therefore, incorporating the concept of excessive recovery in physical education classes can effectively boost students' athletic capabilities and overall physical well-being.1) Proper utilization of the excessive recovery theory can enhance the efficacy of physical activity and training; 2) Within a specific physiological range, it can optimize human functionality and health; 3) Varied types of physical movements can lead to excess recovery of different bodily functions, aimed at enhancing sports performance and physical health. With the guidance of instructors, sports participants are taught to select appropriate sports, workout routines, and duration of exercise. This investigation emphasizes the goals, significance, scientific rationale, principles, techniques, competencies, and monitoring of sports training procedures.

4. Bended Teaching Mode

The research focused on examining the implementation of blended learning in instructional design. Proposed are the essential stages of the design process in teaching. Commencing with crafting a summary of the course and revamping the course structure(Cheung et al., 2010). Since the early 2000s, blended learning (BL) has merged traditional classroom lectures with contemporary AI-powered learning tools(Gamble, 2013). An essential aspect of designing blended teaching experiences revolves around finding the right balance between online and face-to-face interactions(Lee et al., 2017; Ma'arop & Embi, 2016; Mortera-Gutiérrez, 2006). The integration of blended learning in vocational education introduces new strategies and approaches that enhance student learning and mastery(Powell et al., 2015). By combining the SPOC and flipped classroom models, universities can effectively implement personalized learning, leading to better academic outcomes for students(Wang et al., 2016).

In summary: Blended mode, referring to a type of teaching that combines the benefits of both online and traditional methods, merges online and offline teaching.

The teaching of physical skills curriculum using a blended approach includes:1) Online instruction. 2) Face-to-face teaching. 3) Practice sessions combining offline and online components. By integrating these two teaching formats, learners can progress from superficial understanding to a deeper level of learning. This blended teaching method builds upon traditional approaches while eliminating constraints of time and space. This research applies blended teaching principles, leveraging the strengths of both traditional and digital learning to enhance student engagement and optimize sports training effectiveness.

5. Self-Efficacy Theory

The belief, judgment, or perception of oneself regarding the level of competency in completing a behavioral task before engaging in said task (Edwards et al., 2005; Wang et al., 2016). Self-efficacy plays a vital role in influencing health behaviors, yet factors impacting self-efficacy receive minimal attention. Researchers advocate for increased self-efficacy in health-related behaviors(Rogers et al., 2020). Teaching strategies that aim to enhance self-efficacy demonstrate strong correlations with student academic performance(Bartimote-Aufflick et al., 2016). Self-efficacy reflects individuals' confidence in their abilities across various contexts, highlighting the importance of strategies to boost adolescent self-efficacy and suggesting future research directions (Dierdorff et al., 2010). Investigations into the potential impact of self-regulation efficacy on motor skills(Ferrari, 1996; Robinson et al., 2016). portray a promising avenue for further study.

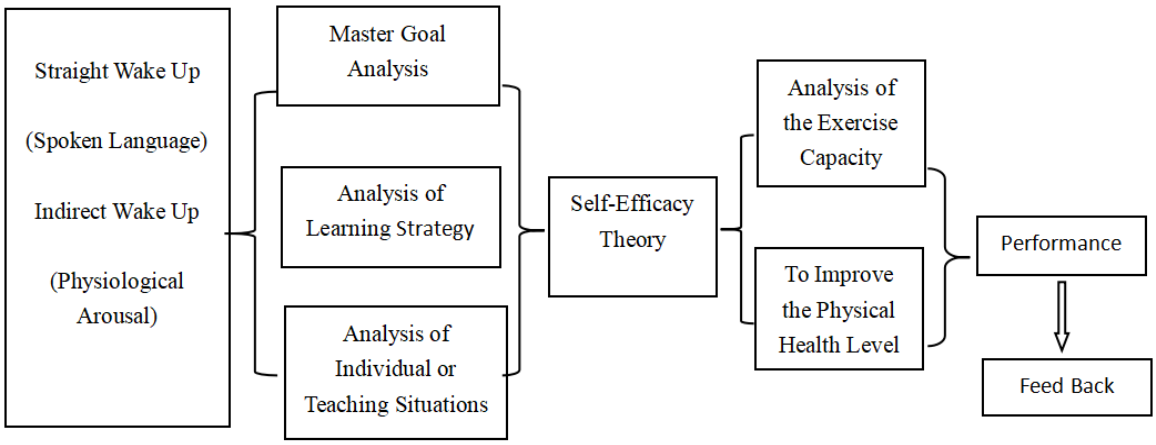

Figure 3 THE REALTIONSHIP MODEL OF STUDENTS' SELF-EFFICACY,PHYSICAL ABILITY AND PHYSICAL HEALTH

To put it briefly, Self-Efficacy Theory entails students' subjective judgments and beliefs regarding their ability to successfully complete specific tasks through effort. This factor plays a crucial role in determining students' motivation and behavior. Insufficient motivation may lead to a lack of perseverance in students. Conversely, students with high Self-Efficacy are more likely to exhibit better physical health compared to their peers, promoting healthier behavior. Self-efficacy serves as an intrinsic motivator for physical activity and plays a significant role in research. Altering self-motivation levels can impact the ongoing psychological processes involved in task execution. For instance, a student with low self-efficacy in sports may easily give up due to lack of interest, whereas a student with high self-efficacy may seek ways to enhance their athletic abilities. The effort exerted by individuals with high self-efficacy is commensurate with task difficulty, while the opposite holds true for those with low self-efficacy. Thus, the significance of self-efficacy in this study becomes evident.

6. Theory of teaching evaluation

In Analyzing Discourse Theory and Practice, the teaching of reflective practice demonstrates the established relationships in various scenarios within formative assessment implementation (Black & Wiliam, 2009; Gikandi et al., 2011). Diverse assessment techniques (AFL) improve student learning through self and peer

assessment. However, when feedback is included in the program, summative evaluation methods can also serve formative purposes (Lam, 2013; Tolgfors, 2018). Various assessment approaches (AFL) yield distinctive outcomes concerning the teacher and student subjectivity composition and the subject content characteristics (Nordrum et al., 2013).

The principles of evaluating teaching encompass the principles of development,objectivity,integrity, and guidance. Teaching evaluation can be categorized according to its function into the following divisions:

1) Evaluation for Diagnosis

Prior to the class session, a diagnostic evaluation of the curriculum is performed to assess students' readiness to learn, identify factors causing learning challenges, and pinpoint any areas lacking in preparation for research.

2) Evaluation for Formative Purposes

Within the class, students engage in self-assessment, peer evaluation, and teacher evaluation. This process aims to enhance and refine teaching activities, assess the journey and outcomes of practical work, enhance the effectiveness of students' activities, intensify their learning experiences, and offer valuable teaching feedback.

3) Evaluation for Summation

Following the class session, the online platform assesses students' submitted assignments and the feedback provided by instructors. This evaluation seeks to appraise students' physical abilities and health outcomes, anticipate potential directions for their physical exercise pursuits, and establish a foundation for enhancing the physical ability curriculum.

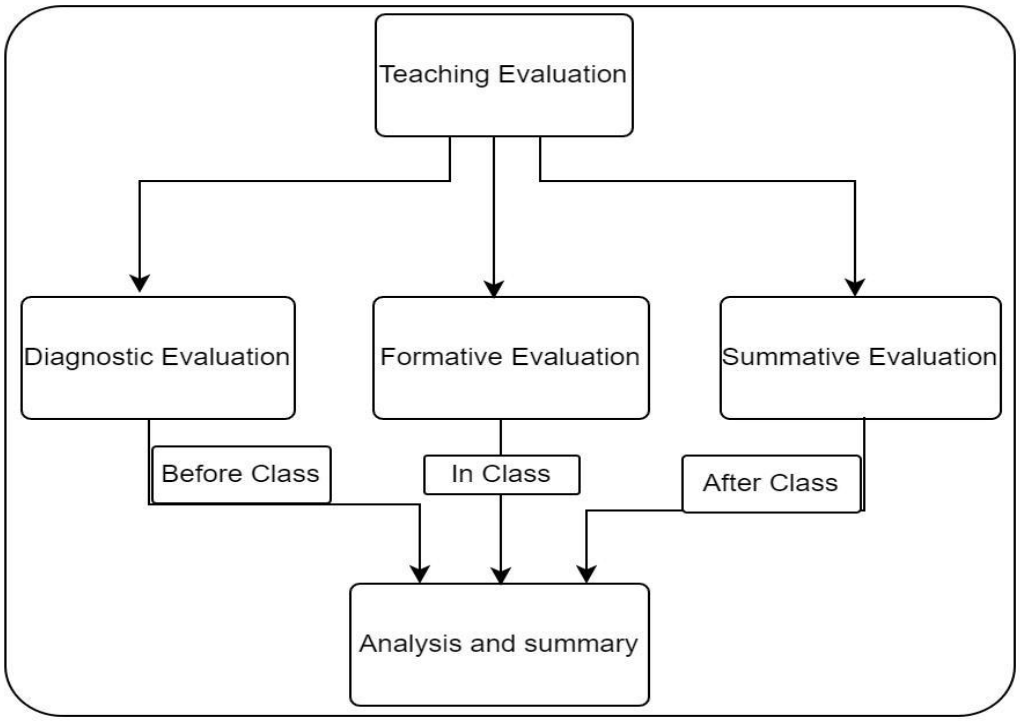

Figure 4 TEACHING EVALUATION FLOW CHART

There are two primary aspects of teaching assessment: evaluating the work of teachers in terms of teaching design, organization, and implementation. This activity places emphasis on both the process and outcomes of teaching based on the teaching goals and helps with decision-making in teaching. Evaluation techniques primarily consist of quantitative and qualitative methods. It involves assessing the real or potential value of teaching activities, which includes the study of the effectiveness of both teachers' instructional practices and students' knowledge acquisition. Teaching evaluation encompasses the assessment of teachers, students, curriculum, teaching methods, learning environment, instructional management, and other factors relevant to the teaching process, with a primary focus on the learning outcomes of students and teachers' instructional practices. Teaching assessment aligns with teaching principles, curriculum execution, instructional objectives, and instructional assessment. By conducting assessments in the classroom and extracurricular settings to evaluate the effectiveness of students' learning experiences, educators can identify and address any issues present in the teaching assessment process.

Concept of physical ability

1.Definition of physical education

Sports training involves organized activities led by coaches to enhance athletes' competitive abilities and performance. It is a vital component of competitive sports, primarily involving athletes and coaches. This structured process aims to elevate training levels and set the groundwork for enhanced sports performance.Optimal physical health entails having adequate energy for daily tasks without exhaustion and the ability to participate in recreational activities while also being prepared for unexpected situations. Various methods can enhance physical ability, including agility, strength, burst, and endurance training.physical ability pertains to abilities crucial for sports competitions, such as agility, balance, coordination, explosiveness, and reaction time. These skills serve as the foundation for various sports activities but do not necessarily correlate with health and disease. Topics covered include strength, speed, endurance, flexibility training methods, sensitivity, nutrition, and recovery strategies in physical training.

The curriculum possesses a robust goal, relevance, pragmatic approach, and scientific essence. By presenting the principles, techniques, and tools of contemporary physical skill development in a meticulously crafted format with a well-defined organization, students are provided with a comprehensive understanding in a straightforward manner. This enhances the students' physical prowess and proficiency in specific abilities.

2. Physical education curriculum overview

Physical attributes refer to the capacity of individuals to participate in activities demanding speed, endurance, power, and flexibility, achieved through tasks like walking, jogging, leaping, and hurling(" Theories of Sport Training," 2000).The effectiveness of Health Physical Education (HPE) programs is influenced by structural, personal, and cultural factors surrounding the curriculum. Nonetheless, HPE can effectively support the educational and pedagogical objectives of health improvement

(Jin,2009). The World Health Organization (WHO) recommends physical activity for 81% of adolescents and 23% of adults gglobally ("WHO," 2010). Engaging in physical exercise provides numerous health advantages, enhancing muscle and cardiorespiratory function, bone and functional health, and aiding in weight management. Nevertheless, globally, approximately 23% of individuals above 18 years old do not meet recommended physical activity levels ("WHO," 2017).

In summary, the physical ability curriculum covers various aspects of healthy fitness, including the significance of physical activity in enhancing aerobic fitness, muscular strength and endurance, flexibility, and body composition. The overall physical prowess of students is correlated with their athletic abilities and general physical condition. When it comes to training college students in physical education, a gradual progression in difficulty is recommended. By implementing a systematic approach and incorporating effective training techniques, like endurance program training, students can enhance their performance in 800/1000 meters and elevate their overall physical ability levels.

3. Physical education classification

physical education refers to the acquisition of physical activity that maintains our health and vitality. It can be categorized into two main groups based on motor skills and overall health:

1) Movement skills-related: this category encompasses aspects such as speed, strength, agility, neuromuscular coordination, balance, among others

2) Health-related: this category includes qualities like cardiorespiratory endurance, flexibility, muscle strength, muscle endurance, and body composition

In functional fitness programs, a thorough assessment of different facets of fitness, including cardiovascular endurance, muscle strength, endurance, and flexibility, is conducted. Physical training targeting various areas of physical ability, such as strength, speed, flexibility, balance, agility, coordination, and endurance, offers long-term advantages. According to "Columbia University" (2023), engaging in physical activity continuously benefits individuals throughout their lives.Physical Health Research

focuses on five key aspects of exercise: morphology, muscle development, cardiovascular function, exercise metabolism, and overall health enhancement. This research, conducted by Nerissa Campbell, Stefanie De Jesus, and Harry Prasavessis in 2013, plays a crucial role in elevating individuals' physical well-being levels.

The main focus of this study was on the physical abilities including speed quality (50 meters)strength quality (standing long jump, male pull-ups, female sit-ups), endurance quality (800/1000 meters, lung capacity), flexibility quality (seated forward bending), and body composition (height, weight). Additionally, movement skills and health-related content were also included in the study.

4. Basic requirements of physical education curriculum

1) The physical condition of university students varies, and there is a well-organized plan for both general physical education and specialized physical training.The physical ability of students depends on various qualities including strength, endurance, speed, sensitivity, and flexibility. It is essential to enhance the functional capacity of the different organ systems in order to achieve a harmonious development. Nevertheless, physical conditioning requires a personalized approach that caters to the individual's physical attributes. Different sports have varying physical demands, therefore instructors must prioritize and differentiate training programs accordingly. This ensures that students with varying strengths and weaknesses are guided appropriately to achieve their fitness goals.

2) The integration of psychological quality into the physical education curriculum is essential for developing students' overall abilities.

3) Students frequently experience fatigue and loss of motivation while participating in physical education classes.

This lack of enthusiasm is often due to the uninspiring nature of the curriculum. To address this issue, educators should incorporate elements of psychological training into the program. By enhancing students' comprehension of the significance of physical ability and fostering qualities such as determination and diligence, their overall engagement and performance can be significantly improved.

5. Physical education curriculum significance

Enhancing physical and overall health can be achieved through personal exercise, nutritional planning, and positive behavior (San Jose State University, 1999). Health promotion strategies and plans for physical activity can enhance cardiorespiratory fitness, muscular health, and speed/agility in young people, thereby encouraging healthy behavior (Ortega et al., 2008). Physical ability encompasses various exercises such as aerobic workouts, endurance training, muscle strengthening, flexibility exercises, stability drills, and balance exercises, which can effectively regulate emotions, boost the immune system, and improve physical performance. (MIT Medical, 2010)

In the summary of this section, the research on integrating online and offline physical ability programs has the following importance:

1) Enhancing students' exercise routines and fostering a lifelong passion for sports.

2) Enhancing students 'physical ability assessment results.

3) Assisting students in enhancing their athletic skills.

4) Assisting students in establishing a strong groundwork for acquiring

6. Physical education curriculum prospect

1) Promoting the reform of physical education curriculum in colleges and universities is facilitated by the development of this curriculum. By integrating scientific and technological teaching with traditional methods, students are able to blend their original knowledge and experiences with new information. This process allows them to construct their own knowledge framework, truly engage as active learners, enjoy the learning journey, and enhance their awareness of their role as learners.

2) The traditional roles and concepts in education have been transformed by the blended teaching method, empowering students to take charge of their learning and complete tasks independently. Teachers, on the other hand, serve as mentors, facilitators, coordinators, and evaluators. This approach in blended teaching is effective in increasing students' engagement and enthusiasm for learning.

3) Blended teaching places a strong emphasis on fostering holistic progress and development in students' behaviors, motivating them to strive for improvement in every aspect..

CHAPTER 3
RESEARCH METHODOLOGY

The primary aim of this research is to enhance the athletic performance of students, improve their physical health, and instill a lifelong appreciation for physical activities. A combination of quantitative and qualitative research methods will be utilized in this study. The theoretical framework will guide the data analysis process, while the data will validate and enhance the theoretical constructs. Various research techniques such as literature review, questionnaire administration, interviews, and comparative analysis will be employed to address all facets of this investigation.

In this chapter, the main contents are research participants, research procedures, five research methods and curriculum revision.

1. Research participants
2. Research procedures.
3. Research methods.
    1) Literature data method
    2) Questionnaire survey and expert interview method
    3) Classroom observation method
    4) Exercise testing method
    5) Statistics method
4. Curriculum revision

Research participants

The purpose of this research is to create an evidence-based strategy for physical ability classes, offering customized training advice that caters to the specific requirements and preferences of individuals across various age demographics. This initiative aims to enhance overall physical performance and foster a greater enthusiasm for sports activities among students. The primary goal of this program is to enhance students' fitness levels and overall well-being. The study will involve 120 participants

enrolled in Accounting courses for the academic year 2023, specifically students from Class 1, 2, and 3

Table 1 ANALYSIS OF THE STUDENTS'SPECIFIC SITUATIONS

Items Classes	Sex	Number	Average Age
Accounting major Class 1	Male	15	19.47
	Female	24	19.50
Accounting major Class 2	Male	14	19.50
	Female	29	19.34
Accounting major Class 3	Male	10	19.20
	Female	28	19.44

In the study participants:

1) There were 39 students in Class 1 of Accounting major, including 15 boys and 24 girls.

2) There are 43 students in Class 2 of Accounting major, including 14 boys and 29 girls.

3) There are 38 students in Class 3 of Accounting major, including 10 boys and 2 8 girls. (The details of Table 3 . Analysis of the students' specific situations).

Research Procedures

The study examined how physical activities impact students' physical health performance levels. The research methods for this study are outlined as follows:

1. Research design

In order to examine the research query, a combination of classroom observation and interviews was employed in the investigation (Patton, 2002). The 3rd edition of Qualitative Research and Evaluation Methods was referenced.

2. Guiding ideology

The purpose of this research is to enhance the physical health and fitness of students by introducing physical education programs. These programs are a vital part of academic curricula and significantly impact the overall physical well-being of students. Nevertheless, there are challenges in executing physical education programs in schools today, including inadequate scientific methods and individualized support, resulting in disparities in students' fitness levels and motivation. Thus, developing a well-thought-out and scientifically sound approach to implementing physical education programs holds great theoretical and practical importance.

3. Experimental subjects

This study aims to select a sample of 120 students from the School of Education at Zhanjiang University of Science and Technology. The goal is to enhance students' physical ability and overall health by implementing a specific curriculum. The participants will be from Accounting major Class1, 2, and 3 of Grade 2023, comprising a total of 120 professional students.

4. Specific implementation

Step 1. Curriculum Preparation

1.1 Select suitable online teaching platform mini programs from various options available on the internet. Perform a thorough examination of two distinct types of mini programs, specifically WeChat and Learning Communication, to gain a comprehensive understanding of their functionalities and operational procedures.

1.2 Gather resources regarding collaborative energy curriculums. Compile and categorize policy papers concerning higher education at a national level, and conduct a thorough search for academic literature via libraries, CNKI, Google Scholar, and other relevant sources.

1.3 Assess the existing status of students' athletic capabilities and overall physical well-being through a comprehensive investigation.

Step 2. Curriculum Design

2.1 Collecting literature materials

1) Gather relevant literature and materials, categorize and sort them.

2) Establish the research direction.

3) Organize physical health data for college students from the previous three years.

4) Compile physical and health examination data for several college students in Guangdong Province from the past three years.

5) Analyze the gathered data to identify issues with student athletic performance and physical well-being.

6) Develop survey questionnaires and expert interview guides, distribute and collect the questionnaires. Organize the survey responses and use SPSS software for data collection and analysis.

7) Draft the review, revise it, and finalize the literature review.

2.2 Write teaching documents

Drawing from relevant physical education policy documents and research requirements, a teaching outline, teaching calendar, and lesson plan will be crafted. This study will be executed in two phases over a span of 7 weeks, with each class lasting 45 minutes.Phase one: Taking place during the first to fourth week of the 2023-2024 academic year, one class per week will be conducted, each lasting 90 minutes (2 class hours).Phase two: Running from the fifth week to the seventh week of the first semester, one class per week will be conducted, with each class lasting 90 minutes(2 class hours).

Table 2 THE SCHEDULE OF CURRICULUM IMPLEMENTATION (WEEK 1-7)

Time	Class Periods	Lesson Plans
1	2	1. The learning physical ability test 2. Endurance warm-up exercise (1600m) 3. Introduce the general basic theoretical knowledge of sprinting 4. Learn special exercises for 50 meters 5. Flexibility exercises 6. Strength exercises 7. Speed exercises(50 meter run)
2	2	1. Endurance warm-up exercise (2000m) 2. Review the special exercises of the 50-meter run 3. Learn 50 meter starting and acceleration techniques 4. Introduce the general basic theoretical knowledge of sit-ups (female)and pull-ups (male) 5. Learn the rules and technical movement essentials of sit-ups (women) and pull-ups (men)
3	2	1. Endurance exercises 2. Review the special exercises of the 50-meter run 3. Learn 50 meters halfway running technology. Learn the finish line sprint technology 4. Introduction to the general knowledge and scoring criteria of seated forward flexion 5. Learn the essentials and methods of sitting forward bend
4	2	1. Endurance exercises 2. Introduce the general basic theoretical knowledge of standing long jump 3. Learn take-off, swing arm technology, air belly retraction technology and landing continuous standing long jump complete technology 4. Strength exercises

Table 2 (Continued)

Time	Class Periods	Lesson Plans
5	2	1. Review standing long jump techniques 2. Learn the long jump technique 3. Endurance exercises (preparation phase) 4. Speed exercises: varied pace running 5. Strength exercises: Cross jump, Burpee
6	2	1. Warm-up:1200 meters run 2. Review standing long jump and running long jump techniques 3. Introduce the general basic theoretical knowledge of middle and long-distance endurance events 4. Learn swing arm technique and bend technique for middle distance running 5. 12 minutes running
7	2	Teaching implementation mid-term test: Height, weight, lung capacity, heart rate, 50 m, 1000 m (men) / 800m(women), standing long jump, sitting forward bend, sit-ups (women) /Pull-ups (men)

2.3 Design teaching strategies

In line with the research objectives of the physical ability curriculum, a mixed approach to teaching, incorporating both online and offline components, is employed in the curriculum design. Developing an overarching teaching strategy and preparing instructional materials for this study is crucial.

1) Define the subjects of the experiment and outline the teaching content, tasks, methodologies, and instruments utilized in the study.

2) Assessment componentsParameters include measurements for height, weight, pull-up (male) sit-up (female) sitting forward bend, vital capacity, 50-meter sprint, and 800 meters (female)/1000 meters (male).

3) Experimental procedureInitiate the assessment of students' physical health levels within the experimental group (focusing on strength, endurance, speed, and flexibility)prior to the commencement of the study.Execute the teaching of the physical ability curriculum to enhance students' sports abilities over a 7 -week period.Monitor the progress of the experiment throughout the 7 weeks and re-assess students' physical health and sports performance.Conduct a comparative analysis of the pre- and post-experiment data. Conclude with a discussion on the significance of any disparities in research hypotheses and future prospects.

2.4 Design teaching implementation plans

The plan for implementing teaching is a crucial aspect of this research. To develop the precise content, methods for instruction, resources, and evaluation system for the physical ability curriculum. Create a teaching strategy.Explain the importance of implementing teaching, beginning with the rules and fundamental phases of the instructional process, and utilizing the principles and techniques of the instructional process. Segment the instructional process into three sequential parts:1)Pre-class; 2) During class; 3)Post-class

1) Before class, students' physical ability test before the implementation of the curriculum.

- Body shape: BMI (height, weight)
- Physical ability: 50m running, 800/1000m, standing long jump, sitting forward bend, pull-ups (male),sit-ups(female).
- Body function: vital capacity, heart rate.

Educators create instructional videos and PowerPoint presen tations for teaching purposes, as well as establish a library of physical ability curriculum resources. Ensure that the instructional materials are grounded in scientific principles. Distribute supplementary materials such as PowerPoint presentations and video

resources through the Super Star Learning Pass platform for students to access and study independently. Preparatory assignments are disseminated using advanced artificial intelligence education technologies like WeChat and Learning Communication App, aiming to gather students' essential details and assess the curriculum effectively.

2) During face-to-face sessions, the instructional phase involves seamlessly integrating online information instruction with conventional teaching approaches.

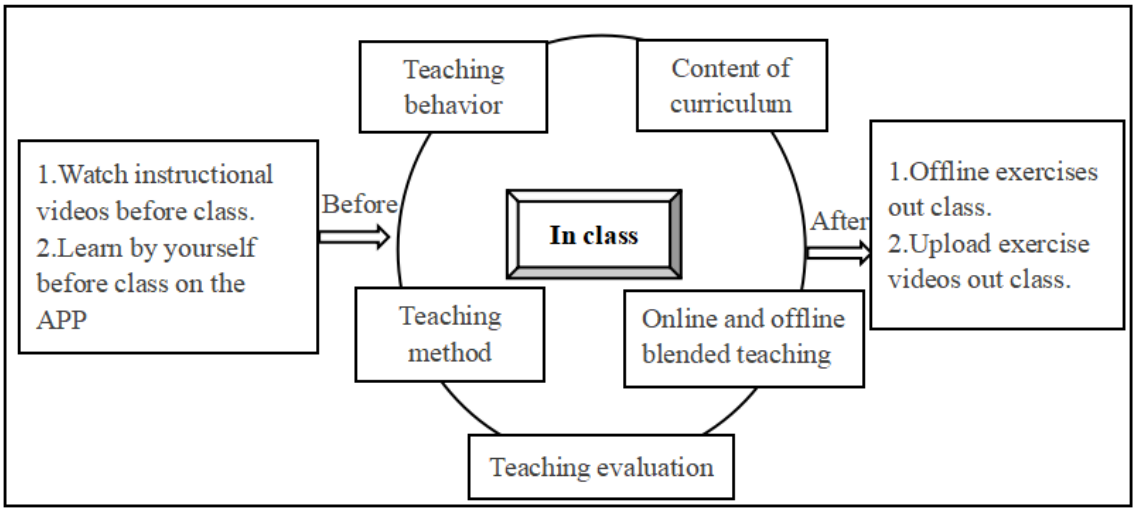

Figure 5 FLOW CHART OF THE BLENDED TEACHING MODE

Teachers can utilize the Learning Communication platform online to compile and incorporate top-notch educational videos from leading universities, allowing students to acquire sophisticated and top-quality expertise. In contrast to traditional classroom teaching approaches that emphasize the imparting of knowledge during lectures, offline learning entails students laying the groundwork through self-study and previewing prior to class. Embracing a student-centered classroom model, discussions on skill application and hands-on practice explanations are facilitated. It is essential to delineate instructional design, content, and methodologies, emphasizing "collaborative teaching" to underscore interactions between teachers and students as well as among students. This approach underscores process evaluation and comprehensive assessment components throughout the instructional process.

3) Following the class session, students will utilize the Super Star Learning Platform to submit their completed homework to the platform's backend. If students face challenges during extracurricular practice sessions, they have the flexibility to access educational materials like PPTs and videos on the Learning Platform at their convenience. Additionally, they can engage with teaching instructors via the platform's online interface whenever needed, facilitating the resolution of any issues encountered during the learning journey. To enhance proficiency in sports skills, students will be encouraged to augment their practice sessions and undergo supplementary assessments post-class.

The implementation of teaching should align with the instructional design, focusing on addressing key challenging aspects of education, promoting student-centered approaches, and fostering the integration of theory and practice. By embracing innovative methods like case studies and hands-on learning, leveraging advancements in technology, utilizing educational resources, and accommodating diverse learning styles, educators can enhance classroom effectiveness and promote progressive pedagogical approaches. To achieve an optimal teaching experience, it is essential to prioritize the core curriculum, seamlessly blending online content with traditional teaching methods. By understanding the unique needs of students, adapting teaching styles, and combining online and offline learning techniques, educators can create a holistic teaching environment that enhances physical education curriculum. Furthermore, effective teaching practices should extend to the evaluation process, employing modern technologies such as big data and AI for pre-and post-class assessments. By incorporating self-assessment, peer evaluation, teacher evaluations, and expert feedback, educators can conduct a comprehensive analysis of teaching and learning behaviors, ultimately enhancing educational outcomes and ensuring a harmonious relationship between teaching practices and educational effectiveness.

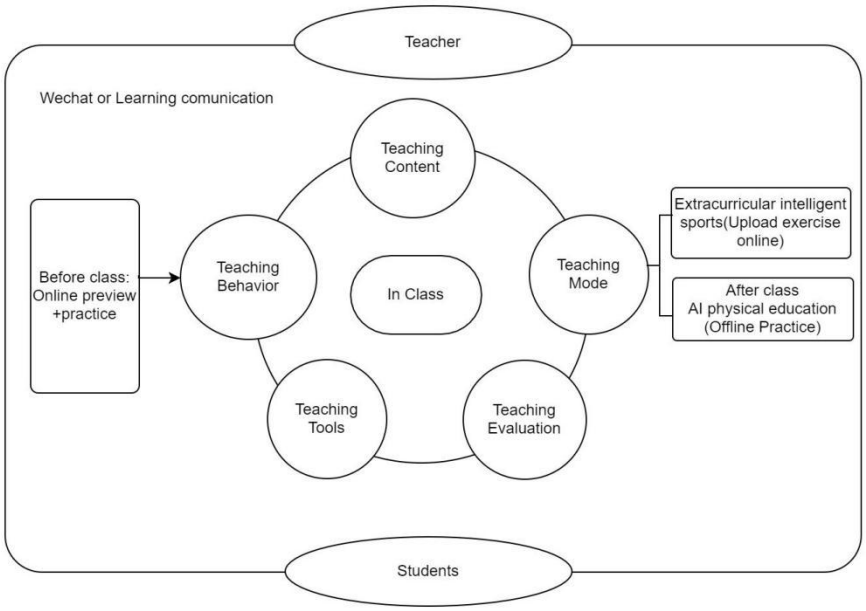

Figure 6 FLOW CHART OF THE BLENDED TEACHING MODE

2.5 Design teaching evaluation

Through assessing a variety of curriculum components including "curriculum planning, execution, and outcomes". Simultaneously, it assesses both the educators and learners engaged in the execution of the curriculum. By encouraging students to actively engage in the evaluation process, teachers can develop a holistic understanding of their students, as well as assist them in gaining a more precise insight into their current circumstances. This approach is advantageous for teaching evaluation as it serves to encourage students' motivation to learn, uncover their learning capabilities, and enhance their learning tactics.

1) Student evaluation form

2) Student self-assessment form

3) Teacher's evaluation of students' classroom performance and knowledge mastery

4) Student classroom feedback evaluation form

5) Teacher evaluation form for after-class exercises

Step 3. Classroom observation and experimental

3.1 Group subjected to experiment

The experimental group was comprised of 120 students from the accounting major at Zhanjiang University of Science and Technology, specifically selected from Class 1, Class 2, and Class 3.

3.2 Phase of experimentation

By implementing a physical ability curriculum and analyzing students' engagement in physical activities, the study aimed to collect and compare data on students' physical health before and after the experiment.

3.3 Plan of experimentation

The research focused on students from the Education College at Zhanjiang University of Science and Technology, utilizing physical health test results and psychological surveys to validate the experimental outcomes.

1) Experimental task

Clarify the experimental subjects and teaching content, tasks, methods, and means of the experiment.

2) Experimental tools

Physical ability testing instruments, vital capacity tester, heart rate measuring instruments, etc.

3) Experimental process (7 weeks)

(1) Test preparation (Week 1)

- Subject selection. Experimental subjects were chosen from Accounting 1, 2, and 3 students to ensure uniformity in age, gender, and physical ability. Clearly communicate the purpose, procedure, schedule, and precautions of the test to the subjects to obtain their full understanding and consent for participation.

- Test site arrangement. Choose a suitable test site that is safe, spacious, and free of obstacles. Set up testing equipment such as timers, gauges, jump ropes, dumbbells etc., and conduct thorough checks and calibrations.

(2) Pre-test (Week 1)

- Begin with a warm-up exercise and guide the participants through jogging, stretching, and other activities for 5-10 minutes.

- Choose physical ability test components, such as the 50-meter dash, 1000 meters/800 meters run, standing long jump, height and weight measurement, sit-and-reach flexibility test, pull-ups, sit-ups, and lung capacity assessment based on the design requirements and objectives of the physical ability program. Prior to each test component, the examiner should provide detailed explanations of the testing procedures, criteria for evaluation, and safety precautions to all participants.

- The test recorder is responsible for accurately documenting the test results of all participants including time taken or frequency achieved in each activity as well as measurements such as weight or distance covered. This documentation must be precise and easily traceable.

- Perform an initial analysis of the test results from all participants to gain insight into their physical capabilities as well as their strengths and areas needing improvement.Tester readiness. Identify test personnel including recorders, timekeepers, and supervisors; provide training and allocate responsibilities accordingly. Ensure testers are well-versed in the testing process standards,and safety precautions.

(3) Physicaltraining course (Week 2 - Week 7)

- Develop a personalized training plan based on the physical characteristics of the experimental subjects and test results, including weekly training content, goals, intensity, etc.

- Implement the physical training according to the plan, monitor the performance of the experimental subjects, and make timely adjustments to the training plan and methods.

- Communicate with the subjects weekly to understand their training experience and challenges, and make necessary adjustments and improvements to the training plan based on their feedback.

(4)Post-test (Week 7)

- Conduct warm-up exercises

- Perform test projects using the same test items as in the pre-test to ensure consistency in test methods, standards, precautions, etc.

- Record test data accurately and clearly. The recorder is responsible for ensuring that subject's test data is accurate and traceable.

(5)Test summary and feedback (Week 7)

- Data analysis and comparison. The post-test data were analyzed and compared with the pre-test data to analyze the progress of the experimental subjects and the training effect.

- Write a test report: Write a detailed test report according to the test data and analysis results. The content of the report should include the basic information of the experimental subjects, test data, analysis results and training suggestions.

Feedback and discussion. Feedback the test report to the experimental subjects and relevant personnel, and invite them to participate in the discussion, and jointly analyze the training effect and problem improvement.

(7) Follow-up plan according to the test results and discussion, develop follow-up training plans and improvement measures, encourage the subjects to continue to participate in physical training, and constantly improve their physical ability level.

Step 4 . Stage of constructing a teaching mode for physical ability curriculum.

Researchers enhance the blended teaching structure of physical capability course, course outline, instructional material, instructional techniques, and instructional evaluation of physical capability course. Conclude the study, extract the findings, and summarize the investigation.

5. Research instruments

Research instruments provide scientific, systematic, and reliable research methods and tools, which help to collect comprehensive, in-depth, and accurate data, form scientific research conclusions, and provide strong support and guidance for the development and design of physical fitness courses for college students. In the physical ability curriculum, researchers used mainly HengkangJiaye students physical testing equipment and the following 9 research instruments:

1) Teaching design for physical ability curriculum;

2) Evaluation Form for Physical Education Effect;

3) Data testing before, and after the experiment;

4) Sports ability test form;

5) Student health survey questionnaire;

6) Student physical health test evaluation form;

7) Student classroom attitude evaluation form;

"Prioritizing health", as the core principle, showcases a student-centered approach under the guidance of teachers. The focus is on fostering students' autonomy, encouraging collaborative learning, self-assessment, and feedback from instructors. This approach emphasizes the seamless integration of physical activities and cognitive engagements, aimed at enhancing students' overall physical well-being and athletic prowess. By adopting a blended learning model that combines online and offline elements, utilizing the teaching platform to streamline the learning process and facilitate assessment.

CHAPTER 4
FINDINGS

This chapter focuses on the progression of the physical ability curriculum development. Analyzing research data collected during the 9th to 16th weeks of the first semester in the 2023-2024 academic year, the emphasis is on the development of a "student-centered" physical ability curriculum. Transitioning from theory to practice and back to theory, the curriculum development process is categorized into three parts:

Part 1. The primary goal design of physical ability curriculum.

1. Overview, necessity, and feasibility of development.

2. Fundamentals and factors influencing physical ability curriculum development.

3. Content of physical ability and exercise techniques in the curriculum.

Part 2. The aim of this curriculum is to enhance students' physical health levels (including strength, speed, endurance, and flexibility).

1. Teaching and execution of physical ability curriculum.

2. Comparative analysis of pre and post-implementation results.

3. Evaluation outcomes of the curriculum.

Part 3. The focus here is on instilling a mindset of physical activity in students, motivating them to engage in physical exercise, and fostering qualities of hard work and resilience.

1. Analysis of the effectiveness of physical ability curriculum development.

2. Strategies for enhancing physical ability curriculum development.

3. Employing effective teaching methods to boost students' motivation for physical exercise.

The primary goal design of physical ability curriculum to further enhance the students' athletic ability.

1. Overview, necessity and feasibility of development

To foster the healthy growth of students and encourage them to engage in physical activities, it is essential to conduct a comprehensive assessment of students' physical well-being, focusing on their physique, physiological capabilities, and overall fitness levels. This approach is in line with the guidelines outlined in various Ministry of Education documents, including the "Measures for the Evaluation of Students' Physical Health Monitoring" (2014). The evaluation of students' physical ability encompasses three main components: 1) assessing body composition through measurements of height and weight; 2) evaluating physiological functions such as vital capacity and resting heart rate, along with physical performance tests like flexibility, standing long jump, pull-ups (for males), and 1-minute sit-ups (for females).

Table 3 STUDENTS' PHYSICAL HEALTH TEST INDICATORS AND TESTING TOOLS

Physical Ability	Test Indicator	Test Instrument
Body Shape	BMI(Height, weight)	Height and weight tester
Physical Quality	50 meters running	50 meters tester
	800 meters/1000 meters	Middle and long -distance running tester
	Sitting forward bend	Sitting forward bend tester
	Standing long jump	Standing long jump tester
	Pull-up(male)	Pull-up(male) tester
	1min sit-up(female)	1min sit-up(female) tester
Body Function	Vital capacity	Vital capacity tester
	Static heart rate	Static heart rate tester

This section comprises three main components: literature review, key concepts,and the necessity and feasibility of researching physical curriculum development.

1.1 Findings from the review of relevant literature on curriculum development

Higher education sports are a crucial component of university life. In accordance with the "Regulations on School Sports Work" issued by the State Council and the guidelines set forth in the Ministry of Education's "Sports Guidance Outline for National Colleges and Universities," along with the fundamental requirements outlined in the implementation guidelines for health standards, the integration of theoretical knowledge with practical sports experiences is emphasized. Emphasis is placed on integrating sports activities into daily life. The fundamental principles, methods, and concepts of physical training are outlined, which include aspects such as strength, speed, endurance, agility, and flexibility. Tailored training programs and recommendations are provided for individuals of varying ages and engaged in different sports . (Yang Shiyong, 2001). The study of "School Sports," a fundamental course within physical education majors, encompasses the core theories, teaching strategies, and organizational aspects of school sports. A key focus within this course is the development of physical curriculum, which elucidates the process of crafting effective training regimens for students of diverse age groups . (Fan Hairong, 2009). The "Sports Curriculum and Teaching Theory" offers a comprehensive overview of physical education and teaching strategies at both macro and micro levels. The chapter on physical curriculum development within this text delves into the objectives, content, methodologies, and assessment practices relevant to physical education programs.

1.2 The necessity of physical ability curriculum development

Physical ability curriculum development is crucial for college physical education, as it helps promote the physical and mental development of students, enhance their fitness, build a strong foundation, and cultivate their willpower. This curriculum focuses on health awareness, physical exercise habits, sports methods, and lifelong exercise concepts. By emphasizing physical and psychological health,

exercise, and fitness, as well as sports cultural content, students are guided to prioritize their health.

1.3 The feasibility of the development of physical curriculum

The school leverages its advantageous resources to conduct teaching activities, utilizing methods such as scenario-based teaching, as well as incorporating competition, game, and inquiry-based teaching approaches. Students engage in team-based participation to effectively address new situations during their growth process, enhancing their subjectivity and fostering a keen interest in learning.

Additionally, the school optimizes venue facilities by utilizing rich resources and available equipment to create a conducive learning environment. The research targets for this study include Zhanjiang University of Science and Technology, specifically Accounting Class 1, Accounting Class 2, and Accounting Class 3, comprising a total of 120 students. From a student perspective, it is essential to undergo physical training, acquire knowledge related to physical ability, and learn safety protocols and first aid measures. Students are encouraged to practice independently and work towards enhancing their overall quality.

2. Expert interviews and student questionnaire survey analysis

2.1 Expert interviews analysis

Based on interviews with 10 experts, an in-depth analysis and summary were conducted on the current situation, challenges, concepts, content, teaching methods, evaluation system, and development suggestions of physical ability curriculum for college students.

Each expert has profound professional knowledge and rich work experience in the field of sports, covering multiple aspects such as sports curriculum development, sports theory and practice, sports curriculum design, and sports courses. These experts have published multiple core journal papers, some of which have also published SCI articles and textbooks, demonstrating their significant contributions and influence in the academic community. Each expert has led multiple provincial or ministerial level projects, indicating that they also have extensive experience in practical project management and execution.

Based on their educational background and professional title, experts A and B hold a master's degree and are both professors. Experts C, D, and E have master's degrees and are all associate professors.

Experts A and B have 35 years of work experience, with a deep accumulation and rich experience in the field of sports. Experts C and D have 25 years of work experience and are relatively experienced practitioners. Although expert E only has 17 years of work experience, he has also achieved significant accomplishments in his field.

From an academic perspective, expert A has led three provincial-level projects and published core journal articles, demonstrating his significant contributions to the development of physical education curriculum. Expert B has published 2 SCI articles, 2 textbooks, led 2 provincial and ministerial level projects, and published 20 articles, demonstrating his extensive influence in sports theory and practice. Expert C has led 2 provincial-level projects, published 5 core journal articles and 1 textbook, demonstrating his professional ability in physical education curriculum design. Experts D and E have extensive experience in physical education courses, having led two provincial-level projects and published multiple core journal articles and textbooks.

2.1.1 The current situation of physical ability curriculum for college students presents the following characteristics

Using a 5-level rating table, five experts evaluated the physical fitness curriculum design and development based on the following five aspects.

(1) Objectives and positioning of the curriculum "

Table 4 OBJECTIVES AND POSITIONING

No.	Questions	Avg.	Max	Min
1	The curriculum objective is clear and specific, which accords with the actual level of students' physical development.	5	5	5
2	The curriculum positioning is accurate and can meet the needs of students' physical development.	4.8	5	4
3	Curriculum objectives are operable and measurable for evaluation and feedback.	4.8	5	4
4	policy requirements such as discipline and curriculum standards.	4.6	5	4

Scoring an average of 5 points (maximum score: 5), the curriculum objectives are well-defined and specific, effectively aligning with the actual physical development stage of students. This shows that the curriculum planner carefully considered the students' specific circumstances when establishing goals, ensuring they are precise and feasible. With an average score of 4.8, the curriculum positioning is more accurate, better meeting the physical development needs of students. This illustrates that the curriculum creator thoroughly analyzed the characteristics and requirements of students' physical development while positioning the curriculum, resulting in a more concentrated and efficient curriculum design. Earning an average score of 4.8, the curriculum objectives are practical and measurable, facilitating easy evaluation and feedback. This simplifies the process for teachers to assess student progress and performance promptly and adjust teaching strategies for enhanced effectiveness. With an average score of 4.6, the curriculum fully complies with policy requirements and subject curriculum standards. This indicates a thorough consideration of relevant policies and standards by the curriculum designer during the formulation process, leading to a more standardized and scientifically designed curriculum. Upon analyzing Objectives and positioning, the curriculum objectives and positioning have been extensively assessed across various dimensions, particularly in

terms of the clarity and alignment of curriculum objectives. While the study excelled in the clarity and specificity of curriculum objectives and alignment with students' actual physical development stage, there remains potential for further optimization in other areas. Simultaneously, the curriculum's objectives are precisely defined to cater to the students' physical development needs. The goals are both actionable and measurable, facilitating straightforward assessment and feedback, and are consistent with pertinent policy requirements, including subject and curriculum standards.

(2) Curriculum content and structure

Table 5 CURRICULUM CONTENT AND STRUCTURE

No.	Questions	Avg.	Max	Min
5	The curriculum is rich and comprehensive, covering all aspects of physical development.	4.6	5	4
6	The content of the curriculum is organized reasonably, which accords with the cognitive law and the characteristics of physical development of students.	4.4	5	4
7	The content of the curriculum is closely related to the curriculum objectives and helps to achieve the curriculum objectives.	4.4	5	4
8	The content of the curriculum is interesting and interactive, which can stimulate students' interest in learning.	4.6	5	4
9	The content of the curriculum is updated in a timely manner, which can reflect the new development and new trend in the field of physical fitness	4.6	5	4

Analysis of Curriculum Content and Structure: Q5 received an average score of 4.6, indicating that the curriculum material is thorough and extensive, encompassing all areas of students' physical growth. Q6, on the other hand, received an average score of 4.4, suggesting that while the curriculum material is well-structured, there is still room for improvement to better cater to students' learning needs.

Q7 achieved an average score of 4.4, showcasing the close alignment between the curriculum content and objectives, aiding in their achievement. This demonstrates the curriculum designer's clear grasp and successful execution of the curriculum objectives. Q8 scored an average of 4.6, highlighting the engaging and interactive nature of the curriculum material, which can pique students' interest in learning. This form of engagement is essential in boosting student motivation and involvement. Lastly, Q9 obtained an average score of 4.6, indicating that the curriculum content can be promptly updated to reflect the latest advancements and trends in the field of physical fitness. This ensures that students acquire knowledge and skills that are up-to-date and in line with current social demands and trends. Upon evaluating the Curriculum Content and Structure, it is evident that various aspects of the curriculum have received high praise, particularly in terms of content richness, engagement, interactivity, and timeliness. The comprehensive nature of the curriculum material ensures that all facets of students' physical development are addressed. To further enhance the organization of the content, adjustments can be made to align it more closely with students' cognitive abilities and physical development characteristics, thereby enhancing the overall learning outcomes. Continue to ensure that the curriculum content remains engaging and interactive to captivate students' attention and encourage active participation. Furthermore, the curriculum content is both stimulating and interactive, fostering students' curiosity and engagement in the learning process. It is consistently updated to reflect the latest advancements and emerging trends in the realm of physical fitness.

(3) Teaching methods and means

Table 6 TEACHING MEACHING METHODS AND MEANS

No.	Questions	Avg.	Max	Min
10	The teaching methods are diverse and flexible, which can meet the learning needs of different students.	4.2	5	3
11	Teaching methods pay attention to the initiative, practice and innovation of students' physical development.	4.4	5	3
12	Advanced and practical teaching means can make full use of modern educational technology means.	4.4	5	3
13	The close combination of teaching method and curriculum content is helpful to improve the teaching effect.	4.4	5	3

Question 10 received an average score of 4.2 out of 5, indicating that the teaching method is diverse and flexible, catering to the needs of different students to some extent. However, there is still room for improvement in order to better accommodate individual learning needs. Question 11 obtained an average score of 4.4, highlighting that the teaching method emphasizes students' initiative, practicality, and innovation, promoting holistic development. While this aspect has shown good performance, it should be sustained and further enhanced. Question 12 received an average score of 4.4, demonstrating that the utilization of advanced and practical teaching methods, combined with modern educational technology, enhances the teaching effectiveness. This positive performance contributes to enhancing students' learning experience and outcomes. Question 13 achieved an average score of 4.4, indicating that the integration of teaching methods and curriculum content enhances the teaching effectiveness. This aspect of performance is strong and beneficial for the overall learning experience.

The evaluation of various teaching methods and approaches highlights their effectiveness in multiple areas, particularly in their emphasis on students' autonomy, applicability, and creativity, as well as in their utilization of cutting-edge and practical instructional strategies. A wide range of flexible teaching methods is available to cater to the diverse learning requirements of students. By prioritizing students' autonomy and incorporating practical and innovative teaching methods, we can enhance students' overall development. Teaching strategies must emphasize students' autonomy, application, and creativity in physical development. Utilizing advanced and practical teaching techniques can effectively leverage modern educational technology tools. By closely integrating teaching methods with curriculum content, we can enhance the efficacy of instruction.

(4) Curriculum evaluation and feedback

Table 7 CURRICULUM EVALUATION AND FEEDBACK

No.	Questions	Avg.	Max	Min
14	Curriculum evaluation methods are diverse and scientific, which can fully reflect students' physical development level.	4.2	5	3
15	Curriculum evaluation emphasizes the combination of process evaluation and terminal evaluation.	4.4	5	3
16	Curriculum evaluation is timely and targeted, and can provide students with effective feedback and guidance.	4.8	5	3

Q14, with an average score of 4.2 out of a possible 5, indicates that the curriculum assessment method is relatively diverse and scientifically grounded, able to reflect students' physical development levels comprehensively. However, there remains room for further optimization to enhance the accuracy and comprehensiveness of the assessment results. Q15 received an average score of 4.4 points, underlining that the curriculum assessment effectively combines process and outcome assessments to evaluate students' learning processes and outcomes

comprehensively. This integrative approach allows teachers to better understand students' learning states and provide more tailored guidance for instruction. Q16, with an average score of 4.8, shows that curriculum assessments are very timely and targeted, providing students with effective feedback and guidance. This approach helps students monitor their own learning, identify deficiencies, and make necessary improvements. Simultaneously, it forms a basis for teachers to adjust their teaching strategies accordingly. From the comprehensive analysis of curriculum evaluation and feedback, it is evident that the curriculum evaluation and feedback mechanisms have been highly rated across various dimensions, especially regarding the timeliness and relevance of the evaluations. The curriculum evaluation methods are diverse and scientifically robust, enabling a thorough reflection of students' physical development levels. The evaluation system emphasizes a balanced combination of process evaluation and terminal -36

targeted nature of the evaluations provides students with effective feedback and guidance, aiding them in adjusting their learning strategies and methods promptly.

(5) Curriculum innovation and characteristics

Table 8 CURRICULUM INNOVATION AND CHARACTERISTICS

No.	Questions	Avg.	Max	Min
17	The curriculum design is innovative and unique, which can reflect the teacher's personal style and characteristics.	4.4	5	3
18	Curriculum design can make full use of school, community and other resources, with regional characteristics.	4.4	5	3
19	Curriculum design can integrate disciplines and broaden students' knowledge vision and way of thinking.	4.4	5	3
20	Curriculum design can pay attention to the individual differences of students and realize personalized teaching.	4.4	5	3

Question 17 received an average score of 4.4 points out of a full score of 5. The curriculum design demonstrates a relatively innovative and unique approach, showcasing the teacher's distinct personal style and characteristics. This indicates that the curriculum designers have incorporated their own thoughts and creativity into the design process, resulting in a more personalized and engaging curriculum. Question18 also received an average score of 4.4. The curriculum design effectively utilizes resources from the school, community, and other sources, showcasing specific regional characteristics. This highlights the attention that curriculum designers have paid to integrating the curriculum with real-life and social environments, enhancing the practical and realistic value of the curriculum. Question 19 received an average score of 4.4 as well. The curriculum design successfully integrates multiple disciplines, expanding students' knowledge base and enhancing their critical thinking skills. This aids in developing students' comprehensive abilities and fostering innovative thinking, laying a strong foundation for their future academic and personal endeavors. Question 20 received a high average score of 4.8. The curriculum design places significant emphasis on accommodating individual differences among students, enabling personalized teaching methods. This indicates that curriculum designers have a deep understanding of students' needs and characteristics, allowing them to tailor teaching programs that cater to each student's unique strengths and weaknesses. As a result, every student receives personalized attention and support for their development.

Based on the analysis of the Curriculum innovation and characteristics, it has received high praise in various areas, particularly in individualized instruction. Despite

this, there is still potential for further enhancement in other aspects. The innovative curriculum design is distinctive, showcasing the teacher's individual style and traits. It effectively utilizes school, community, and regional resources. Additionally, it merges disciplines to expand students' knowledge base and critical thinking skills. Moreover, the design also caters to students' unique needs, enabling personalized instruction and honoring their diverse perspectives.

In conclusion, the study exhibits exceptional performance in devising and implementing physical fitness curriculum, with all grades achieving outstanding results. This underscores the study's success in curriculum design, content structuring, teaching techniques, assessment practices, and incorporation of innovation and characteristics. It holds significant feasibility and practical value. The findings ought to be applied in educational practice to enhance students' physical development and overall growth.

2.1.2 The main challenges and problems faced by physical ability curriculum for college students

Students have insufficient understanding of physical ability curriculum, lack interest and motivation. The course content and teaching methods are single, making it difficult to meet the needs of different students. The quality of teaching varies, and some teachers lack professional knowledge and skills. The school's sports facilities are not perfect, which affects the development of student physical training.

2.1.3 Concepts to be followed in the development and design of physical ability curriculum for college students

Experts generally believe that cultivating students' comprehensive physical ability, including strength, speed, endurance, flexibility, etc. Pay attention to the cultivation of students' health awareness and exercise habits, and help them develop a good lifestyle. Emphasize the subjectivity and autonomy of students, and pay attention to their individual differences and needs. Develop targeted physical ability curriculum based on the actual situation and characteristics of the school.

2.1.4 Integrating diverse elements such as health, fitness, and competition into college student physical ability curriculum

In order to enrich the content and format of physical ability curriculum for college students, experts suggest integrating diverse elements such as health, fitness, and competition into the curriculum. Introduce health knowledge lectures and nutrition guidance to help students understand healthy eating and exercise

methods. Carry out diverse fitness training programs, such as yoga, Pilates, aerobic exercise, etc. Organize internal and external sports competitions and competitive activities to stimulate students' interest in sports and competitive spirit.

2.1.5 Main teaching content and methods of physical ability curriculum for college students

physical ability curriculum for college students should include training in areas such as strength, speed, endurance, and flexibility.

1) Strength training. Adopt training methods such as weightlifting and squatting, and choose appropriate methods based on the individual qualities of the students.

2) Speed training: Improve students' reaction and movement speed through short distance running, fast push-ups, and other methods.

3) Endurance training: Using methods such as long-distance running and endurance exercise to improve students' cardiovascular function and endurance level.

4) Flexibility training: Improve students' physical flexibility through various methods such as joint compression, bending, and lowering.

In terms of teaching methods, experts suggest adopting diverse and innovative teaching methods, such as demonstration, practice, feedback, etc., to stimulate students' interest and enthusiasm in learning.

2.1.6 Construction of evaluation system for physical ability curriculum for college students

In order to comprehensively evaluate the physical ability and learning effectiveness of students, experts suggest constructing the following evaluation system:

1) Establish diversified evaluation indicators, including tests on strength, speed, endurance, flexibility, and other aspects.

2) Adopting a combination of qualitative and quantitative evaluation methods, such as observation records, test scores, etc.

3) Pay attention to students' self-evaluation and reflection, and guide them to correctly understand their strengths and weaknesses.

2.1.7 Successful Cases and Experience Sharing

In the interview, experts shared some successful cases and experiences. For example, by introducing modern teaching equipment and methods, students' interest and participation in physical ability curriculum have been increased; By organizing diverse sports competitions and competitive activities, students' interest in sports and competitive spirit have been stimulated.

2.1.8 Development suggestions and prospects

In response to the current situation and challenges of physical ability curriculum for college students, experts propose the following development suggestions: strengthen curriculum construction and reform, improve curriculum design and teaching content, and improve teaching quality and effectiveness. Strengthen the construction of the teaching team, improve the professional level and teaching ability of teachers, and provide better teaching services for students. Increase investment in sports facilities construction, improve school sports facilities and equipment, and provide better training conditions for students. Strengthen student health education, improve their health awareness and exercise habits, and promote their physical and mental health development.

2.2 Questionnaire analysis of students on physical ability curriculum

The purpose of this survey is to gain a deeper understanding of the expectations, interests, and suggestions of college students towards physical ability curriculum, in order to develop and design physical ability curriculum that better meet their needs. A total of 486 valid questionnaires were collected, and the following is a detailed analysis of the questionnaire results.

Grade and gender distribution,103 freshmen accounted for 21.19% of the respondents, 120 sophomores accounted for 24.69%, 131 junior students accounted for 26.95%, and 132 senior students accounted for 27.16%. This indicates that the questionnaire covers students from different grades and has a certain degree of

representativeness. 241 males accounted for 49.59%, while 245 females accounted for 50.41%. The gender ratio is relatively balanced, further ensuring the breadth and fairness of the sample.310 students, accounting for 64.79%, expressed interest or great interest in physical ability curriculum, indicating that the majority of students recognize the value of physical ability curriculum. The remaining 176 students, accounting for 36.21% of the total, expressed little or no interest and needed further exploration of their needs to optimize course design.

The importance of physical ability curriculum, with 389 students accounting for 80.04% of students, believes that physical ability curriculum are important or very important in university education, which fully demonstrates the position of physical ability curriculum in the hearts of college students. Only a few students believe that physical ability curriculum are not very important or completely unimportant, which provides strong support for us to continue promoting physical ability curriculum.

The preference for course content shows that 66.05% of students chose basic physical training, indicating their emphasis on it. Group sports and fitness training followed closely with 14.49% and 13.37%, respectively, indicating that students are also eager to participate in collective activities and improve their personal physical fitness. Yoga, Pilates and other stretching activities, as well as outdoor exploration or orienteering, also have a certain proportion of students choosing, demonstrating the diversity of student needs.

The preference for teaching methods is that blended online and offline teaching has been favored by 65.02% of students. This teaching method can fully utilize online and offline resources, providing a more diverse learning experience. Outdoor practical teaching has also been chosen by 21.60% of students, indicating that students expect to improve their physical fitness through personal experience and practice. The combination of traditional classroom teaching and self-directed learning with guidance also has a certain proportion of students choosing, indicating their acceptance of different teaching methods.

The preference for evaluation methods, physical fitness testing as the most direct evaluation method, was chosen by 28.81% of students. Attendance rate, classroom participation, and team collaboration ability have also been highly recognized, accounting for 30.86%, 31.28%, and 8.23%, respectively. Self reflection and summary have also been mentioned by some students, demonstrating their emphasis on self-improvement.

Curriculum integration suggestion, 58.85% of students hope that physical ability curriculum can be combined with other courses (such as mental health, nutrition, etc.), indicating that students expect to obtain more comprehensive health knowledge and practical skills through physical ability curriculum. This provides us with a new direction for curriculum design, and we can consider integrating physical ability curriculum with related courses such as mental health education and nutrition.

The frequency of course offerings is 61.94% of students who wish to offer physical ability curriculum once a week, indicating that they hope to have more opportunities to participate in physical activities. Another 38.06% of students hope to have classes every two weeks, which provides us with flexible course scheduling options.

The demand for physical ability curriculum among college students is to acquire more comprehensive health knowledge and practical skills through physical ability curriculum. Fully consider the interests and needs of students in course design, and increase the fun and interactivity of the course. Improve the quality of the curriculum to ensure that students can receive effective physical training and health knowledge. Enrich the course content, covering multiple aspects such as basic physical training, team sports, fitness training, etc. Strengthen the integration with other courses to provide students with more comprehensive health knowledge and practical skills. Emphasize personalized and differentiated teaching to meet the needs of different students. Regularly conduct course evaluations and collect feedback, and promptly improve and optimize course design and teaching methods.

3.The aim of this curriculum is to enhance students' physical health levels (including strength, speed, endurance, and flexibility).

3.1 Influencing factors of physical course development

Policies, regulations, and standards play a crucial role in the implementation of physical ability curriculum. It is essential to adhere to the relevant policies, regulations, and standards to ensure the legality and standardization of curriculum design.

Curriculum arrangement and scheduling play crucial roles in determining the effectiveness of physical education programs. It is essential to plan the curriculum and allocate time in a way that minimizes conflicts with other courses or extracurricular activities.

Site and facilities are essential components for implementing a physical curriculum. They should provide adequate fields and facilities that meet safety standards and ensure comfort to fulfill teaching requirements. Teaching content serves as a vehicle for accomplishing educational objectives. It is crucial to design content that is scientifically sound, reasonable, and effective based on students' needs. Teachers must possess expertise in sports and pedagogy to develop appropriate teaching plans aligned with students' goals. The use of diverse teaching methods, such as collaborative lesson planning and observational courses, is vital in engaging students and fostering their learning motivation.

3.2 Students' understanding and attitude towards physical ability curriculum

The primary focus of this study was to assess students' attitudes towards physical health and practicality by examining their understanding and engagement in health-related sports through questionnaires. A total of 120 research participants were involved, and the credibility of the questionnaires was evaluated twice. The correlation coefficient ($R = 0.89$, $P < 0.01$) between the two tests indicated a strong relationship. Three types of questionnaires were utilized: Student Physical Health Check Table, Evaluation Form of Student Performance In Class, and Expert Interview Questionnaire Form. A total of 360 questionnaires were distributed, resulting in 357 valid responses, yielding an effective rate of 99.2%.

3.2.1 Student physical health check table

Table 9 THE TOTAL SCORE OF ACCOUNTING 1, 2 AND 3 BEFORE THE PHYSICAL HEALTH EXPERIMENT

N=120

Score	100	95	90	85	80	75	70	65	60
Number of people	22	24	32	22	10	9	1	0	0
Percentage	18.3	20	26.6	18.3	8.3	7.5	0.8	0	0

The data in the table above reveals a concentration of scores within the 90-100 and 85-80 point ranges, with 22 and 32 individuals respectively, representing the majority. Conversely, there are no participants in the 70-65 and 60 point categories, reflecting a zero percentage. This trend highlights strong academic performance among most students, particularly in achieving higher marks. This pattern suggests a positive overall academic performance and high teaching quality. Nonetheless, there are a few students with lower scores, predominantly within the 70-65 and 60 point brackets. These represent 1 and 0 individuals, accounting for 0.8% and 0% respectively. Although the number of students with lower scores is limited, they still require attention. Providing additional support and guidance can assist them in addressing their weaknesses and enhancing their academic achievement. On the other hand, students with high scores should be encouraged to pursue advanced learning opportunities and develop their critical thinking and problem-solving skills. Employing various teaching techniques such as group discussions and project-based learning can foster students' interest and initiative in learning. Teachers must engage actively with students, comprehend their learning needs, and offer timely assistance and feedback. Additionally, prioritizing students' emotional well-being, fostering a trusting and amicable teacher-student relationship, and fostering a positive learning environment are crucial aspects of effective teaching.

Table 10 STATISTICAL ANALYSIS OF PHYSICAL HEALH SCORES OF STUDENTS IN ACCOUNTING 1, 2, 3

Gender	Number of people	Mean	Max	Min
Male	40	91.86	100	70
Female	80	88.52	100	75
Sum	120	89.79		

The forms and content mentioned above revolve around five primary indicators, namely gender, quantity, mean, peak, and nadir values. There are 40 male students and 80 female students, resulting in a male-to-female ratio of 1 to 2. Male students have an average physical health score of 91.86, while female students' average is 88.52. The overall mean score of all students stands at 89.79, closely aligning with the average male student score, indicating the substantial influence of male students' scores on the collective average. The lowest score among male students is 70, and among female students, it is 75. It is evident that there exist variations in physical health among accounting students. By scrutinizing these statistics, we can gain valuable insights into students' health and implement appropriate measures to enhance their well-being.

Primarily, our focus should be on students who received low grades. The data in the table reveals a number of individuals, including both male and female students, who fall into this category. It is possible that these individuals may be lacking in certain health-related areas, warranting our concern. It is imperative that as educators and institutions, we offer these students additional health education and assistance to enhance their overall well-being.

Second, it is important to consider the students' average scores. The class has an overall average score of 89.79, indicating strong performance in health. Nonetheless, boys have a slightly higher average score than girls, suggesting that boys may exhibit better health in certain areas. As a result, tailored teaching

approaches and strategies should be implemented based on gender to effectively address individual needs.

Finally, it is essential to consider the highest and lowest values indicated in the table. Regardless of gender, the top mark is 100 points, demonstrating exceptional physical health performance by certain students in the class. Boys achieve a minimum score of 70 points, while girls reach 75 points, highlighting potential areas for health improvement among some students. Thus, routine physical health evaluations and the provision of health advice and assistance are necessary to guarantee the overall well-being of all students.

On the whole, students from Accounting Classes 1, 2, and 3 demonstrate high levels of physical health, with an average score nearing 90 points. The male students' mean score slightly surpasses that of the female students, although the disparity is minimal. Furthermore, some students in the cohort achieved perfect scores, and even the lowest scores are relatively elevated, suggesting a generally favorable state of physical well-being among students. Through an examination of the physical health data of students, we can gain deeper insights into their health statuses and implement appropriate interventions to enhance their overall well-being. Educational institutions and instructors ought to prioritize students with subpar scores, tailor instructional approaches and tactics to suit the diverse needs of male and female students, routinely conduct physical health assessments, and furnish students with health counseling and guidance. These initiatives are instrumental in helping students safeguard their physical health, enhance their quality of life, and elevate their academic effectiveness.

3.2.2 Evaluation Form of Student Performance in Class

The examination of classroom performance is closely linked to the learning outcomes of students. The key objective of physical education is to foster a correct comprehension of sports and health among students, enabling them to develop a favorable sports mentality. As a result, the evaluation of students' attitude towards learning and practicing is an integral component of physical and health education

assessment. The assessment criteria for evaluating sports learning attitude encompass the subsequent seven dimensions: 1) Active participation in class; 2) Vocal contribution; 3) Engagement in classroom sessions; 4) Performance during practical exercises; 5) Acquisition of sports techniques; 6) Contrastive analysis of learning situations; 7) Timely completion of assignments.

Through these seven dimensions, the dedication of students to sports activities, their proactive engagement in practice sessions to attain their set objectives, and their receptiveness towards the guidance provided by the instructor can be analyzed. To facilitate this process, I encouraged students to engage in self-assessment and peer evaluation. Team leaders were appointed to conduct assessments and furnish feedback to the teacher. Additionally, group members rotated as team leaders, culminating in the review of each classmate's classroom performance by the teachers.

Table 11 STUDENT CLASSROOM PERFORMANCE EVALUATION ANALYSIS TABLE

N=120

Performance classification	Self-assessment			Peer evaluation			Teacher evaluation		
Evaluation content	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
1.Listening to class	4.84	5	3	4.74	5	3	4.09	5	3
2.Speech situation	4.83	5	3	4.74	5	3	4.08	5	3
3.Classroom learning situation	4.83	5	3	4.78	5	4	4.10	5	3
4.Classroom practice situation	4.75	5	3	4.73	5	3	4.21	5	3
5.Master sports skills	4.83	5	3	4.70	5	3	4.13	5	3
6.Cooperative learning situation	4.91	5	4	4.80	5	3	3.98	5	3
7.Completion of class assignments	4.88	5	3	4.23	5	4	3.96	5	3

Note: Option A is rated 5 points, Option B is rated 4 points, and Option C is rated 3 points.

The mean score of students' self-assessment in question 1 is 4.84, with a range of 3 to 5 points; Peer evaluation averages at 4.74, ranging from 3 to 5; Teacher evaluation's mean score is 4.09, ranging from 3 to 5. In question 2, the mean self-assessment score is 4.83, with a range of 3 to 5; Peer evaluation averages at 4.74, ranging from 3 to 5; Teacher evaluation's mean score is 4.08, with a range of 3 to 5. For question 3, the self-assessment mean score is 4.83, ranging from 3 to 5; Peer evaluation averages at 4.78, ranging from 4 to 5; Teacher evaluation's mean score is 4.10, with a range of 3 to 5. In question 4, the self-assessment mean score is 4.75, ranging from 3 to 5; Peer evaluation averages at 4.73, ranging from 3 to 5; Teacher evaluation's mean score is 4.21, with a range of 3 to 5. Lastly, in question 5, the self-assessment mean score is 4.83, ranging from 3 to 5; Peer evaluation averages at 4.70, ranging from 3 to 5; Teacher evaluation's mean score is 4.13, with a range of 3 to 5.In question 5, the student self-assessment yielded an average score of 4.91 points, ranging from 4 to 5 points; whereas the peer evaluation averaged 4.34 points, with scores varying between 3 and 5. Moving on to question 7, the student self-assessment showed an average of 4.88 points, with scores ranging from 3 to 5; peer evaluation, on the other hand, had an average of 4.34 points, with scores between 3 and 5; teacher evaluation averaged 3.96 points, with scores ranging from 3 to 5.

Students tend to rate themselves highly, however, certain aspects such as collaborative learning and completion of assignments may require further enhancement. It is crucial for educators to monitor and support students' progress in these areas, offering personalized guidance and assistance. Additionally, teachers can utilize assessment outcomes to engage in productive dialogues with students, aiding them in identifying strengths and areas for improvement to facilitate holistic growth. In the realm of physical education, feedback mechanisms like evaluation forms and peer reviews furnish instructors with valuable insights into individual physiological and psychological experiences, serving as a catalyst for innovative thinking and pedagogical refinement. By tailoring instruction to address specific needs, educators can advance the quality of teaching and bolster students' prowess in sports

activities, critical thinking, physical ability, self-awareness, and personal development. Group-based initiatives and collaborative tasks within the classroom can nurture students' teamwork skills and cooperative mindset, supplemented by guidance on effective communication and interpersonal coordination. This student-centered approach helps reconcile the dichotomy between external expectations and intrinsic motivation, fostering a shift from passive absorption of knowledge to active engagement in the learning process. Self-evaluations, peer assessments, and teacher feedback in sports education serve as primary inputs for instructors to gauge student progress and enhance teaching strategies, underscoring the pivotal role of evaluation in driving pedagogical advancements and elevating educational standards.

3.2.3 The results of the curriculum evaluation by experts

Merged with the objectives of the curriculum, the principles of curriculum development, teaching approaches, assessment methods, instructional materials, as well as self-designed surveys and questionnaires, are determined following preliminary research and expert input. Physical education experts are interviewed and observed in seven distinct areas. Compliant with the health and fitness needs of college students, a grading system of "5", "4", "3", "2", "1" is implemented, with scores below 3 indicating inadequacy. A survey consisting of 11 questionnaires on the design of physical ability curriculum is distributed, with a 100% response rate. To ensure the study's practicality, 11 experts provide feedback on curriculum objectives, pedagogical principles, teaching strategies, evaluation methods, instructional materials, student health test results, and classroom performance in physical education, offering recommendations for reform.

Table 12 EXPERT EVALUATION ANALYSIS OF PHYSICAL ABILITY

N=11 persons

No.	List of Evaluation	Mean score	Max	Min
1	The principles of the curriculum are appropriate for implementation	5.00	5	5
2	The passing rate of students' physical ability and health tests at your school	4.91	5	4
3	The students' performance in the physical education classroom	4.82	5	3.5
4	The teaching modes and methods of physical education	4.82	5	4
5	The teaching documents of your school complete	4.73	5	4
6	What are your ideas for reforming physical education teaching content	4.91	5	4
7	The goals of the curriculum are appropriate for students	4.82	5	4
8	The assessment and evaluation are appropriate for the teaching-learning processes	4.73	5	4
9	What process do you use in physical education teaching	5.00	5	5

Note: Excellent 4.5--5 scores, good 4.5-4 scores, medium 4--3.5 scores, qualified 3.5-3 scores, unqualified 3--1 scores.

The table reveals that the mean rating for diverse assessments is notably high, suggesting that they are largely favorable. Nonetheless, there are also some evaluations with lower scores, indicating areas that may require enhancements.

The highest rating in the evaluation of "The curriculum principles are suitable for implementation" is 5.00, indicating excellent match for course execution. The second assessment, "The passing rate of students' physical ability and health assessments in your institution," received a score of 4.91, with a minimum of 4.00, highlighting areas for improvement where standards have not been met. Evaluations three and four for "Student performance in physical education classes" and "Teaching

modes and methods in physical education" scored 4.82 each, showing room for enhancement in physical education delivery and approaches. The fifth evaluation, measuring the completeness of teaching documents at your school, achieved an average score of 4.73, with a minimum of 4.00, suggesting potential deficiencies in document integrity. The sixth evaluation, "Your thoughts on reforming physical education curriculum," received a score of 4.91, with a minimum of 4.00, indicating a need for further consideration and exploration in updating teaching content. The average rating for the seventh evaluation, "The curriculum goals align with student needs," is 4.82, with a minimum score of 4.00, revealing potential mismatches between educational objectives and student requirements. The eighth evaluation averaged at 4.73, implying some shortcomings in terms of teaching assessments. Lastly, the assessment of "Which methods do you apply in physical education instruction?" achieved a perfect score of 5.00, illustrating the suitability of current teaching processes and approaches.

By utilizing expert input, the physical ability curriculum is carefully crafted with consideration given to course goals, curriculum principles, teaching mode and methods, evaluation criteria, teaching materials, student physical health test pass rates, as well as performance in physical education classrooms. Viewed through the lens of physical education content reform, this research holds substantial significance in enhancing students' physical ability and functionality. Assessments have revealed areas for enhancement in teaching effectiveness, student performance, and evaluation processes. Educational institutions must engage in comprehensive analysis and enhancements to elevate teaching standards and address students' needs adequately. Specific actions that schools can take include: 1) Intensifying physical education and health programs for students; 2) Enhancing student engagement and performance in class; 3) Introducing innovative teaching techniques; 4) Upgrading and organizing teaching materials; 5) Revamping sports curriculum; 6) Adjusting course goals; 7) Enhancing the precision and efficacy of evaluation systems. Implementing these strategies will lead to a superior quality of teaching and better alignment with students' requirements.

4. physical ability content and exercise methods of physical ability curriculum development

4.1 Principles of physical course development principles

4.1.1 Systemic principles

The arrangement of the physical ability curriculum needs to focus on system activity to guarantee the coherence and depth of teaching content. Simultaneously, the sequencing and organization of teaching materials should be appropriately structured based on the real conditions and educational requirements of students.

4.1.2 Principles based on scientific methods

The curriculum design must adhere to scientific methods to ensure the precision and efficacy of teaching content. Additionally, the attributes of students' physical and mental growth should be taken into account, and the complexity and intensity of teaching materials should be reasonably organized.

4.1.3 Application-oriented principle

The curriculum design should emphasize practicality to guarantee that the knowledge and skills acquired by students can be utilized and exercised in everyday life and sports activities. Furthermore, the genuine needs and interests of students should be considered, and course content with significant practical value should be developed.

4.1.4 Individualization principle

Due to the varying physical abilities and requirements of each student, curriculum design should concentrate on individualization. A tailored teaching strategy and solution should be formulated to cater to the distinct requirements and variances of students.

4.1.5 Innovative principles

To foster students' innovative prowess and sportsmanship, curriculum design should focus on innovation. By introducing novel teaching principles, instructional approaches, and technological tools, students can be encouraged to experiment with fresh exercise techniques and problem-solving methods.

4.2 Form the teaching goals of physical ability curriculum

4.2.1 Improve students' physical ability

Enhancing the students' muscle strength, endurance, flexibility, coordination, and sense of balance through systematic physical training will improve their physical ability and functional level overall.

4.2.2 Improving students' health awareness

By incorporating health knowledge and sports concepts into the physical ability curriculum, I aim to help students develop healthy lifestyles and habits, including maintaining a balanced diet, adhering to regular schedules, and engaging in appropriate exercise. This will assist students in establishing accurate health concepts and fostering positive exercise routines and lifestyles.

4.2.3 Boosting students' self-confidence and willpower

Engaging students in physical training and challenges will enable them to overcome obstacles, enhance their self-confidence and willpower, and strengthen their psychological resilience and responsiveness.

4.2.4 Enhancing students' sports skills and performance

Through tailored physical training sessions, students will learn proper movement techniques, technical skills, and sports strategies to enhance their sports skills and overall performance.

4.2.5 Fostering students' sportsmanship and team spirit

Utilizing collective activities and team-oriented physical training methods will cultivate students' sportsmanship and team spirit, while also enhancing their cooperation and communication abilities.

4.3 Teaching content design for sports curriculum development

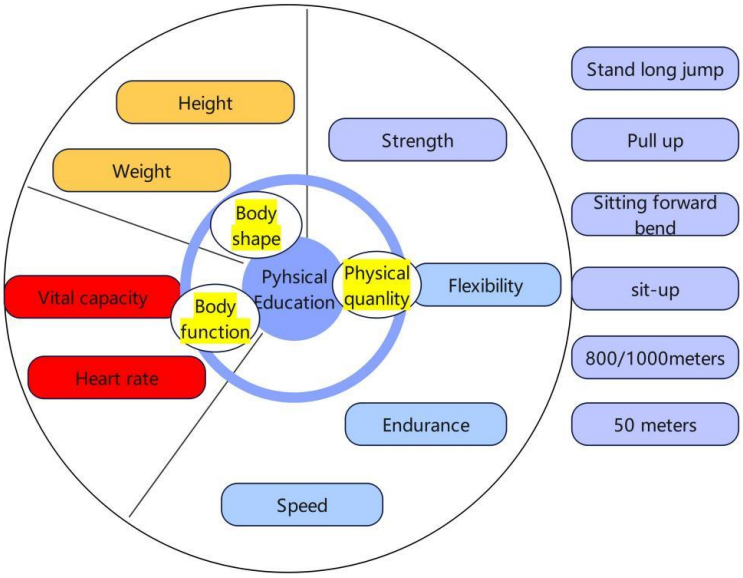

Figure 7 PHYSICAL ABILITY DIAGRAM

The curriculum for physical ability focuses on three key areas: body shape, body composition, and body performance.

4.3.1 Body shape includes aspects such as weight and height.

4.3.2 Body composition encompasses strength, speed, endurance, and flexibility. Strength involves tasks like pulling up, standing, and leaping. Speed is measured by a 50-meter sprint. Endurance is tested through forward body bends.

4.3.3 Body performance includes metrics like resting heart rate and Vital Capacity.

The purpose of this curriculum is to improve the students' physical health level (Strength quality, speed quality, endurance quality, flexibility quality).

1. Teaching and implementation of physical ability curriculum

1.1 The physical ability curriculum implementation plan involves developing personalized training plans tailored to students' physical levels and requirements

These plans should encompass training content, intensity, frequency, and duration to facilitate gradual improvement in students' physical abilities. By employing a systematic approach, students can enhance their strength, endurance, flexibility, and overall physical ability, setting a strong groundwork for holistic development. To begin with, it is essential to appropriately manage the training workload. Coaches or teachers should adjust the training intensity based on students' individual capacities to effectively tap into their physical capabilities. Inadequate or excessive load can hinder optimal recovery. Furthermore, closely monitoring students' physical condition is key. By regularly assessing their fitness levels, coaches can make timely adjustments to the training program and intensity to ensure desired outcomes. Preventing over training is also crucial. Adequate recovery periods can help stave off the negative repercussions of excessive training. Recognizing signs of fatigue and adjusting the regimen accordingly can protect students' well-being. In addition to balanced training practices, ample rest and proper nutrition are vital. Coaches should schedule rest periods and recommend suitable dietary practices to support students' physical recuperation. Lastly, it is imperative to familiarize oneself with students' lifestyle habits, including sleep patterns, dietary preferences, and daily routines. This knowledge can illuminate the correlation between students' baseline conditions and their everyday behaviors.

In the classroom, the performance of students' training is observed. By assessing students' training performance, factors such as the level of activity, breathing patterns, and fatigue can be used to initially evaluate the physical condition of the students. While students are engaged in training, it is important to document their progress, including completion times, number of repetitions, weights used, etc., in order to analyze changes in their physical condition. Ultimately, by emphasizing the

importance of adequate recovery, instructors can lead students to better understand the importance of rest and recovery strategies, enhancing their ability to manage their own training and optimizing the outcomes of their independent workouts. By implementing appropriate recovery methods, students can maximize their physical progress in a condensed time frame, benefiting both students and instructors. Through proper recovery procedures, students must adhere strictly to training and rest schedules, fostering a sense of self-discipline that not only enhances physical ability but also positively impacts daily life.

Table 13 PHYSICAL ABILITY CURRICULUM DESIGN WEEKLY TEACHING PLAN

Week	Teaching content	Time component (90min, 2 class hours)	Intensity
First Class	Strength quality: duck walk, 20 level leapfrog, sit-ups, pull-ups	15	Small intensity
	Speed quality: 30 meters starting, 60 meters accelerating, 100 meters running	20	Medium intensity
	Endurance: 1200 meters, 50 meters variable speed (800 meters)		
	Flexibility: static stretching, dynamic stretching	30	Hard intensity
		20	Medium intensity
Second Class	Strength: weight-bearing lunges, supine leg lifts, push-ups	15	Small intensity
	Speed quality: starting, 60 meters acceleration, 100 meters	35	Hard intensity
	Endurance: 800m run (3 min/set) *2 sets	15	Small intensity
	Flexibility: leg ligament stretching, shoulder ligament stretching	20	Medium intensity

Table 13 (Continued)

Week	Teaching content	Time component (90min, 2 class hours)	Intensity
	Strength: weight-bearing squats, weight-bearing lunges, supine leg lifts, push-ups	30	Hard intensity
	Speed quality: 50m variable speed run *4 laps	15	Small intensity
Third	Endurance quality: 10 minutes jog		
Class	Flexibility: in situ forward bending exercises, shoulder ligament stretching exercises	15	Medium intensity
		25	Hard intensity
	Strength: 30 level frog-leaping, lunges, sit-ups, burpees	15	Small intensity
	Speed quality: starting, 60 meters acceleration, 100 meters		Small intensity
Fourth	Endurance: 400 meters (3 minutes/set) *3 sets, each	15	
Class	set of 3 minutes interval		Hard intensity
	Flexibility: Foam shaft exercises	30	
		25	Medium intensity
	Strength quality: duck walk, lunge walk, double rise, burpee jump	30	hard intensity
	Speed quality:30 meters start, 200 meters *2 groups	20	Medium intensity
Fifth	Endurance: 15 minutes of jogging		
Class	Flexibility: shoulder ligament stretching, lower limb ligament stretching	15	Small intensity
		20	Medium intensity

Table 13 (Continued)

Week	Teaching content	Time component (90min, 2 class hours)	Intensity
	Strength qualities: Burpees, jumping jacks,	20	Medium
	Speed quality: 30 meters start, 100 meters running		intensity
	Endurance quality: 2000 m jog (20 min)	30	Hard
Sixth	Flexibility: standing body forward bending, shoulder		intensity
Class	ligament stretching, lower limb ligament stretching		Medium
		20	intensity
			Small
		15	intensity
	Strength quality: weight squat, weight lunge, two ends	20	Medium
	up, push ups		intensity
	Speed quality: 30 meters start, 50 meters accelerating,		Medium
Seventh	200 meters running	20	intensity
Class	Endurance: 800m run (3 min/set) *2 sets		hard
	Flexibility: Foam shaft exercises	25	intensity
			Medium
		20	intensity

Table 14 THE MAIN CONTENT OF PHYSICAL ABILITY CURRICULUM DEVELOPMENT AND DESIGN

Period	Teaching content and objectives	Teaching method	Exam content	Evaluation methods
14 periods	1. The body quality Strength: Upper body strength, lower body strength, waist and abdominal strength Speed: 50m, 100m, 200m Endurance: 800 meters, 1000 meters, 1500 meters, 3000 meters Flexible: Dynamic stretching, static stretching, dynamic and static stretching 2. Physical functions (Vital Capacity, heart rate) 3. Health topics and ideological and political topics to cultivate students' scientific and spontaneous exercise habits 4. Arrange physical ability curriculum content	1. Language transmission method 2. Model law 3. Exploration activities - independent learning 4. physical ability exercises 5. Competitive competition - group competition	1.50 m 2. Standing long jump 3. Pull-ups 4.800 m /1000 m 5. Sit ups 6. Sitting forward bend 7. Vital Capacity	1. Classroom evaluation: Student self-assessment Student evaluation Teacher comments 2. Formal assessment

1.2 Scheme for the Implementation of Physical Course Data

In line with the objectives and criteria for data collection, select the appropriate method for data collection. Develop comprehensive plans and procedures, clearly outlining the timing, location, personnel, and equipment for data collection. Organize, categorize, and archive the collected data for further analysis and manipulation.

1.2.1 Establish Collection Objectives

Initially, identify the types of data and objectives to be gathered. This may encompass students' physical abilities, exercise performance, health conditions, etc. Depending on your objectives and resources, select the suitable method for data collection, which could involve surveys, physical ability assessments, observational records, biological markers, etc. It is also essential to set specific time frames for data collection, such as before, during, and after the course.

1.2.2 Develop Efficient Instruments

To guarantee the precision and quality of data collection, devise efficient instruments and protocols. This may entail detailed surveys, standardized physical testing procedures, precise measuring tools, etc.

1.2.3 Assessment of Physical Endurance

Before commencing the course, during the course, and post-course, assess students' physical endurance, encompassing their physical condition, functionality, and fitness. This can be accomplished through various assessments and tools, such as height, weight, lung capacity, body composition, strength, endurance, flexibility, etc. Ensure data accuracy and reliability: Employ dependable assessment tools and recording techniques during data collection to maintain accuracy and reliability. When gathering and handling student data, adhere strictly to pertinent laws, regulations, and privacy policies to safeguard students' privacy.

1.2.4 Experimental approach

Gathering data on teaching improvement and student progress by conducting experiments, such as comparing the impacts of various teaching methods or training programs. Prior to the experiments in the seventh week, students

underwent field tests to assess the following two areas: (1) Physical characteristics - body shape, height, and weight. (2) physical ability - strength (pull-ups, standing long jump, sit-ups, sitting forward bend), speed (50 meters), endurance (800 meters, 1000 meters), and flexibility (sitting forward). (3) Physical functionality - vital capacity and heart rate.

1.2.5 Process of implementing the performance course

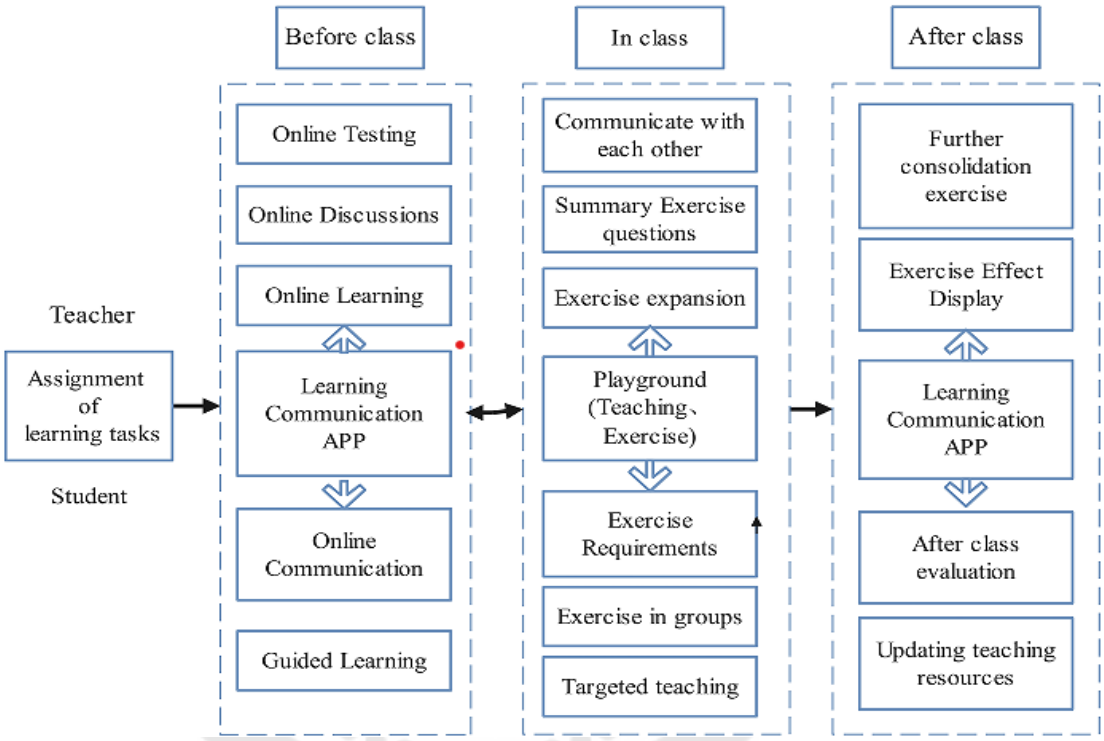

Figure 8 IMPLEMENTATION OF BLENDED TEACHING IN PHYSICAL ABILITY CURRICULUM

The course is designed with a focus on students and utilizes a combination of online and offline approaches for each unit. To begin, learning materials and exercises are uploaded to the APP before class, prompting students to review them beforehand. Online guidance and communication are provided by teachers. In practical sessions, teachers lead students through various activities such as demonstrations, explanations, practice, error correction, exploration, evaluation, reflection, and more to meet educational goals. Throughout this process, students engage in group discussions

and practices to enhance their self-awareness, enabling them to master motor skills and improve physical ability. Following the class, students reinforce their learning by completing exercises and submitting them online. Teachers assess the teaching materials, keep teaching resources up-to-date, foster self-directed learning habits, and enhance students' physical well-being.

The process of implementing the development and design of the physical curriculum primarily consists of the following steps:

(1) Establishing objectives

Defining the objectives of the physical curriculum, such as enhancing students' physical health, athletic skills, and sports performance.

(2) Creating a strategy

Developing detailed curriculum plans based on the objectives, which include teaching content, instructional techniques, and the sequence of lessons.

(3) Gathering teaching materials

Acquiring necessary teaching materials in accordance with the curriculum plans, such as textbooks, supplies, and facilities.

(4) Carrying out instruction

Conducting practical teaching sessions as outlined in the curriculum plans. During instruction, it is important to consider students' individual variances and unique circumstances, and adapt teaching techniques and pacing accordingly.

Prioritize student safety: The safety of students is paramount in physical education. In the training process, teachers must implement essential safety protocols to guarantee the well-being of students.

Be mindful of the unique variations among students: each student possesses differing physical abilities and exercise backgrounds. Educators must take into account students' individual discrepancies when instructing and implement customized teaching strategies and tools.

Emphasize the development of students' interest: the physical curriculum should be an engaging experience, rather than dull exercises. Educators can ignite students' curiosity and excitement with the help of games, contests, and various other approaches.

(5) Assessment and Response

Assess students' learning progress and provide prompt feedback to both students and parents. Upon analyzing the evaluation outcomes, make essential revisions and enhancements to curriculum design and instructional techniques.

(6) Recapitulation and Contemplation

Conclude the curriculum by reflecting on the whole implementation procedure, consolidating lessons learned, and suggesting recommendations for future teaching enhancements. Introducing the concept of excessive recovery education to carry out blended learning, designing teaching methods and online learning activities based on teaching objectives, and conducting diversified teaching evaluations. With the help of the self built physical ability curriculum resources and WeChat group interaction tools on the Learning Platform, a teaching form combining "self-directed learning on the front line of class", "practical teaching in class", and "feedback practice after class" is adopted. Students engage in online self-directed learning before class, while teachers engage in interactive practical teaching during class. After class, online teaching tasks are assigned for review, consolidation, and expansion of learning. By adopting various teaching strategies such as problem driven and case analysis, online blended learning can be achieved to improve teaching effectiveness.

2. Comparative analysis of results before and after the implementation of physical ability curriculum

2.1 Prior to and following the introduction of the physical education program, examination of the body morphology test outcomes.

Analysis of BMI before and after implementing a physical education curriculum. Evaluation of physical capabilities before and after introduction of physical

measurements including height and weight using the Hengkang height and weight testing device. Body shape index is a crucial factor in the assessment of normal human development and physical ability. Morphological markers of the body are crucial for assessing normal human development and physical ability levels. Based on the examination results of 120 students enrolled in physical education courses, it can be observed that there has been no significant alteration in the students' physical form after a 7-week period.

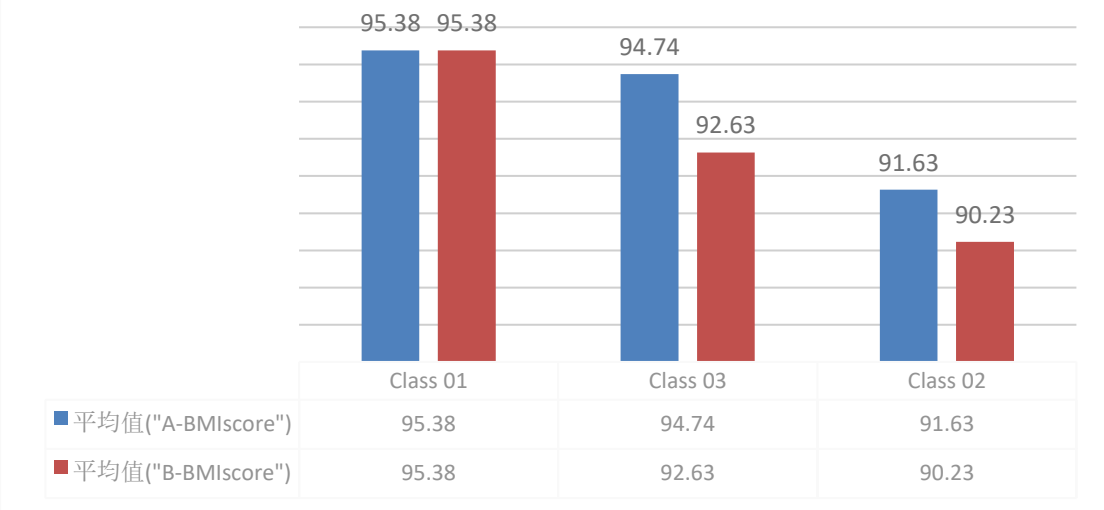

Figure 9 ANALYSIS OF BMI INDEX SCORES BEFORE AND AFTER THE TEST

The graphic information reveals several key findings: initially, the average BMI across Class 01, Class 02, and Class 03 all decreased following the experiment, indicating minimal distinctions among the classes collectively. Additionally, variations in BMI decline were observed across the different classes, with Class 1 and Class 3 registering a slight drop of 1 unit each, whereas Class 2 exhibited a more substantial decrease of 2 units. An examination of 120 students partaking in a physical education course demonstrated that the alterations in body shape among students after 7 weeks of instruction were not notably pronounced.

Table 15 COMPARATIVE ANALYSIS OF STUDENTS' BMI SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-BMI	21.28	3.54	35.87	14.35	0.32	-0.080	0.404	1.323	0.188
After-BMI	21.12	3.19	33.50	16.16	0.29				

The data presented in the table is regarding the effects of a specific intervention involving physical curriculum implementation on the test outcomes of the Body Mass Index (BMI). BMI serves as a measurement for evaluating the correlation between an individual's weight and height, commonly used to determine if a person's weight falls within a healthy range.

Mean change: Following the intervention, there was a decrease in the mean BMI from 21.28 to 21.12, indicating a slight overall downward trend in BMI.

Standard deviation change: The standard deviation reduced from 3.54 to 3.19 after the intervention, suggesting a decrease in variability (individual variation) in BMI and potentially leading to a more concentrated distribution of BMI.

Paired sample T-test: The bilateral Sig value was recorded as 0.188, surpassing the commonly used significance level of 0.05, signifying that the disparity in BMI before and after the course intervention did not reach statistical significance possibly due to factors such as insufficient duration or intensity of the intervention or substantial individual differences.

95% confidence interval: The range within this interval encompasses zero (i.e., no difference), with upper and lower limits at -0.080 and 0.404 respectively, further reinforcing that there is no statistically significant difference in BMI before and after the intervention. Conclusion: The fitness course did not yield statistically significant effects on BMI intervention; however, it may still be beneficial for certain individuals.

Optimizing Intervention Strategies: Given substantial individual differences observed, it is recommended to develop more personalized interventions tailored for different groups to enhance relevance and effectiveness.

2.2 Before and after implementing the physical curriculum, an analysis was conducted on the physical ability results of students.

2.2.1 Strength and quality analysis: pull-ups involve standing up and rising, sit-ups require sitting up, and supine positions are utilized.

The intensity of load in strength training plays a vital role in enhancing maximum force output. Load factors include weight, repetition count, set duration, and rest intervals. To improve maximum force, it is recommended to train at 70% of the maximum load capacity. Controlling the number of sets to 4 is optimal. Each set should last for at least 12 seconds with a 3-minute rest interval. For training at 70-90% of the maximum load, sets can range from 4 to 6. Set duration should be 8 to 10 seconds with the same 3-minute rest interval. Begin with squat exercises and transition to standing up drills.

Figure 10 ANALYSIS CHART OF THE AVERAGE VALUES OF ONE-MINUTE SIT UPS AND PULL–UPS

The data depicted in the above figure illustrates that following the experiment, the average scores for Class 01, Class 02, and Class 03 were 65.67, 65.76, and 52.23 points, respectively. Prior to the experiment, the average scores for Class 01, Class 02, and Class 03 were 45.56, 52.23, and 56.58 points. It is evident that the average score for the standing long jump test post-experiment (blue) surpassed that pre-experiment (green), indicating enhancement in students' lower limb motor skills following the intervention.

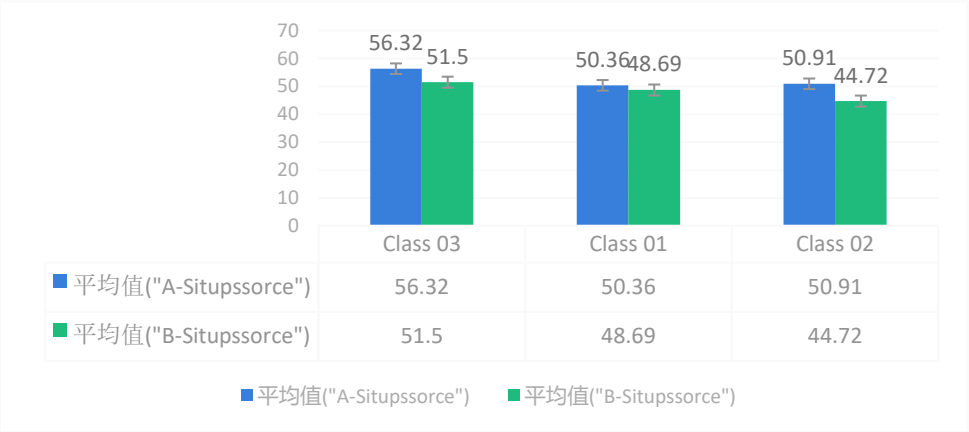

Figure 11 COMPARATIVE ANALYSIS OF SIT-UP SCORES OF STUDENS (FEMALE) BEFORE AND AFTER THE EXPERIMENT

As indicated in the image above, the mean scores for Class 01, Class 02, and Class 03 post-experiment were 56.32, 50.36, and 50.91 points respectively. In contrast, the scores for Class 01 and Class 02 pre-experiment were 51.5, 48.69, and 44.72 points. The average scores for the sit-up test for females post-test (blue) displayed a general enhancement compared to the pre-test scores (green). This indicates that following the experimental intervention, there has been an enhancement in the students' ability to perform abdominal muscle movements.

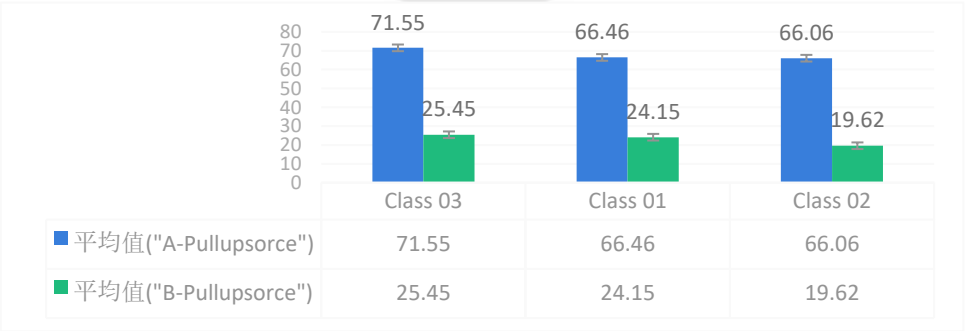

Figure 12 COMPARATIVE ANALYSIS OF STUDENTS' PULL-UP PERFORMANCE BEFORE AND AFTER THE EXPREIMENT

As shown in the illustration above, the mean scores for Class 01, Class 02, and Class 03 post-experiment were 66.46, 71.55, and 66.06, respectively, whereas the mean scores for Class 01 and Class 02 pre-experiment were 25.45, 24.15, and 19.62. The mean score for students' pull-up assessment after the experiment (blue) displayed an increase compared to pre-experiment (green). These results indicate an enhancement in students' upper limb motor skills following the experimental intervention.

2.2.2 Upper limb strength training method and means

Conduct a series of teaching experiments over a period of 7 weeks, focusing on upper limb strength training for all students each week. Evaluate their grip strength, back muscles, ability to perform pull-ups, forward bend while seated, and sitting posture in order to identify the optimal indicators for upper limb strength.

Figure 13 PUSH-UP MOVEMENT TRAINING CORRECTLY AND ERROR COMPARISON CHART

The figure illustrates that "Error movements 1, 2, and 3" are frequently susceptible to misalignment. Practicing standard movements is the correct course of action. In addition to engaging the group and chest muscles, these movements also target muscle groups such as shoulders, upper limbs, triceps, biceps, and other muscle groups. Consistently incorporating push-ups into your routine will lead to a rapid

increase in muscle endurance. The primary objective is to enhance the muscle strength of the upper limbs, chest, back, and abdomen. This will result in significant improvements to physical abilities. For instance, individuals who previously struggled to lift heavy objects due to weak arm muscles will find it much easier after consistent practice.

Table 16 7 WEEKS OF UPPER BODY STERNGTH TRAINING METHODS AND MEANS

Weeks	Training content
Week 1: Basic strength training	Push-up: 3 groups, 10 times each. Wall push-ups: 3 groups, 10 times per group. Shoulder stability training (such as side flat lift+shoulder around). Push-ups (such as diamond push-ups or tilting push -ups): 3 groups, 8 times each.
Week 2: Increase the intensity of training	Balanced push-ups: 3 groups, 8 times per group. One-handed wall push-ups: 3 groups, 5 times per group/side. Enhanced shoulder stability training (such as side flat lift+rotation) Push-ups (such as one-handed push-ups or alternately hand-push-ups): 4 groups, 10 times per group.
Week 3: Increase muscle endurance	Balanced cushion static support: 4 groups, each group lasts 45 seconds. Static support for one-handed balance: 4 groups, 5 times per group/side. Shoulder endurance training (such as continuous side flat lift)
Week 4: Increase explosive training	Explosive push-ups: 3 groups, each group 6 times. Dynamic push-ups: 3 groups, each group 6 times. Shoulder explosive training (such as explosive side flat lift).

Table 16 (Continued)

Weeks	Training content
Week 5: Compound movement training	Balanced dynamic support: 3 groups, 8 times per group. One-handed push-up leg lift: 3 groups, 5 times per group/side. Push-up+rotation: 3 groups, 8 times each. The shoulder composite action (such as side flat lift+rotation+raising). One-handed balance push-ups: 4 groups, 5 times per group/side.
Week 6: Increase the intensity and complexity of training	Push-up variants (such as inverted push -ups or round push-ups in the air): 4 groups, 8 times each. Single-handed wall push-up+leg lifting: 4 groups, 5 times per group/side. The shoulder composite action is enhanced (such as side flat lift+rotation+raising+decrease). One-handed balance push -ups+rotation: 3 groups, 5 times per group/side.
Week 7: Functional training and core stability training	Dynamic flat support: 3 groups, 8 times each. Core stability training (such as flat support or core roller training).

After completing a 7-week upper limb strength training program, there will be a significant improvement in muscle strength in the upper body, specifically targeting the pectoral muscles, shoulders, and arms. This results in increased overall strength and power. In addition to strength gains, upper limb training also enhances muscle endurance, allowing for longer periods of physical exertion without experiencing fatigue. This is particularly beneficial for maintaining posture and prolonged physical activity. Furthermore, engaging in upper limb strength training leads to improved joint

stability, reducing the risk of injuries and promoting better coordination and balance. The cumulative effect of these changes over the course of the training program results in a healthier, stronger, and more coordinated body. Overall, power training for the upper body has a positive impact on overall health and well-being.

2.2.3 Analysis of pull-ups development of physical ability curriculum

Table 17 COMPARATIVE ANALYSIS OF STUDENTS' PULL-UPS SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-pull-ups	5.83	0.64	19	0	4.057				
						-7.511	-5.589	-9.197	<0.001
After-pull-ups	12.38	0.45	21	8	2.844				

Based on the information presented in the form, the data indicates the impact of implementing a physical curriculum intervention on the outcomes of the "Pull-ups" test. The Pull-ups test assesses upper body and core strength as a measure of physical ability.

In the data, the performance of students in pull-ups before and after the physical fitness course was compared. Here's a breakdown of the data:

Mean change: The average number of pull-ups before class was 5.83. After class, the average number of pull-ups increased to 12.38.

The average increase is 6.55 times (12.38-5.83), which is a very significant improvement.

Standard deviation: The standard deviation of pull-ups before class is 0.64, which means that students' pull-up performance before class is relatively concentrated.

Maximum and minimum values: The maximum number of times before the experiment was 19 and the minimum number of times was 0, showing a large difference. After the experiment, the maximum number of times was still 21 (possibly for students with high physical ability), but the minimum number was increased to 8, indicating that even students with weak physical ability had improved.

The T-value is -9.197, which is a very large negative number, meaning that the mean difference between the two samples is very significant. The corresponding p value is 0.000, indicating rejection of the null hypothesis (i.e., no significant difference in the number of pull-ups before and after the course) at the set significance level. This means that the physical fitness course has significantly improved the students' pull-up ability.

The lower limit of the 95% confidence interval is -7.511 and the upper limit is -5.589, which does not contain 0, further supporting the conclusion that the course has a significant impact on students' pull-up ability.

Based on the above analysis, we can draw the following conclusions:

The course significantly improved the students' pull-up ability, increasing the average number of pull-ups from 5.83 to 12.38. After the course, students' pull-up performance was more consistent and their overall performance improved significantly. The results of T-test and confidence interval support the conclusion that physical fitness courses have a positive effect on students' pull-up ability.

Figure 14 COMPARATIVE ANALYSIS OF STANDING LONG JUMP PERFORMANCE OF STUDENTS BEFOR AND AFTER EXPERIMENT

2.2.4 Waist and abdomen training method and means

Conducting teaching experiments for a duration of 7 weeks, with basic training sessions lasting 2 hours each week. The training program includes stability training, core strength strengthening, balanced exercises, aerobic workouts for flexibility, explosive training techniques, and holistic functional training.

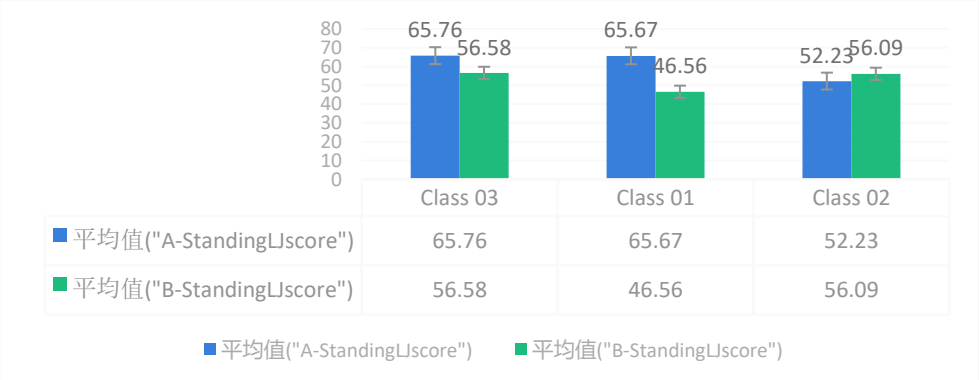

Figure 15 CORE STRENGTH EXERCISES (SIT UPS, SUPINE LEG LIFTS)

This research involved performing sit ups, known to boost abdominal muscle strength and enhance core stability. Consistent engagement in exercise over time can lead to greater development of abdominal muscles, decreased body fat, increased metabolism, and improved cardiovascular health. Furthermore, sit ups can also help in stretching back muscles, enhancing balance, and improving coordination skills. Lifting legs while lying down is a workout focused on the lower abdominal muscles. By regularly practicing this exercise, individuals can achieve weight loss and improve body shape. Persistent engagement in lifting legs while lying down can target the abdominal and leg muscles, reducing fat and aiding in weight loss. This particular type of exercise is characterized by its high intensity, with strength training helping prevent muscle loss during the slimming process. Aerobic exercise stands out as the most efficient method for calorie burning.

Table 18 7 WEEKS WAIST AND ABDOMINAL STRENGTH TRAINING METHODS AND MEANS

Weeks	Training content
Week 1: Basic training	Sit-ups: 3 sets of 15 reps. Push-ups: 3 sets of 10 reps. Plank: 3 sets of 30 seconds each. Russian Twist: 3 sets of 15 reps each.
Week 2: Stability training	Sit-ups: 4 sets of 20 reps. Push-ups: 4 sets of 12 reps. Planks: 4 sets of 40 seconds each. Russian Twist: 4 sets of 20 reps each.
Week 3: Strengthen core strength training	Sit-ups: 5 sets of 25 reps. Push-ups: 5 sets of 15 reps. Plank: 5 sets of 50 seconds each. Russian Twist: 5 sets of 25 reps each.

Table 18 (Continued)

Weeks	Training content
	Balance ball sit-ups: 3 sets of 15 reps.
Week 4: Challenge	Balance ball push-ups: 3 sets of 10 reps.
core stability	Single leg plank: 3 sets of 30 seconds each.
	High plank: 3 sets of 20 seconds each.
	Balance ball sit-ups: 4 sets of 20 reps.
Week 5: Cardio and	Balance ball push-ups: 4 sets of 15 reps.
flexibility training	Single leg plank: 4 sets of 40 seconds each.
	High plank: 4 sets of 30 seconds each.
	Weighted sit-ups: 3 sets of 10 reps.
Week 6: strengthen	Weight-bearing push-ups: 3 sets of 8 reps.
strength training	Weight Russian twist: 3 sets of 10 reps each.
	Pull the horizontal bar: 3 sets of 6 reps each.
	Comprehensive waist and abdominal training: comprehensive training of sit-ups, push-ups, planks, Russian twist and other
Week 7: Summary	movements, adjusted according to personal conditions.
and consolidation	Strength training consolidation: Perform some strength training consolidation exercises, such as weight-bearing sit-ups, weight-bearing push-ups, etc.

Table 19 COMPARATIVE ANALYSIS OF STUDENS' SIT-UPS SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-Sit-ups	38.50	7.22	56	22	0.79	-4.426	-9.917	-8.000	<0.001
After-Sit-ups	43.99	7.49	59	27	0.82				

Based on the table data above, the physical ability curriculum has been tested.

Mean change: The mean of sit-ups before the intervention was 38.50, but increased to 43.99 after the intervention. This showed that the average performance of sit-ups improved after the intervention of the physical fitness course.

Standard deviation: The standard deviations before and after the intervention were 7.22 and 7.49, respectively, indicating that the differences in performance between individuals were relatively stable before and after the intervention.

T-value and significance level: The T-value is -8.000 and the significance level (sig) is 0.000, which is well below the usual significance level threshold (such as 0.05). This meant that there was a significant difference in average sit-up performance before and after the intervention, and that this difference was statistically significant.

95% confidence interval: The lower limit of the confidence interval is -9.917 and the upper limit is -4.426, neither of which includes 0. This further confirms that the difference before and after the intervention is significant and that this difference is unlikely to be due to random error.

Based on these data, we can conclude that the physical fitness course intervention significantly improved participants' sit-up performance. This may be due to the effectiveness of the course design, the quality of instruction by the coach, or the effort and persistence of the participants. In order to maintain and improve this effect, it may be necessary to continue to implement similar physical fitness courses with appropriate support and incentives.

2.2.5 Methods and means of lower limb strength training

(1) Extensive training

The drop height ranges from 70 to 110 cm. Opting for a lower height promotes achieving top speed, while opting for a higher height allows for maximum force generation. Following the descent, promptly jump back up, aiming for maximum height. This drill can be scheduled twice weekly, with 4 sets each session, performing 8-12 repetitions per set, and allowing for a 2-minute break between sets. It is advised to refrain from engaging in this activity when fatigued.

Figure 16 LOWER LIMB STRENGTH TRAINING CHART

(2) Different jump routines

Performing step jumps, multi-tiered jumps, continuous weight jumps, stepping jumps, and hopping exercises can help students enhance their agility.

Elite athletes prefer utilizing the subsequent training techniques to enhance their reactive skills.

(3) Weight-bearing jump drills

Execute squats while holding 4.5 kg dumbbells. This routine is prepared for weekly implementation. It is advisable to consult with a medical professional or fitness specialist before commencing any new workout regimen to adapt it to individual requirements and time constraints.

Table 20 7 WEEK LOWER LIMB STRENGTH TRAINING METHODS AND TECHNIQUES

Weeks	Training content
Week 1: Basic Strength Training	Squats: 3 sets of 10 reps Standing calf raise: 3 sets of 15 reps each Static half squat: 3 groups, 30 seconds each Cross jumps: 3 sets, 1 minute each Squats: 4 sets of 15-20 reps
Week 2 – Week 5: Increase intensity	Various jumping exercises: stride jumping, multistage jumping, continuous jumping with weight, jumping steps, jumping up and down Weight jumping exercise
Week 6: Improve further Strength	Burst squat jump: 3 sets of 20 reps each One-leg calf raises: 3 sets of 10 repetitions Burst static half squat jump: 3 sets of 10 reps each
Week 7: Overall improvement in strength and stability	Single leg hard pull: 4 sets of 8 reps/side each Single leg static half squat: 4 sets, each set 45 seconds/side Standing calf raises on one leg: 4 sets of 20 reps/side Burpees: 4 sets of 8 reps each

Table 21 COMPARATIVE ANALYSIS OF STUDENTS' STANDING LONG JUMP SCORES BEFORE AND AFTER TH TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-Standing long jump	173.34	27.62	235.00	114.00	2.52	-15.176	-10.808	-11.78	<0.001
After-Standing long jump	186.33	27.97	243.00	130.00	2.55				

Based on the data presented in the table, the influence of the experimental intervention on physical education curriculum on the outcomes of the "Standing long jump" Assessment results.

Through comparative analysis of the data, it can be concluded that: Increased from 173.34cm to 186.33cm, an increase of 13cm.

Slightly increased, but basically remained stable, indicating that the degree of dispersion of the data has not changed significantly.

Although specific are not given, it can be inferred from the significant changes in the mean and standard deviation that if a paired sample T-test had been performed, then the results would likely show a significant improvement in standing long jump performance after the intervention (sig=0.000, usually indicating a very significant difference).

Based on the data provided, the standing long jump intervention in the physical fitness course has a significant positive effect on the standing long jump

performance of the participants. This suggests that the interventions in the course design are effective and may contribute to improving participants' physical fitness levels.

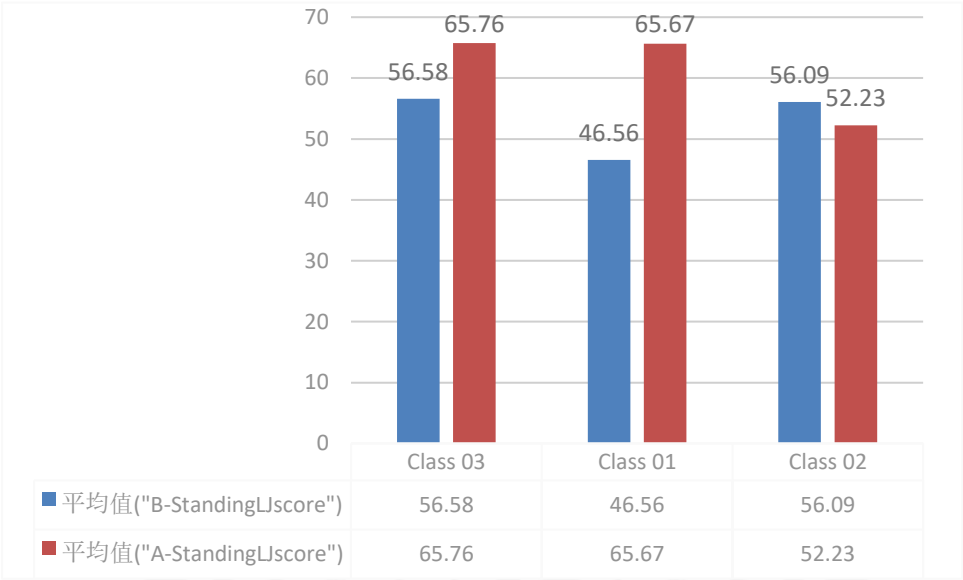

Figure 17 COMPARATIVE ANALYSIS OF STANDING LONG JUMP PERFORMANCE OF STUDENTS BEFORE AND AFTER EXPERIMENT

The data presented in the diagram reflects the post-experiment average scores for Class 01, Class 02, and Class 03 as 65.67, 65.67, and 65.76, respectively. In contrast, the pre-experiment average scores for Class 01 and Class 02 were 45.56 and 56.09 points, and 56.58 points, respectively. However, the standing long jump scores of Class 2 students were 56.09 points before the experiment and 50.23 points after the experiment, with a difference of 3.86 points before and after the experiment.. Notably, the mean value of standing long jumps increased after the intervention (blue) compared to before (green), indicating a noticeable improvement in the students' standing long jump abilities following the experimental intervention.

2.2.6 Speed quality analysis: 50 meters

Training for speed can improve muscle control, leading to enhancements in steps, strides, and reducing the time to reach the finish line. Consequently, this aids in enhancing performance in long-distance workouts.

(1) Quality of Speed

To enhance speed and endurance, it is crucial to perform repetitive practices over a specific distance. This method aids in overcoming both internal and external resistance during rapid movements. When implementing repeated exercises, it is important to consider the following factors.

(2) Intensity of Training

The intensity of practice plays a crucial role in improving athletes' mobility. The maximum speed of displacement sets the intensity limit, requiring athletes to perform at a high intensity level. Generally, strength is maintained at around 90-95%. Prior to this, some moderate warm-ups are included for adaptation. During high-intensity workouts, athletes should concentrate intensely, utilize muscle strength to its fullest capacity, increase both speed and range of motion, and strive for maximum effort.

(3) Volume of Training

Displacement speed exercises should be performed for a specific duration without exceeding a lengthy timeframe. High-intensity workouts typically last within 20 seconds for distances of 50-60 meters for running, 10-15 meters for swimming, and 100-200 meters for speed skating. The determination of repetition and sets should take into account athletes' time availability, fatigue resistance, and physical capabilities. Normally, for short-duration high-intensity exercises, aim for 6-7 repetitions per set and 5-6 sets total. For longer non-limit load periods, decrease both repetitions and sets.

(4) Intermittent Organization

The standard for the athlete's body should be a relative state of recovery. Prior to commencing the subsequent exercise, the central nervous system is reactivated. The body's physical and chemical adjustments are mostly counteracted to guarantee energy provisions for the next workout. The length of the rest period mainly depends on the duration of the training. In general, for exercise durations of 5-10 seconds, there is a rest period of 1-2 minutes, while for group intervals, it is 2-5 minutes, with a longer rest period of 10-20 minutes.

Experimental assumption

- The instruction content for training focuses on four key elements: starting, increasing acceleration, maintaining speed, and sprinting. These aspects are essential in enhancing both the speed and quality of performance.

- Teaching methods like 30-meter sprinting, speed changes over a 60-meter distance, and 80-meter running can enhance students' speed scores in sprints and boost their ability in mid to long-distance running.

- Practice of competition and gaming methods: With the limitations of movement speed, utilizing gaming methods proves to be a viable option. Implementing competitive techniques can enhance athletes' overall complexity, leading to an increased potential for achieving maximum speed. By incorporating speed, skill, and scoring systems, it serves as a catalyst for boosting competitive spirits and fostering complexity. Within gaming environments, individuals often exhibit quicker response times and execute rapid movements more efficiently than under typical circumstances.

- Method of measurement: Simultaneous use of manual stopwatch and middle to long-distance running tester. The 50-meter time is recorded in seconds, with each student conducting two trials and selecting the best performance.

- Statistical software SPSS20.0 and WPS-EXCEL are utilized to analyze the data collected according to the principles of mathematical statistics. Each data indicator is presented using $x \pm SD$, the maximum and minimum values, standard errors, and other relevant metrics.

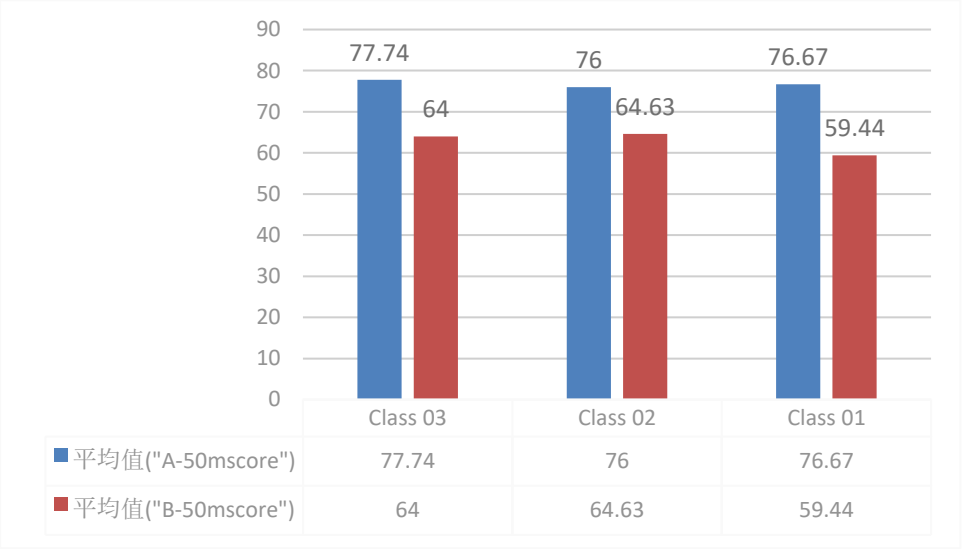

Figure 18 COMPARISON AND ANALYSIS OF THE AVERAGE SCORES OF STUDENTS IN 50 METERS BEFORE AND AFTER THE EXPERIMENT

The data depicted in the above figure illustrates that post-experiment, Class 01, Class 02, and Class 03 achieved average scores of 76.67, 76.00, and 77.74 points, respectively, for the 50-meter sprint. Prior to the experiment, Class 01 and Class 02 garnered average scores of 59.44, 64.63, and 64 points. Comparatively, there was a noticeable enhancement in the average 50-meter sprint scores post-test (depicted in blue) when contrasted with pre-test scores (depicted in green). This suggests a positive impact of the experimental intervention on the students' sprinting capabilities.

Table 22 COMPARATIVE ANALYSIS OF STUDENTS' 50 SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-50	1.10	9.18	12.30	7.00	0.10	0.794	1.053	14.109	<0.001
After-50	0.80	8.27	11.00	6.70	0.08				

Based on the data presented in the table above, the effects of implementing an intervention for the physical curriculum on the "50" test were analyzed.

Through the test data analysis before and after 50 meters

From 9.18 seconds before the intervention to 8.27 seconds after the intervention, this indicates that students' 50-meter dash performance improved by 0.91 seconds on average. This is a clear improvement and shows that the interventions in the curriculum are effective.

The Standard deviation after the intervention (0.85 seconds) was smaller than before the intervention (1.10 seconds), indicating a reduction in differences between student achievement, which may indicate that the intervention was effective for most students.

The maximum was reduced from 12.30 seconds to 11.00 seconds, and the minimum increased slightly (from 7.00 seconds to 6.70 seconds), but overall, all students improved.

The T-value is 14.109, which is a very large value, well above the threshold that would normally be considered significant (such as 1.96 or 2.58, corresponding to a 95% confidence level). Therefore, we can be confident that the difference before and after the intervention is statistically significant.

The two-sample significance (sig) was 0.000, which further confirms that the difference before and after intervention was extremely significant.

Based on the above data analysis, we can conclude that the 50-meter dash intervention in the physical fitness course has a positive impact on the sprint performance of students, with an average improvement of 0.91 seconds. The distribution of students' achievement became more concentrated, suggesting that the intervention was effective for most students. The achievement of all students improved, although the magnitude of the improvement varied from individual to individual.

2.2.7 Analysis of the teaching and effectiveness of endurance quality before and after the implementation of the physical curriculum: 800 meters and 1000 meters

Engaging in moderate to extended running can enhance the vital lung capacity in individuals. It is crucial to maintain proper breathing rhythm while undertaking such running activities. Individuals with respiratory disorders may experience a slower pace compared to those with healthier lungs, leading to discomfort, possible irritation, and physical strain during the run. In long-distance running, athletes are encouraged to adopt a standing position before commencing the race. Following the assembly at the starting line, athletes are prompted to stand still until the command "get set" is announced. At this point, they should take a deep breath before proceeding to the starting line by either walking or jogging.

(1) Enhance teaching on running techniques

Typically, as the distance of the race increases, the running stride becomes shorter. To improve running speed, it is important to accelerate the leg movements and the extension of the back kick, transitioning smoothly to a faster running pace.

(2) Maintain a steady pace while running

During middle and long-distance runs, athletes must focus on proper breathing techniques and consistent rhythm to optimize gas exchange and blood circulation. Aligning the breathing pattern with the running rhythm, athletes should follow a pattern such as one step, one step, two steps, two steps, or three steps, three steps.In the final stretch, it is common to start sprinting in the last 150-200 meters of an 800-meter race and in the last 250-300 meters of a 1500-meter race. Athletes should lean forward slightly during sprints and push through to the finish line with determination.

(3) Take effective recovery breaks

Following a rigorous training session, engage in a 30-minute jog to aid in the elimination of lactic acid build-up and accelerate the post-exercise recovery process. Implement speed and endurance training techniques to enhance energy production during middle to long-distance runs, including interval training of 30-80 meters acceleration, repetitions of 60 meters or 100 meters sprints, and varying training terrains and conditions.

Create a multi-tiered teaching structure across various courses. The goal is to spread out the teaching of speed quality and endurance quality over a span of 7 weeks. Each course should emphasize specific training content and fulfill specific criteria. For instance, the initial class could focus on the Speed +Strength+Flexibility workout; the next class might cover the Endurance +Strength+ Flexibility exercises; and the following class could combine Speed +Endurance +Flexibility exercises.

Pay attention to "multiple lessons" training:

- Based on the fundamental information regarding students' physical ability, the next step involves organizing the workload intensity and quantity for each session.

- During instruction, the amount of content covered in each lesson should not result in cumulative fatigue. The practical application of teaching methods should not fall below 90%.

- The quantity of training sessions can be modified as needed based on the workload, with a proportional increase in high demand and a corresponding decrease in the number of lessons;

- Pay attention to relaxation and recovery training after class;

- The integration of various metabolic mechanisms through power circulation exercises, along with high-intensity training loads, is employed to achieve the synchronized enhancement of overall strength. This approach also enhances speed, speed endurance, and athletic performance.

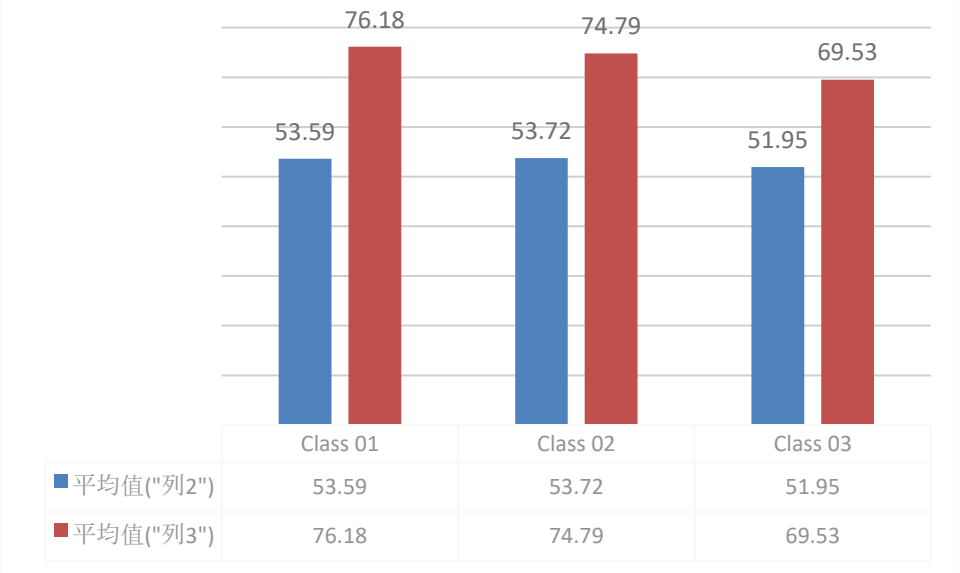

Figure 19 ANALYSIS OF STUDENTS'LONG DISTANCE RUNNING SCORE (800/1000 M) TEACHING PERFORMANCE BEFORE AND AFTER THE EXPERIMENT

The data depicted in the figure above illustrates that following the test, Class 01, Class 02, and Class 03 achieved average scores of 76.18, 74.79, and 69.53 points, respectively. Prior to the experiment, students in Class 01, Class 02, and Class 03 had average scores of 53.59, 53.72, and 51.95 points. Comparing the average test scores pre and post-experiment for 800m/1000m students, it is evident that there has been a noticeable enhancement in performance. This indicates an overall

improvement in the middle and long-distance running capabilities of the students following the experimental intervention.

Table 23 COMPARATIVE ANALYSIS OF STUDENTS' 800/1000 SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-800/1000	4.31	0.69	8.55	3.33	0.063	0.490	0.690	11.641	0.015
After-800/1000	3.73	0.35	4.56	3.22	0.032				

Based on the data provided, it appears that there is an effect of a specific intervention on the "800/1000" assessment (likely a particular task or evaluation). The following analysis is grounded in the fundamental understanding and interpretation of this information:

In the process of physical fitness course development and design, the data analysis of 800/1000 meter sprint after intervention is an important means to evaluate the course effect and students' progress. Data analysis

Decreased from 4.31 minutes before the intervention to 3.73 minutes after the intervention, indicating an average 0.58 minute improvement in students' 800/1000 meter sprint performance. This is a clear improvement and shows that the interventions in the curriculum are effective

The standard deviation after the intervention (0.35 minutes) was smaller than before the intervention (0.69 minutes), indicating a reduction in differences between student achievement, which may indicate that the intervention was effective for most students.

The maximum has been reduced from 8.55 minutes to 4.56 minutes, which is a significant improvement. The minimum decreased slightly (from 3.33 minutes to 3.22 minutes), but overall, all students improved.

The T-value is 11.641, which is a relatively large value, well above the threshold that is usually considered significant (such as 1.96 or 2.58, corresponding to the 95% confidence level). Therefore, we can be confident that the difference before and after the intervention is statistically significant.

The two-sample significance (sig) was 0.015, which further confirmed that the difference before and after intervention was significant.

Based on the above data analysis, we can draw the following conclusions:

The 800/1000m sprint intervention in the physical fitness course had a positive impact on students' middle and long distance running performance, with an average improvement of 0.58 minutes. The distribution of students' achievement became more concentrated, suggesting that the intervention was effective for most students.

The achievement of all students improved, although the magnitude of the improvement varied from individual to individual.

2.2.8 Before and after the implementation of the physical course, the analysis of flexibility

During instruction, four stretching techniques are utilized: Ballistic Stretch (BS), Dynamic Stretch (DS), Active Stretching (AS), and Passive Stretching (PS) (Passive Stretching).

Figure 20 APPROACHES TO ENHANCING FLEXIBILITY THROUGH TRAINING

The study aimed to assess the flexibility of 120 students enrolled in Sports and Health Classes 1, 2, and 3 at Zhanjiang University of Science and Technology. Prior to the study, students were instructed to sit in a flexible position at the front of their seats and perform various stretching techniques including BS, DS and CBDS over a period of 7 weeks. Participants were screened for any physical impairments before the commencement of the study. The study interventions involved the application of BS, DS and CBDS stretching techniques on the shoulder, hip, knee, and ankle joints of the participants. Flexibility measurements were taken at the first and seventh week for each of the four joints after two weeks of familiarization with the stretching techniques.

Experimental assumption

- "BS, YS, AS, and PS stretch Fara" has a great effect on the improvement of flexibility.

- "BS, YS, AS, and PS stretch Fara" stretching is better than traditional stretching methods in flexible training.

- Measurement method Siter forward flexion tester.

- The front body is flexed in CM as the unit, and each part is detected twice, and the best results are taken.

- The necessary statistical analysis of experimental data in the Mathematical Statistics Law utilizes WPS-Excel and SPSS 20.0 software. The results for each indicator are presented as X ± SD.

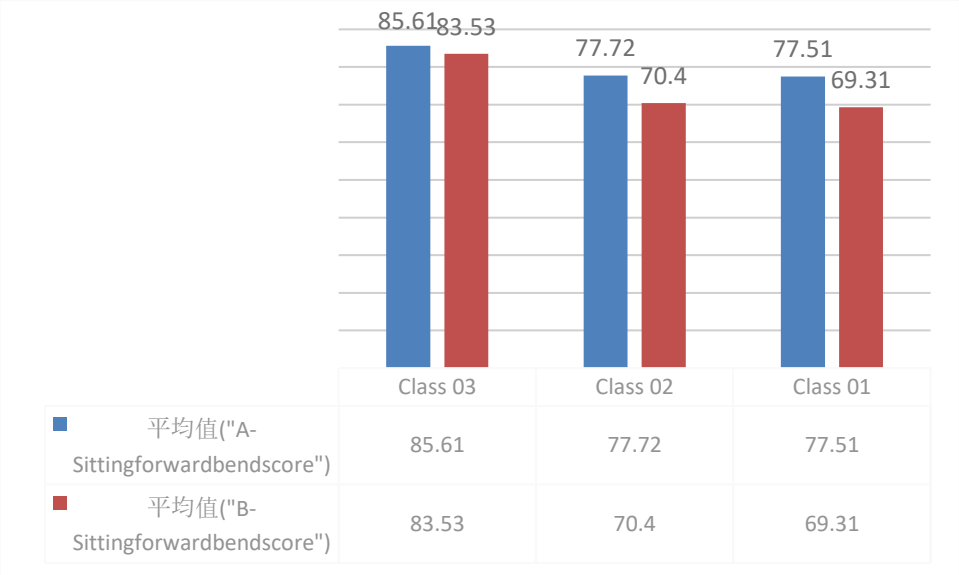

Figure 21 ANALYSIS OF STUDENTS' PERFORMANCE IN SITTING FORWARD BEND TEST BEFORE AND AFTER THE EXPERIMENT

The data presented in the figure above indicates that following the examination, the average scores for Class 01, Class 02, and Class 03 were 85.61, 77.72, and 77.51, respectively. Prior to the experiment, the average scores for students in Class 01, Class 02, and Class 03 were 83.53, 70.40, and 69.31. The post-test scores for seated forward bending students (blue) showed improvement in comparison to the pre-test scores (green), suggesting enhancements in flexibility and movement ability following the experimental intervention.

Table 24 COMPARATIVE ANALYSIS OF STUDENTS'SITTING FORWARD BEND SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-Sitting forward bend	15.72	10.01	32.40	-20.00	0.914	-6.647	-4.426	-6.568	<0.001
	0.000								

The impact of a student's physical ability flexibility on the results of the "Sitting forward bend " assessment. The forward bend test is a widely used measure of body flexibility.

In the process of physical fitness curriculum development and design, the data analysis after the intervention of sitting forward bending is an important tool to evaluate the course effect and the progress of students' flexibility.

From 15.72cm before the intervention to 18.72cm after the intervention, the students' sitting forward bending performance improved by 3.00cm on average. This is a positive change and shows that the interventions in the curriculum are effective.

The standard deviation after the intervention (6.83cm) was smaller than before the intervention (10.01cm), indicating a reduction in differences between student achievement,which may indicate that the intervention was effective for most students.

The maximum value increased from 32.40cm to 34.30cm, and the minimum value increased from -20.00cm to 3.20cm. The significant increase in the minimum is a positive sign that even students who were originally less flexible are improving.

A two-sample significance (sig) of 0.000 indicates that the difference before and after intervention was statistically significant.

It is important to note that the 95% confidence interval before the intervention was negative, which could be an anomaly or a data entry error. In general, we expect confidence intervals to describe the average difference before and after the intervention, rather than simply a negative interval.

The minimum value -20.00cm may require further investigation to confirm the accuracy of the measurement method and the reliability of the student flexibility assessment.

Based on the above data analysis, we can conclude that the sitting forward bending intervention in the physical fitness course has a positive impact on the flexibility of students, with an average improvement of 3.00cm. The distribution of students' achievement became more concentrated, suggesting that the intervention was effective for most students. Although there were some data points that needed further examination (such as 95% confidence intervals and minimums), overall, the students' flexibility improved.

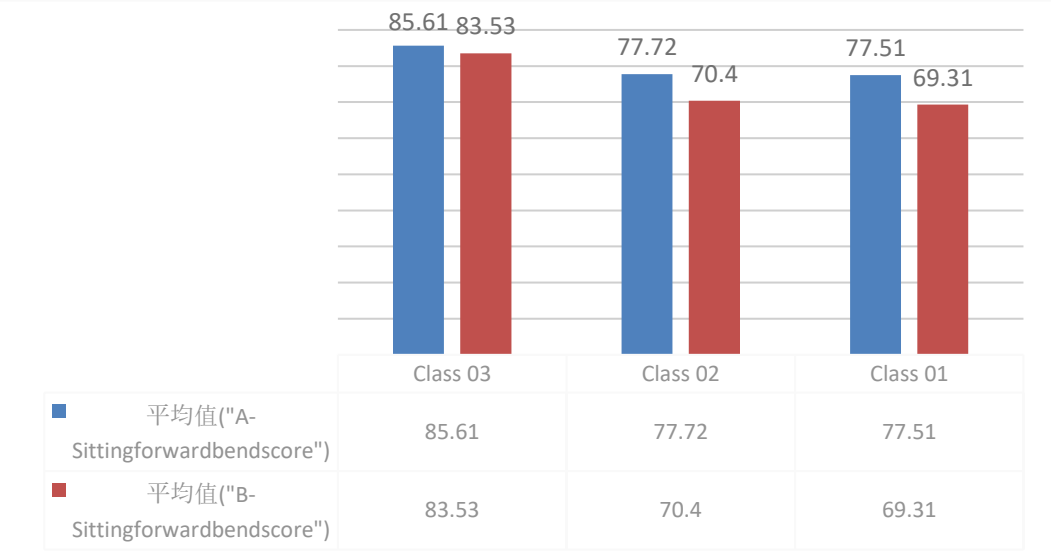

Figure 22 ANALYSIS OF STUDENTS'PERFORMANCE IN SEATED FORWARD BENDING TEST BEFORE AND AFTER THE EXPERIMENT

The figure above illustrates that the average post-test scores for Class 01, Class 02, and Class 03 were 85.61, 77.72, and 77.51, respectively. Prior to the

experiment, the average scores for Class 01, Class 02, and Class 03 students were 83.53, 70.40, and 69.31. The test results revealed that seated forward bending students demonstrated improvements in their test scores post-intervention (blue) compared to pre-intervention (green), indicating enhancements in flexibility and mobility following the experimental intervention. Following 7 weeks of physical ability instruction, the stretching technique resulted in improved flexibility of the shoulder, hip, knee, and ankle joints among 120 out of the total 2023 students.

2.2.9 Analysis of students' physical function results before and after implementing the physical course - Evaluation of students' vital capacity (maximum oxygen volume) pre and post-implementation of the physical curriculum.

After 7 weeks of training, the maximum oxygen capacity may vary. Enhanced training can lead to data enhancement, while prolonged training may result in a decrease in this capacity. The runner can interpret this data as either a comparable maximum oxygen level or as an indication of their current running capability. By analyzing these changes, one can assess their current training progress.

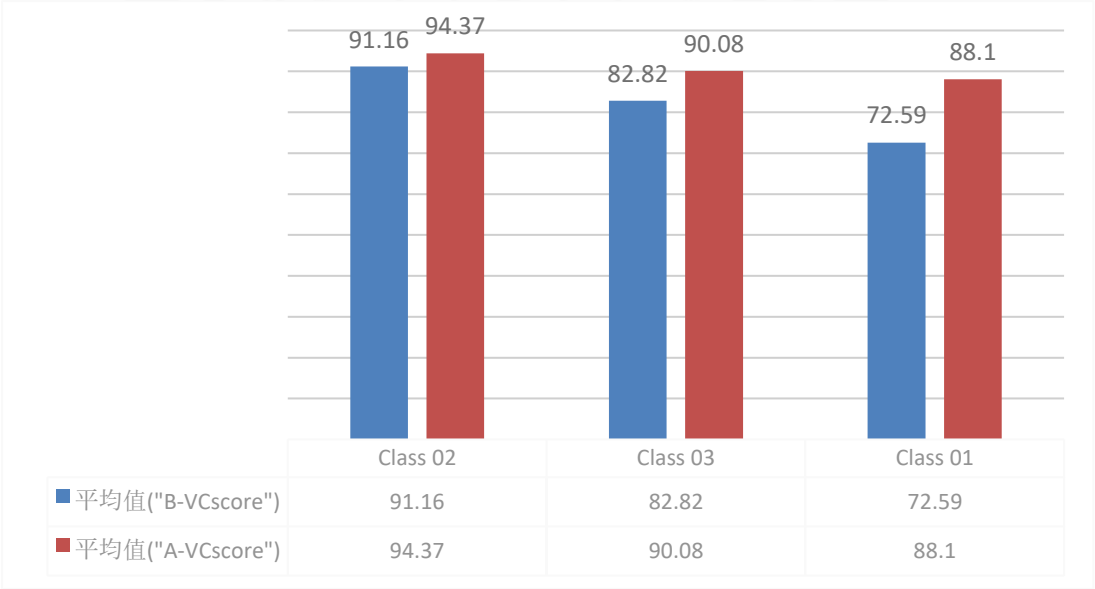

Figure 23 ANALYSIS OF STUDENTS'PULMONARY CAPACITY TEACHING PERFORMANCE BEFORE AND AFTER THE EXPERIMENT

The data presented in the figure above indicates that following the test, Class 01, Class 02, and Class 03 achieved average scores of 94.37, 90.08, and 98.10, respectively. Prior to the experiment, the average scores for students in Class 01, Class 02, and Class 03 were 91.16, 82.82, and 72.59. A comparison between the average test scores pre-experiment (green) and post-experiment (blue) reveals an overall improvement in student performance. This suggests that the experimental intervention led to enhancements in the students' pulmonary function.

The correlation between maximum oxygen volume and endurance exercise capability is evident. A higher maximum oxygen volume indicates better potential for endurance exercise among individuals. However, it does not necessarily mean that those with larger oxygen volumes have superior performance. Human movement involves various factors, including physical structure, strength, nervous system, technical abilities, movement efficiency, and training duration. Enhancing our maximum oxygen capacity is crucial for enhancing future training outcomes. It signifies an individual's cardiovascular and pulmonary adaptation and serves as a key indicator of aerobic exercise capacity. A higher maximum oxygen capacity forms the foundation for achieving optimal aerobic performance.

Experimental assumption

- In the teaching process, endurance training has increased by 800 meters/1000 meters.

- The implementation of teaching content such as "gear -speed running, timing running, and fixed running" is better than traditional physical education in endurance training;

- Measurement method mid -long run tester.

- The middle and long running in the second week, testing in the sixth week and seventh week, take the best results.

- The Mathematical Statistics Law employs SPSS20.0 and WPS-Excel statistical software for necessary data analysis and statistical calculations, with each indicator's results being $X \pm SD$.

Table 25 COMPARATIVE ANALYSIS OF STUDENTS' VITAL CAPACITY SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-Vital capacity	3798.4	1216.63	8107	1451	111.06	- 454.832	-- 221.251	- 5.73	
	0.000								

Based on the data presented in the table, the impact of experimental intervention on vital capacity can be assessed.

In the process of physical fitness course development and design, data analysis after intervention of vital capacity is an important tool to evaluate the course effect and students' flexibility progress, which can be seen from data analysis.

Data analysis

Mean change: Increased from 3798.4 ml before the intervention to 4136.5 ml after the intervention, indicating that the students' lung capacity improved by 338.1 ml on average. This is a positive change, indicating that the interventions in the curriculum have effectively improved the students' lung capacity.

The standard deviation after the intervention (931.39 ml) was smaller than before the intervention (1216.63 ml), indicating a reduction in differences between student achievement, which may indicate that the intervention was effective for most students.

The maximum increased from 8107 ml to 8704 ml and the minimum increased from 1451 ml to 2097 ml, showing an improvement in lung capacity in all students.

A T-value of -5.731 and a two-sample significance (sig) of 0.000 indicated that the difference before and after intervention was statistically significant.

The intervention in the physical fitness course effectively increased the students' lung capacity by an average of 338.1 ml. The distribution of students' achievement became more concentrated, suggesting that the intervention was effective for most students.

2.2.10 Before and after the implementation of the physical ability curriculum, students' heart rate analysis

The heart rate studied is a steady heart rate. When making a medical statement, it denotes the number of heart beats per minute while at rest and without any movement. Typically, a person's resting heart rate falls within the normal range of 60 to 100 beats per minute. If the heart rate drops below 60 beats per minute during rest, it is often referred to as sinus bradycardia (under the condition of sinus arrhythmia). When an individual ceases training or discontinues regular endurance exercises, the resting heart rate may exhibit a "reversal" effect. For example, a runner who halts training due to illness or injury may experience an elevation in heart rate after a certain period. Upon recovery, there may be a reduction in the resting heart rate (Roberts, 2020) following a period of training. After 7 weeks of endurance exercise training, during the same exercise or resting state, the activity of the sympathetic nerves decreases. As a result, the resting heart rate decreases. This signifies the optimization of nerve regulation, leading to a more efficient performance of the heart. In return, the body requires more rest.

Table 26 COMPARATIVE ANALYSIS OF STUDENTS' HEART RATE SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-Heart rate	66.97	4.60	78	57	0.420				
After-Heart rate	67.59	4.85	79	52	0.443	- 1.554	0.304	1.133	0.185

Based on the data presented in the form, the intervention effects of course experiments have an impact on Heart Rate.

The Heart rate data of students before and after the implementation of the course. the data are measured by Mean, Standard deviation, Max, Min, Standard error, and 95% Confidence Interval of the data Difference). However, your table does not have complete data in the "After-Heart rate" confidence interval and T-test section.

However, based on the information you have given, we can do the following analysis:

The mean of the Before-Heart rate was 66.97. The After-Heart rate averaged 67.59 with a mean increase of 0.62 (67.59-66.97), but the change was very small.

Standard deviation reflects the degree of dispersion of the data. The standard deviation of the Before-Heart rate is 4.60 and the standard deviation of the After-Heart rate is 4.85. This meant that the dispersion of the students' heart rates increased slightly after the course.

The maximum and minimum values give the bounds of the data range. These values changed before and after the course, but not much.

You give a T-value of 1.133, corresponding to a p-value of 0.185. This means that at the set significance level (usually 0.05), we cannot reject the null hypothesis (that there is no significant difference in heart rate before and after the course). In other words, from a statistical point of view, the impact of physical fitness classes on students' heart rates was not significant.

The confidence interval gives the possible range of differences in the means. In your data, the confidence interval for the After-Heart rate is not given. But in general, if the upper and lower limits of the confidence interval contain 0, then the difference is considered insignificant.

Based on the above analysis, we can draw the following conclusions:

The mean heart rate of the students increased before and after the physical fitness course, but the increase was very small (only 0.62 beats/minute). From a statistical point of view, physical fitness courses had no significant effect on students' heart rate ($p>0.05$).

3. The curriculum evaluation results

Upon completion of the physical education curriculum, an overall assessment was conducted on the students' health status. The data was analyzed and processed using Excel2007 and SPASS21.0 software, with results presented as $X \pm S$. a comparative analysis of the data before and after the test was performed to identify any changes. In Accounting Class 1, a total of 39 students took the test, comprising 11 male and 28 female students. Accounting Class 2 had 43 participants, with 14 boys and 29 girls. Accounting Class 3 consisted of 38 students, including 15 boys and 23 girls.

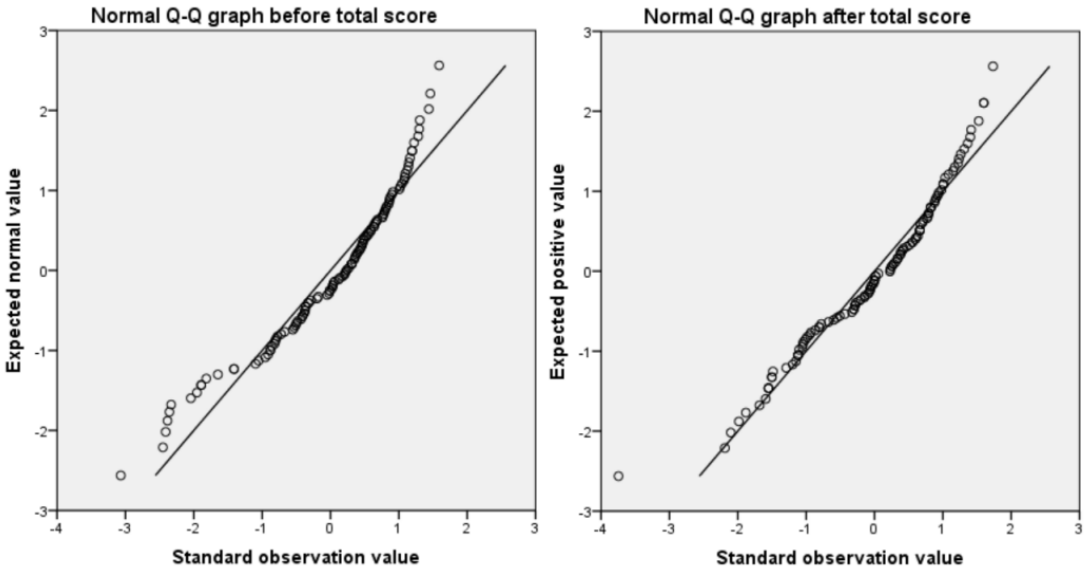

Figure 24 BEFORE AND AFTER THE IMPLEMENTATION OF THE CURRICULUM RESEARCH, STUDENTS' OVERALL HEALTH SCORES WERE NORMAL Q-Q CHART

The data collected includes a Normality test to assess whether it adheres to a typical Q-Q distribution. Two Q-Q graphs displaying normal distributions can be observed. The initial Q-Q chart demonstrates the normal distribution of students' overall physical health scores prior to the course implementation. Following this, the subsequent Q-Q graph indicates the distribution of students' physical ability levels before the physical ability curriculum experiment. The students' health levels exhibited proximity to a normal distribution pre-experiment. Furthermore, the Q-Q chart displaying the normal distribution of students' overall physical health scores after the implementation of the course also illustrates a similar pattern. The initial Q-Q graph showcases the distribution of students' physical ability levels following the physical ability curriculum experiment. Post-experiment, the health levels of the students continued to display proximity to a normal distribution.

In conclusion, comparing the two Q-Q diagrams reveals substantial shifts in students' physical well-being levels pre and post the physical training program. It illustrates that the more scattered the random variable values, the lower or broader the representation. The impact of the physical training regimen on students' physical health

levels did not experience a significant change. This indicates a noteworthy influence of the physical training program on students' physical well-being. The T-test findings indicated insignificant changes in boys' height before and after the assessment; weight variation displayed a steady decrease trend. Conversely, the BMI index exhibited a positive trend, and the analysis of vital capacity and heart rate data revealed a favorable incline. The upward body completion quantity is increasing, long-distance jumping results are significantly enhanced, front body flexion has notably improved, the performance before and after the 50m sprint test depicted an incline, the scores for the 800m/1000m run tests exhibited an upward trend, front sitting body flexion showed improvement, and the number of sit-ups increased.

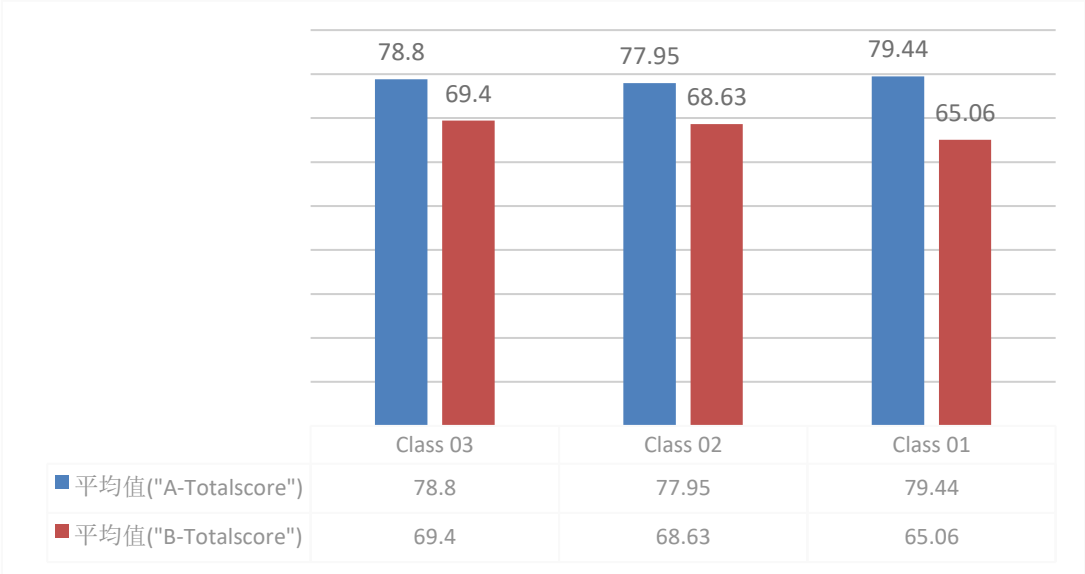

Figure 25 ANALYSIS OF STUDENTS' TEACHING PERFORMANCE BEFORE AND AFTER THE EXPERIMENT

The figure above illustrates that the average scores for Class 01, Class 02, and Class 03 post-test were 78.80, 77.95, and 79.44. Prior to the experiment, the average total scores for students in Class 01, Class 02, and Class 03 were 69.40, 69.63, and 65.06. In comparison to the pre-experiment scores (in green), there was a noticeable improvement in the students' total test scores post-experiment (in blue). This

indicates enhancement in the physical movement ability of the students following the experimental intervention.

Table 27 COMPARATIVE ANALYSIS OF STUDENTS' PHYSICAL HEALTH SCORES BEFORE AND AFTER THE TEST

Item	Mean	SD	Max	Min	Standard error	95% Confidence Interval of the Difference		T	Pair sample p-value
						Lower	Upper		
Before-Results	68.56	10.27	87.40	41.40	0.937	-11.470	-8.816	-15.134	<0.001

Analysis of statistics from the table above:

In the data, the comprehensive scores of students before and after the course were compared. From this data, we can see the following analysis:

The mean of the comprehensive score before class was 68.56. The average after-class comprehensive score was 78.70. The average has increased by 10.14 (78.70-68.56), which is a relatively large increase.

The standard deviation of the comprehensive score before class is 10.27, which means that the distribution of students' scores before class is relatively discrete. The standard deviation of the comprehensive score after class was reduced to 6.86, indicating that after the course, students' scores became more concentrated and the differences became smaller.

The maximum and minimum values of pre-class grades are 87.40 and 41.40, showing a large range of grades. The maximum score after class is 91.60 and the minimum is 56.00, which is still a large range, but the minimum score has improved significantly.

The T-value is -15.134, which is a very large negative number, meaning that the mean difference between the two samples is very significant. The corresponding P-value is 0.000, which means that at the set significance level (usually 0.05), we reject the null hypothesis (i.e., there is no significant difference in composite scores before and after the course). In other words, from a statistical point of view, physical fitness courses significantly improved students' overall grades.

The lower limit of 95% confidence interval is -11.470 and the upper limit is -8.816. This interval does not contain 0, which further supports the conclusion that physical fitness courses have a significant impact on students' overall performance.

Based on the above analysis, we can draw the following conclusions:

The physical fitness course significantly improved students' overall scores, with an average increase of 10.14 points. The distribution of students' grades after the course became more concentrated, indicating a general improvement in student performance. The results of T-test and confidence interval support the conclusion that physical fitness courses have a positive impact on students' overall performance. These data show that the design and implementation of physical fitness courses are effective and can significantly improve students' overall performance. This suggests that implementing sports-oriented courses can facilitate tailored enhancement strategies, promote students' commitment to a constructive and healthful lifestyle in both academic and personal settings, and reinforce physical activity.

The purpose of this curriculum is to cultivate students' awareness of physical exercise, stimulate students' awareness of physical exercise, and establish the will quality of hard work and tenacious struggle.

1. Evaluation standards and impact effects of curriculum implementation

Participating in sports examinations serves as a key motivator for students to engage in sports classes, showcasing their overall attitude towards sports. Additionally, the curriculum in schools emphasizes the importance of the "three bases" of sports.

1.1 The establishment of a comprehensive assessment system for physical education is a crucial component in the advancement of physical education. This system aids educators in gauging students' progress and the effectiveness of the curriculum, enabling them to identify teaching challenges and areas for improvements.

1.1.1 Defining assessment objectives: Clearly outline the intended outcomes of the assessment, which may include evaluating students' physical ability, mastery of skills, engagement, and more.

1.1.2 Developing assessment criteria: Tailor specific assessment criteria in alignment with the defined objectives, encompassing physical metrics, skill proficiency, attitude markers, attendance records, and more.

(1) Active participation: Assess students' interest and commitment to participating in physical education, evaluating factors such as attendance and classroom engagement.

(2) Athletic proficiency: Evaluate students' performance in various physical assessments, assessing attributes like strength, speed, stamina, and flexibility.

(3) Physical well-being: Gauge students' overall physical health using physiological measures like body composition, muscle strength, and cardiorespiratory function.

(4) Mental health: Scrutinize students' psychological state and emotional responses in relation to physical education, considering factors like self-assurance, determination, and collaboration.

1.2 Classroom observations, physical ability assessments, exams, and surveys are conducted to guarantee the precision and dependability of the assessment process. Implement the teaching evaluation as outlined in the evaluation scheme, and carefully gather and document relevant data and information to uphold the impartiality and equity of the evaluation.

The findings of a study on students' overall physical health literacy show that the final score (Y) is calculated using a specific formula. The variables included in the calculation are BMI (X1), vital capacity (X2), Heart rate (X3), 50-meter

(X4), Sitting forward bend (X5), standing long jump (X6), sit-up performance (X7), and endurance(800/ 1000) (X8).

The formula for Y is a weighted sum of these variables: Y = 0.15*X1 + 0.10*X2 + 0.05*X3 + 0.20*X4 + 0.10*X5 + 0.10*X6 + 0.10*X7+0.20*X8. The study aimed to assess various aspects of students' physical health in order to provide a comprehensive understanding of their overall wellness.

2. Effectiveness analysis and improvement strategies for physical ability curriculum development

The development of speed, strength, endurance, and flexibility qualities can have a beneficial impact on the physical and mental growth of students. By engaging in appropriate training, students can enhance their overall well-being and achieve psychological growth as well.

2.1 The effectiveness of physical ability curriculum development

2.1.1 Training for speed: enhances students' reaction time and movement speed. Whether in daily activities or sports competitions, quick responses can assist students in handling unexpected situations and taking advantage of opportunities.

2.1.2 Training for strength: boosts muscle power in students. Strong muscles offer better support and stability in sports and daily tasks, reducing the risk of injuries.

2.1.3 Training for endurance: improves students' cardiovascular fitness and stamina, helping them maintain focus for longer periods and cope with challenges in learning and work.

2.1.4 Training for flexibility: increases joint flexibility and muscle elasticity in students, preventing injuries and enhancing body coordination and stability, leading to improved physical performance and appearance.

2.1.5 Psychological impact: Physical activity enhances students' self-esteem, determination, and resilience. These psychological aspects play a crucial role in students' academic and personal lives, improving their social and teamwork skills.

2.2 Measures to Enhance Physical Curriculum Development

Enhancing teaching methods and reforming the teaching models by integrating specific sports to elevate the enjoyment of the course. Embracing the concept of diversity, innovating the approach to physical training, considering students' feedback, and greatly increasing the enjoyment of physical education.

2.2.1 Modernized Training Approach: Implementing contemporary teaching techniques and utilizing monitoring tools to establish a personalized "module" for physical training to amplify the effectiveness of instruction.

2.2.2 Varied Instructional Strategies: Clarity in objectives is essential for crafting tailored teaching content and approaches. To ignite students' enthusiasm for learning, a mix of instructional methods should be employed. Incorporate demonstrations, hands-on activities, and competitive games to help students enhance their physical ability in a relaxed and enjoyable setting.

2.2.3 Tailored Instruction: Recognizing the individual physical conditions and requirements of each student, personalized instruction must be provided during the teaching process. Adjust training intensity and content accordingly for students with lower physical capabilities to prevent injuries during exercise.

2.2.4 Emphasizing Practical Application: Integrating the physical curriculum with real-life situations enables students to apply their knowledge in practical scenarios. Designing simulation exercises allows students to enhance their physical ability and response skills through hands-on practice.

3. Use reasonable teaching methods to enhance students' will to exercise the body

By participating in physical courses, students experience a unique learning environment that sets it apart from traditional classroom settings. Engaging in various track and field activities necessitates a specific level of physical exertion. Competitions within physical education are notable for eliciting a range of emotions and behaviors. As a result, physical education plays a crucial role in teaching students perseverance and dedication to hard work. Engaging in physical courses helps students recognize the

vital role of this education in their personal growth. It serves as a fundamental tool for developing individual resilience and instilling the understanding that success is contingent upon possessing a strong will.

Talking about the successful experiences of exceptional Chinese athletes in conjunction with reality can be a powerful way to inspire students with their unwavering determination. This can help students understand the significance of willpower in achieving success. Moreover, tapping into the competitive spirit of college students can ignite their drive to strengthen their will. For instance, in academic competitions, students who demonstrate initiative and perseverance in tackling challenging tasks are recognized and rewarded, fostering their resolve to overcome obstacles. Research has shown that students have seen considerable improvements in their speed in activities such as the 50-meter sprint and the 800/1000-meter run as a result of physical education classes. By using competitions to pique students' interest, they are motivated to actively engage in effective practice sessions. Varying practice methods, updating content and techniques, and incorporating diverse training approaches can shift students from a passive approach to physical activity to an enthusiastic and proactive attitude, transitioning from "make me practice" to "I choose to practice." This shift helps unleash students' inner drive and plays a crucial role in cultivating their strong willpower.

4. Research instruments

In the physical ability curriculum, researchers used mainly Hengkang Jiaye students physical testing equipment and the following 9 research instruments: 1) Teaching design for physical ability curriculum; 2) Evaluation Form for Physical Education Effect; 3) Data testing before, and after the experiment; 4) Sports ability test form; 5) Student health survey questionnaire; 6) Student physical health test evaluation form; 7) Student classroom attitude evaluation form; 8) Expert interview questionnaire form; 9) Instrument for testing students' physical health.

4.1 Teaching design for physical ability curriculum

"Health first" as the guiding ideology, reflects the teacher-led, students as the main body, to cultivate students' self-study, mutual learning, self-evaluation, teacher's ability to comment. It is characterized by the close combination of physical exercises and thinking activities, with the purpose of improving students' physical health and sports ability. Through the online and offline blended teaching mode, through the teaching platform, learning process and teaching evaluation.

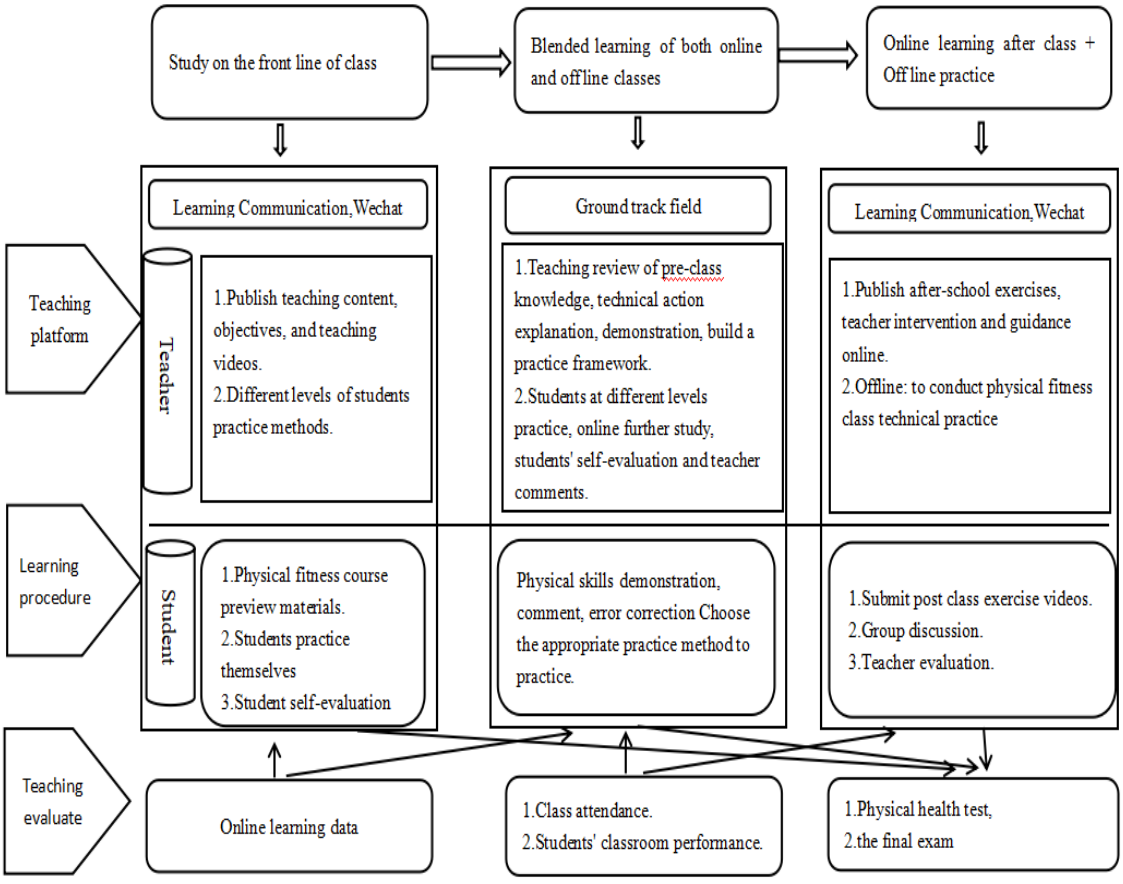

Figure 26 690 – MINUTE FLOWCHART OF BLENDED ONLINE AND OFFLINE CLASSROOM TEACHING IMPLEMENTATION

Educators create digital and traditional instructional materials, classroom teaching strategies, format, and more. Utilizing the guiding principle, analysis of learning context, instructional philosophy, educational objective, instructional emphasis, instructional challenges, teaching technique, and learning approach assumption, classroom instructional procedure and instructional evaluation.

4.2 Evaluation form for physical education effect

The evaluation of teaching effect of physical ability curriculum is carried out from three aspects:

1) Sports ability

2) Students' physical ability test table scores

3) Students' grades at the end of the semester

Research tools:

1) students' sports ability test form

2) students' physical ability test form

3) students' grades at the end of the semester form and so on

4.3 Data testing before, and after the experiment

Once the research content and participants were identified, the study proceeded with pre-experiment tests to assess exercise ability and physical health. This was done to establish a baseline physical condition for the participants before designing teaching materials and methods. In the 8 th week of the study, the participants' exercise ability and physical health were re-evaluated to determine the effectiveness of the teaching intervention.

1) Develop the experimental protocol based on existing literature

2) Detail the specific procedures and equipment needed for data collection and analysis

3) Seek expert feedback on the experimental design's practicality

4) Revise the implementation plan based on expert recommend dations

5) Commence the study following the revised implementation plan

Following the completion of the instructional trial, the participants' fitness performance and overall physical well-being were assessed, and a subsequent examination was carried out to gather data. Subsequently, the data from the trio of assessments were juxtaposed and scrutinized to uncover any notable discrepancies between the initial, intermediary, and final stages of the experiment. (Refer to Appendix 1 for further details).

4.4 Physical ability test form

Physical ability (P.A.) pertains to individuals' capacity to engage in athletic endeavors, encompassing their physical condition, characteristics, capabilities, proficiency, and cognitive aptitude. This research primarily examines individuals' velocity, power, stamina, suppleness, BMI, and other elements of their athletic performance, with a focus on students' speed, leaping prowess, dexterity in upper body movements, and endurance for prolonged physical activity.

This study is mainly from the following aspects:

1) In terms of speed and quality, run 50 meters and cross back

2) In terms of strength quality, standing long jump, sit-up (female), pull-up (male)

3) In terms of endurance quality, lung capacity

800 (female) / 1000 (male) meter

4) In terms of flexibility, sit forward flexion

5) Body function is based on height and weight (BMI).

In the study, the students' athletic ability was evaluated by the students' physical health test standard. The score distribution is as follows:

Excellent: 90-100 points ($x \geq 90$)

Good: 80-90 points ($80 \leq x < 90$)

Qualified: 60-80 points ($60 \leq x < 80$)

Failed: 0-60 (< 60)

4.5 Student health survey questionnaire

During the research stage, a comparison was made between before the experiment and after the experiment to assess their physical well-being. The essential data regarding students' physical health was collected and examined. To gain a deeper insight into students' physical well-being, the questionnaire begins with an assessment of the current state of affairs, examines the level of physical health among college students, conducts a survey on their physical well-being, and arrives at a conclusion.

According to the statistical table of students' health scores, the results are scored as follows.. (See Appendix 2 for details)

Excellent: 90-100 points ($x \geq 90$)

Good: 80-90 points ($80 \leq x < 90$)

Qualified: 60-80 points ($60 \leq x < 80$)

Failed: 0-60 (<60)

4.6 Student Physical Health Test Evaluation Form

1) Based on the literature review, devise an assessment strategy for evaluating students' physical well-being exam.

2) Develop a detailed examination outline and compile an inventory of the necessary testing gear.

3) Manage and mitigate potential obstacles that may undermine the exam outcome during the testing phase.

4) Gather data from the examination. In the investigation, the students achieved passing scores in accordance with the physical health examination criteria for students(2014).The score distribution is as follows:

Excellent: 63-70 points ($x \geq 63$)

Good: 56-63 points ($56 \leq x < 63$)

Qualified: 42-56 points ($42 \leq x < 56$)

Failed:(42>)42-0

4.7 Student Classroom Attitude Evaluation Form

Acquiring knowledge is not a passive process, but rather an active one, in which learners should not just passively receive information but be actively engaged in the process of gaining knowledge (Bruner, 1965). Physical activity can often seem boring and unexciting, and students' feelings towards physical education directly impact the effectiveness and success of teaching. By inspiring students' passion for learning, encouraging them to take an active role in their education, and establishing a vibrant and relaxed classroom environment, educators can effectively boost students' motivation to learn.

1) Are you able to fully commit yourself to engaging in sports activities?

2) Can you actively engage and successfully complete training tasks?

3) Are we able to reflect in class and acquire proficiency in motor skill?

4) Do you find value in the mentorship provided by your teachers?

According to the statistical table of student classroom attitude evaluation form, the results are scored as follows. . (See Appendix 3 for details)

Excellent: 90-100 points ($x \geq 90$)

Good: 80-90 points ($80 \leq x < 90$)

Qualified: 60-80 points ($60 \leq x < 80$)

Failed: 0-60 (<60)

4.8 Expert interview questionnaire form

In order to grasp the national policies and guidelines, examine the current state of student activism in relation to sports ability and physical health at colleges and universities, as well as emphasize the significance of physical capability in the teaching of physical education. Emphasize the role of physical ability curriculum within physical education instruction (refer to Appendix 4 for further information)

4.9 Instrument for testing students' physical health

Based on the feedback from experts and the physical conditions of students, the teaching plan for 16 weeks was developed. The plan included 90-minute teaching activities each week, along with the details of implementation.

1) Preparation phase of the experiment. After reviewing relevant literature, an evaluation program for students' physical health test was developed. The necessary equipment was prepared for the experiment, which began with determining the content and focus of the study. The goal was to assess students' physical condition, create teaching materials, methods, and evaluations.

2) Experiment implementation stage. The initial phase of the experiment took place in the first week, involving testing the exercise ability and physical health of the participants. Subsequently, teachers collected, organized, and analyzed the test results.

3) Later stages of the experiment. Between the 5th and 8th weeks of teaching, further tests were conducted on the exercise ability and physical health of the participants. By week 8, the collected data was analyzed and compared.

4) Results of the experiment: Data organization and comparative analysis.

A comparative analysis of the test results from before and after the experiment was carried out to identify any significant differences between the two stages.

Research method

1. Literature data method

This paper involved gathering and organizing literature through library research, consulting local university sources, and seeking advice from physical ability experts. The vast amount of material on physical ability, constrained by factors such as time, location, age, culture, and nationality, necessitates thorough literature reviews and deep understanding. Additionally, online databases like CNKI, Google Scholar, Qingli Academic, and SCI-hub were utilized to ensure the research's timeliness, scientific integrity, and depth. Initially, I conducted a comprehensive search of the physical ability

database using keywords "physical ability" and "physical education and course design." Subsequently, the search yielded 11,400 articles published between 2010 and 2023, and 1,020 articles from 1990 to 2009 in peer-reviewed sources. The majority of these articles focus on physical education within higher education institutions.

2. Questionnaire survey and expert interview method

To examine the athletic prowess and physical wellness of students attending regular universities in Guangdong Province, along with identifying issues within physical education programs, an investigation was carried out. This involved the distribution of surveys and questionnaires to assess the instructional techniques employed by educators and obtain feedback from students. A total of 5 0 0 questionnaires were dispersed across 6 educational institutions, resulting in an impressive response rate of 97.2%. To gauge the significance of physical ability in the study, a plan was devised to consult with 1 0 professionals, encompassing 6 full professors and 4 associate professors categorized by their academic ranks. Furthermore, based on their educational achievements, the panel consisted of 3 doctoral candidates, 5 master's candidates, and 2 undergraduate student

Table 28 LIST OF EXPERTS

N=5

Professional Title Academic Certificate	Professor	Associate Professor	Doctor	Master Degree
People Counting	3	2	3	2
Percentage	60%	40%	30%	50%

Following interviews with experts, it was unanimously concluded that the research regarding enhancing students' athletic prowess and overall fitness is groundbreaking. This particular study has the potential to establish the concept of lifelong physical education among students, thereby providing a strong underpinning for physical well-being.

Results of the Developing physical ability curriculum based on supercom pensation to enhance college students' sport abilities (IOC)

The development of the Developing physical ability curriculum based on supercompensation to enhance college students' sport abilities test was verified by five experts from teaching fields and companies on the objective consistency project index (IOC) of the project. See the appendix 6 for the evaluation results of each expert for a summary of the evaluation results. The design of the IOC table presented in Appendix 6 ensures alignment between the physical fitness course objectives and the content delivered, with expert evaluations exceeding 0.5. Additionally, the assessment conducted by the experts plays a significant role.

3. Classroom observation method

1) Define the purpose and goals of the observation.

2) Document and track student behavior during physical ability classes.

3) Analyze and manipulate collected observation data

4) Compile and share findings from the observation

This research involved observing physical ability classes to assess exercise duration, content, intensity, student engagement, and feedback. The goal was to enhance classroom learning and advance teaching practices by utilizing physical activities as a foundational element for physical competency development. The study specifically explored the impact of a blended teaching approach on physical education curriculum.

4. Exercise testing method

During every test session, meticulously document the specific time, location, temperature, humidity, and procedural details of each activity. Reflect on the overall process of thorough organization, documentation, and filing to guarantee the

efficiency and coherence of this document.By conducting a meticulous comparison of the physical attributes of the monitored specimens, the educational quality of classroom instruction was overseen, yielding valuable data to enhance and cultivate students' awareness of physical well-being. This study lacked substantiating evidence.

(Note: For details, see the analysis and extraction stage: classroom observation and experimental argumentation).

1) Testing instrument

During the testing process of this study, it was a Hengkang Jiaye student physical health tester. It includes: Vital capacity tester (HK6800-FH), standing long jump tester (HK6800-ZT), sitting forward flexion tester (HK6800B-TQ), round-trip tester (HK6800B-WF), middle-distance running tester (HK6800B-CP), sit-up tester (HK6800B-YW), pull up tester (HK6800B-YT), height and weight tester (HK6800B-YT), and wireless data acquisition device.

2) Test object

Experimental group: This study selected 120 students from Class 1, Class 2, and Class 3 of Accounting at Zhanjiang University of Science and Technology as the experimental subjects.

3) Experimental Plan

The experimental subjects at Zhanjiang University of Science and Technology's Ministry of Education are students. Evidence from physical health tests and psychological questionnaires was used for the experiment.

Table 29 RESEARCH TOOLS AND DATA COLLECTION

Num	Tools	Before-test	After-test	Sum up
1	Sports ability test form	Yes	Yes	
2	Student Physical Health Test Evaluation Form	Yes	Yes	
3	Student health survey questionnaire	Yes		
4	Student Classroom Attitude Evaluation Form			

5. Statistics method

The initial data from questionnaires and interviews were gathered and analyzed. Simultaneously, relevant experts and literature were consulted to ensure that the research methodology is cutting-edge. Throughout the study, data processing tools like SPSS23 and EXCEL were employed to arrange and analyze the acquired data.The physical health assessment data for the before and after the experiment were collected and sorted separately. Invalid data points were removed, and the remaining data was subjected to regression analysis. A comparison was made between the experimental group's pre- and post-test results to ascertain any differences and their statistical significance. Key statistical metrics such as percentages, averages, variances, and standard deviations were utilized to evaluate students' motor skills, physical ability test scores, and the average responses in the classroom opinion surveys. Statistical analysis revealed significant disparities between thebefore and after the experiment, with two-way ANOVA tests being conducted on the data.

Organized expert interviews and conducted statistical analysis on student questionnaires. Descriptive statistical analysis yielded the corresponding research findings. Every research method utilized in this study holds significance and necessitates genuine and unbiased data to capture the entirety of the process. It is crucial that each component, such as the questionnaire being representative and

impartial, the interviews being authoritative, and the data being accurate, contribute to the overall reliability and applicability of the eventual conclusions.

Curriculum Revision

In the education syllabus, this study offers evidence backing for its re-argumentation. The assessment form for students' belief in their abilities, self-assessment form for physical well-being, performance in class, mutual evaluation among peers in class, physical health test form, and sports performance test form are all subject to analysis in this paper. The outcomes of the adjusted educational program are detailed in Chapter 4.

CHAPTER 5
CONCLUSION AND DISCUSSION

The physical ability curriculum is firmly grounded in the philosophy of "Health First", with the primary objective of fostering students' robust physical and psychological well-being, as well as their ability to adapt to diverse external environments. Emphasis is placed on effectively enhancing students' physical ability levels, making it a pivotal aspect of the physical ability curriculum. This chapter mainly focuses on the research conclusions, and research recommendations.

Research hypothesis

The research indicates that the original hypothesis of the paper has achieved the established objective.

Through the implementation of the physical education curriculum, the basic motor abilities of college students have been significantly enhanced, and consequently, their physical health levels have been effectively elevated. This further indicates that the physical education curriculum is of crucial significance for students' physical and mental health.

Research instrument

Utilizing a student-centered approach, this investigation assessed the efficacy of the program by expertly demonstrating various research instruments. The Hengkang Jiaye physical assessment tool was employed for testing student physical health.

1. Tools for Physical Health Assessment- Evaluation tool for assessing student physical health- Instrument for evaluating student physical well-being- Physical health assessment tool for students.

2. Pre-Implementation Assessment Tools

2.1 Form for evaluating student physical ability.

2.2 Questionnaire for assessing student health.

2.3 Questionnaire for expert interviews.

3. In-Class Assessment Tools

3.1 Student self-assessment form used in class.

3.2 Feedback evaluation form for student classroom performance.

3.3 Evaluation form for teachers regarding post-class exercises.

3.4 Form for assessing student classroom demeanor.

4. Post-Implementation Assessment Tool

4.1 Teacher's assessment of student classroom achievements and understanding.

4.2 Evaluation form for student physical ability tests.

Research Methodology

This study is grounded in the fundamental principles of teaching physical education, utilizing various research methods to investigate the physical ability curriculum.

1. Method of Reviewing Literature

By employing the method of reviewing literature and data, a total of 1020 articles published between 1990 and 2009 in peer-reviewed journals were analyzed. The majority of the articles focus on physical education at institutes of higher education.

2. Survey and Interview Techniques with Experts

The methods of conducting surveys and expert interviews are fundamental and widely utilized in research. The survey method involves breaking down the aims and requirements of investigating physical ability curriculum into interconnected research tasks with measurable criteria. Expert interviews capitalize on the knowledge and experience of individual specialists to enhance creativity. The gathered data can be easily analyzed quantitatively to explore correlations and causality among various factors. Expert interviews were conducted, and student surveys were statistically assessed to derive research findings through descriptive statistics, forming a robust foundation for this study.

3. Observational Classroom Method

This method is utilized for practical research by observing the behavior of teachers and classmates during class. It allows for relatively unbiased observations of student and teacher interactions in the classroom. Students develop their own unique learning styles through listening, engaging in dialogue with teachers, and enhancing their learning behaviors, leading to new cognitive and emotional experiences. The research materials and testimonials collected provide substantial insights for classroom instruction purposes.

4. Method of Exercise Testing

By comparing the physical performance of the monitored samples, the monitoring of classroom teaching quality was conducted to gather valuable data to enhance students' focus on physical well-being. The tests are standardized, offering reference data pre and post-course implementation. They supply definitive quantitative data, simplify data analysis, and offer robust support for this research.

5. Statistical analysis

The statistical methods can be applied to analyze the data pertaining to physical health levels in the physical ability curriculum. Parameters such as Mean±Standard deviation, Maximum, Minimum, Standard error, T test, and Pair Sample Sig can help in uncovering the quantitative patterns inherent in the data. By employing statistical techniques, we can minimize the impact of random fluctuations in the data and detect the underlying regularities embedded in the statistical information. The physical health assessment results of both before and after the experiment were meticulously gathered and sifted through, removing any inadequate data points. Subsequently, the collected data underwent regression analysis, furnishing robust evidential support for the course.

Research conclusions

1. By leveraging the physical course content and incorporating local sports culture, the physical curriculum is enhanced to promote student integration and improve their health status. This valuable experience will inform the development of future college physical education courses.

2. Research highlights the inadequacies in current physical education programs, as students' express dissatisfaction with the status quo. They argue that existing physical education classes are insufficient and fail to meet their health needs. Furthermore, students lack opportunities for extracurricular sports activities. Hence, integrating physical education into sports teaching at colleges and universities is essential.

3. Following physical ability instruction, students have shown slight enhancements in their physical condition, improved physical functioning, and notable progress in fitness levels. The overall rate of physical ability qualification has seen significant improvement, with increases in both excellent and good rates, and a decrease in the percentage of students who do not meet the standards.

3.1 The study indicates a shift in the physical form of students following the implementation of a physical ability curriculum. While student height remained constant, there was a decrease in the obesity rate and an increase in the full score rate for weight. These findings demonstrate a positive impact on student BMI, particularly in the significant enhancement of the excellent rate.

3.2 The investigation reveals changes in students' physical aptitude after participating in a physical ability curriculum. Improvements were observed in speed, endurance, and strength qualities. Notably, lower limb muscle speed, explosive power, and flexibility saw significant enhancements. Specifically, performance in measures such as the 50m dash, standing long jump, sitting forward bend, and pull-up showed marked improvements post-course. Moreover, improvements in sitting forward bend distance and sit-up numbers were noted, alongside a trend towards increased weight

performance. Running test results of 800m/1000m displayed an upward trajectory post-intervention.

3.3 The study demonstrates alterations in students' physical function following engagement in a physical ability curriculum. Notably, an increase in the body's oxygen demand post-course led to improved respiratory muscle strength and enhanced air ventilation. Analysis of vital capacity and heart rate data showcased a consistent positive trend in students' physical function.

4. The evaluation process is a crucial aspect of curriculum design.

Regularly analyzing the results of curriculum evaluations helps to steer improvements in the curriculum, serving as the foundation for any necessary changes.

5. Evaluation feedback mechanism

Through studying, students can establish a structured and logically rigorous knowledge system, which helps to improve their learning efficiency and self-driven learning ability.

5.1 Process evaluation

During the experimental teaching process, the performance of students in the classroom, their exercise heart rate, frequency, and the completion of classroom exercises, as well as their physical ability tests are evaluated.

5.2 Student self-assessment

Students use their communication with teachers in class, feedback received, and their completed homework to assess their understanding and mastery of course content. Through this process, they can identify shortcomings in their learning and take measures to supplement and improve, thereby continuously deepening their mastery of professional knowledge and enhancing their professional skills.

5.3 Teacher evaluation feedback

Teachers use online interactive platforms and grading mechanisms after class to evaluate and provide feedback on student participation in class, questions raised after class, and the quality of homework completion. At the end of the course, the teacher will conduct a comprehensive course evaluation.

5.4 After class practice

Beyond course learning, students are encouraged to actively engage in self-training, integrating theoretical knowledge with practical applications. They should regularly share their experiences and acquired knowledge with their instructors during internships, so that instructors can track their progress. This helps students broaden their learning horizons, enhance their depth of thinking, strengthen motor skills, and cultivate innovative and problem-solving abilities.

Research discussions

The concepts of "educability" and "physical capability" are shaped through practices within school-based physical education programs by emphasizing "athletic competence," shared needs and interests while facilitating personal value realization and social status attainment(Evans & Penney, 2008). The proportion of sedentary lifestyle among the interviewed college students was relatively low, but there was a gender difference in the duration of weekly physical activities, with males having a higher duration. There was no gender difference in the students' body self-concept, and the relationship between the two variables was affected by various indirect factors. It is necessary to strengthen programs to promote college students' physical activities, with female students being emphasized more because lifestyle changes and the emergence of new responsibilities may cause them to abandon their exercise habits during adolescence(Sáez et al., 2020). Focusing solely on caloric intake does not effectively address challenges related to fostering long-term healthy lifestyles. Research findings concerning athletic skills, perceptual abilities, and knowledge enhancement suggest expanding options for individuals to engage in diverse forms of physical activity with higher intensity and longer duration will positively influence their commitment to lifelong fitness(Ennis, 2017). Physical education curriculum development, as a practical research focus, entails numerous crucial aspects necessitating examination at both theoretical and practical teaching levels. Constraints such as time, funding, research subjects, and capabilities limit the extent and depth of involvement by this institution and require further expansion. Research findings indicate that there are disparities in

physical education between genders, necessitating the targeted arrangement of training for various physical attributes. The physical training system comprises four subsystems: course objectives, course content, training methods, and evaluation feedback. A content system is constructed with objectives in mind, a method system is selected based on the content, and an evaluation system is established under objective guidance, resulting in a "system" effect. Course practice research demonstrates that the developed training system can better guide training practices, systematically enhancing students' fundamental motor skills, professional skills, and physical education. It is characterized by its scientific approach, effectiveness, and maneuverability.1. Physical curriculum development is established and planned according to the "Standards for Sports and Health Curriculum."

The primary focus in this process is the physical education instructors who play a key role, while the students are the central component. In conjunction with the local "Sports and Health Curriculum Implementation Plan," a scientific assessment of students is conducted. This involves aligning with national policies to create a monitoring and evaluation system for relevant physical aptitude courses.

1. Examination of Diminishing Outcomes in Standing Long Jumps Among Second Grade Students

1.1 Students' Physical body Condition

In the intervention study on promoting a positive body image among Lithuanian female students, the participants in the intervention group reported greater improvements in positive body image compared to those in the control group, with a moderate to large effect size (Balciuniene et al., 2022) . Prolonged periods of study, physical activity, or lack of sufficient rest can lead to fatigue in students, which adversely affects their performance in athletics. Any lower limb injuries—such as knee, ankle, or thigh muscle sprains—can greatly impair their standing long jump achievements. Additionally, illnesses like colds or the flu may diminish physical strength in students, subsequently reducing their jumping capabilities.

1.2 Mental Aspects

Physical activity and exercise can also prevent common mental disorders such as depression and anxiety, and have multiple beneficial effects on the physical and mental health of people with various mental disorders(Biddle, 2016). Engagement in exercise is correlated with enhanced mood and an improved quality of life. Regular physical activity not only significantly contributes to better physical health but also exerts a beneficial influence on mental well-being(Dallolio et al., 2016). Factors such as academic demands, family issues, or stressful relationships can heighten the psychological stress experienced by students, which in turn affects their concentration and performance in sports. Repeated failures or negative evaluations can undermine their self-esteem, causing reluctance to fully engage. A waning interest in standing long jumps may further diminish students' motivation, negatively influencing their outcomes.

1.3 Additional Overlooked Factors

Poor eating patterns might result in a lack of energy or nutritional deficits for students, consequently hindering their athletic capabilities. Sleep deprivation can lead to a subpar mental state, affecting their reaction times and strength when participating in sports. Furthermore, significant life changes, such as family dynamics or shifts in friendships, may also detrimentally impact students' psychological health and athletic performance. In conclusion, the reduced standing long jump performance among second-grade students can be attributed to a multitude of factors, including their physical health, mental state, and other overlooked elements. A thorough examination of these contributing issues, coupled with detailed analysis and research, is essential for accurately determining the underlying causes of performance decline.

2. Physical education curriculum development is established and planned according to the "Standards for Sports and Health Curriculum."

It is essential to foster an awareness of physical exercise among college students, nurture their interest, and help them develop a consistent habit. Additionally, refreshing course content and introducing engaging outdoor activities can enhance participation(Conkle, 2019). The primary focus in this process is the physical education instructors who play a key role, while the students are the central component. In

conjunction with the local "Sports and Health Curriculum Implementation Plan," a scientific assessment of students is conducted. This involves aligning with national policies to create a monitoring and evaluation system for relevant physical aptitude courses.

3. Exploring the Value of Constructing physical education Curriculum Content

Physical education along with sports holds significant potential in uniquely contributing towards developing fundamental motor skills and overall fitness in children—essential foundations necessary for active participation in future lifestyle choices and sporting endeavors(Fairclough & Stratton, 2005). Aerobic capacity, push-ups, sitting forward flexion flexibility and one-leg jumps improved. Potential benefits of integrating health and skill-related physical fitness elements into physical education(He, 2023). Throughout the development phase, adherence to principles such as integrity, integration, adaptability, distinctiveness, and scientific reasoning is crucial. It is necessary to further enhance the instructional materials of physical curriculum, teaching methodologies, and more.(Mahindru, 2023). The value orientation of physical education courses is a fundamental value choice issue in curriculum construction. The study examines the value orientation of physical education courses and guides the construction of physical education courses with a student-centered approach. Advocate for physical education technology to serve physical development, achieve the richness and fun of course content, and help students achieve the goal of physical exercise in happiness. The goal of physical education courses is to focus on the comprehensive development of students both physically and mentally, while also requiring the integration of students' subjective needs into various aspects of curriculum design. Developing physical education is an important goal of physical education curriculum development, but the improvement of students' mental health and social adaptability cannot be ignored. Only by achieving coordinated development of students' physical, psychological, and social adaptability can physical education courses truly implement the guiding principle of "health first". The research on the content of physical education curriculum is in the context of the guiding principle of "health first" and the urgent need

to improve the physical health level of students. Taking the reality of physical exercise as the starting point. Based on the necessity of offering physical education curriculum, a thematic physical education course content system has been constructed from a theoretical perspective, and the feasibility and effectiveness of physical education course content have been verified in practical exploration.

4. The physical education curriculum development and teaching plan

It should not be limited to a mere 14 weeks. It is recommended to extend the duration to 36 or 72 hours to better enhance students' physical well-being. On the basis of carefully constructing the content plan of physical ability courses, a second round of action research was conducted in collaboration with the physical education teachers of Zhanjiang University of Science and Technology, selecting the accounting major at the 23rd level.

5. Emphasize the significance of implementing the physical curriculum to enhance students' overall health.

Establish a teaching philosophy centered on promoting students' health improvement(Zhou.Y., 2023). Based on the data and materials collected from practical teaching and interview questionnaires, it can be seen that the content system of physical ability courses is not only feasible in teaching practice, but also helps to improve students' enthusiasm and ability for physical exercise(Zhang, 2015). The physical curriculum plays a vital role in elevating students' health status. By fostering a clear understanding of the teacher-student relationship, the goal is to enhance students' health and sports cultural literacy, as well as promote a healthy lifestyle with the guidance of teachers.

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APPENDIX

APPENDIX 1

ATHLETIC ABILITY TEST SHEET

Athletic Ability Test Sheet

Name: Gender: Age:

Class: Major:

1. Body Mass Index, (BMI), how tall are you in centimeters? ( ) cm.

   Howmuch do you weigh in kilograms? ( ) kg.

2. What is your grip strength in kilograms? ( ) kg.

3. Your upper limb weight -- how many kg is bench press. for example, ( ) kg.

4. How long is your plank? ( ) seconds.

5. How many sit-ups do you have? ( ) sit-ups.

6. How many abdominal muscle strength tests (from two ends) do you take?

( ) from two ends.

7. What is your score of flexibility (sitting forward bend)?

( ) centimeters.

8. How many freehand squats do you have? ( ) freehand squats.

9. What is your standing long jump in centimeters? ( ) centimeters.

10. Your heart and lung function. measured by the step test. how many times per minute?

( ) times.

11. What is your maximum lung capacity in milliliters? ( ) milliliters.

12. What is your 12-minute endurance run time in seconds?

( ) seconds.

13. What was your time in 50 meters? ( ) seconds.

APPENDIX 2

ASURVEY QUESTIONNAIRE ON THE DEVELOPMENT AND DESIGN OF PHYSICAL ABILITY CURRICULUM FOR COLLEGE STUDENTS

Dear Student

In order to implement the thought of "health first" and "people-oriented" college physical education, in order to proceed from the actual situation, improve the physical education teaching effect of our school and improve the physical health of students. To made this check list. only for scientific research. This study does not have any legal responsibility. I hope you will fill it out seriously and truthfully.

1. What is your current grade level?

( ) Freshman year

( ) sophomore year

( ) Third year of college

( ) Senior year

2. What is your current gender?

( ) Male

( ) Female

3. Are you interested in physical ability curriculums?

( ) Very interested

( ) Interested

( ) Generally

( ) Not very interested

( ) Completely uninterested

4. What do you think is the importance of physical ability curriculums in university education?

( ) Very important

( ) Important

( ) Generally

( ) Not very important

( ) Completely unimportant

5. What content would you like the physical ability curriculum to include? (Multiple Choice)

( ) Basic physical training (such as running, jumping, etc.)

( ) Team sports events (such as basketball, football, etc.)

( ) Fitness training (such as strength training, aerobic exercise, etc.)

( ) Stretching exercises such as yoga or Pilates

( ) Outdoor exploration or orienteering

( ) Other

6. Which teaching method of physical ability curriculums do you prefer?

( ) Traditional classroom teaching

( ) Outdoor practical teaching

( ) Online and offline blended learning

( )Combining self-directed learning with guidance

7.How do you think physical ability curriculums should evaluate student performance?

( ) physical ability tests (such as running speed, long jump distance, etc.)

( ) Attendance rate

( ) Classroom participation

( ) Team collaboration ability

( ) Self reflection and summary

( ) Other:

8. Do you wish to combine physical ability curriculums with other curriculums such as mental health, nutrition, etc?

( ) Yes

( ) No

9.How often do you think physical ability curriculums should be offered?

( ) Once a week

( ) Every two weeks

( ) Once a month

( ) Other:

10. What are your suggestions or opinions on the physical ability curriculums currently offered by the school?

APPENDIX 3

EVALUATION FORM OF STUDENT PERFORMANCE IN CLASS

Evaluation Form of Student Performance in Class

Items	A	B	C	Self- assessment	Peer evaluation	Teacher evaluati
1.Listening to class	Listen carefully and pa full attention	Able to listen carefully a occasionally get distracted	Have no mind to listen in class			
2.Speech situation	Speak up and participa in discussions	Occasionally speak u and participate in discussions	Do not speak. do not participate the discussion			
3.Classroom learning situation	Study hard	Able to study hard	Can't study hard in class			
4.Classroom practice situatio	Complete all class exercises	Complete a most portic of class exercises	Complete a small portion of class exercises			
5.Master sports skills	Complete mastery	Basic mastery	Not in full mastery			
6.Cooperative learning situation	Perfect cooperate with each other	Basic to cooperate with each other	No cooperation			
7.Completion of class assignments	over finish	Basically finish	Fail to finish			
Subtotal						

Note: A is 8-10 points. B is 6-8 points. and C is 0-6 points.

APPENDIX 4

EXPERT INTERVIEW QUESTIONNAIRE FORM

Expert Interview Questionnaire Form

Objective: To understand the national policies and guidelines, the current situation of student activism 'sports ability and physical health in colleges and universities, and the importance of physical ability in physical education teaching. Highlight the position of physical ability curriculum in physical education teaching.

1. What do you think is the current situation of physical ability curriculums for college students?

2. What are the main challenges and problems faced by physical ability curriculums for college students?

3. How do you evaluate the current curriculum and teaching content of physical ability curriculums for college students?

4. What concepts do you think should be followed in the development and design of physical ability curriculums for college students?

5. How to integrate diverse elements such as health, fitness, and competition into college students' physical ability curriculums?

6. What are the main teaching contents that you think college physical ability curriculums should include?

7. What teaching methods and means do you recommend for different teaching contents?

8. How do you think the evaluation system for physical ability curriculums for college students should be constructed?

9. Can you share some successful cases or experiences?

10. What are your suggestions or opinions on the development and design of physical ability curriculums for college students?

APPENDIX 5

LIST OF EXPERT INFORMATION

List of expert information

NO.	Name	Job Title	Area of Expertise	Education Background	Years of Work	Main Performance
1	Expert A	Professor	PE curriculum development	master	35	Presided over three provincial projects and published core papers
2	Expert B	Professor	Physical training theory and practice	Undergraduate	35	He has published 2 SCI-articles, published 2 textbooks, and presided over 2 provincial and ministerial projects. Published 20 articles.
3	Expert C	Associate professor	Physical training course design	Doctor	25	He presided over 2 provincial-level projects, published 5 Chinese core papers, and published 1 textbook.
4	Expert D	Associate professor	Infant physical fitness course	master	25	He presided over 2 provincial-level projects, published 5 Chinese core papers, and published 1 textbook.
5	Expert E	Associate professor	Infant physical fitness course	master	17	He presided over 2 provincial-level projects, published 4 Chinese core papers, and published 1 textbook.

APPENDIX 6

SUMMARY TABLE OF THE EXPERT EVALUATION RESULTS

Summary table of the expert evaluation results

Question	Evaluation dimension					Total Points	IOC	Paraphase
	Expert1	Expert2	Expert3	Expert4	Expert5			
Strength training	+1	+1	+1	0	+1	4	0.8	pass
1. Squat training	+1	+1	+1	-1	+1	3	0.6	pass
2. 10 consecutive leapfrog drills	0	+1	+1	+1	+1	4	0.8	pass
Speed training	+1	0	+1	+1	+1	4	0.8	pass
1. 50 meter run training	0	+1	+1	+1	+1	4	0.8	pass
2. 30 meter sprint training	+1	+1	+1	-1	+1	3	0.6	pass
Endurance training	+1	+1	0	+1	+1	4	0.8	pass
1. 2km Jog	+1	0	+1	+1	+1	4	0.8	pass
2. 1 minute high leg lift training	+1	+1	0	+1	+1	4	0.8	pass
Flexibility training	+1	+1	+1	+1	-1	3	0.6	pass
1. Stretching training	+1	+1	+1	+1	-1	3	0.6	pass
Agility training	+1	+1	0	+1	+1	4	0.8	pass
1. Agile ladder	0	+1	+1	+1	+1	4	0.8	pass
Organization and management	+1	0	+1	0	+1	3	0.6	pass

1. Setting goals	+1	+1	+1	+1	-1	3	0.6	pass
2. Team training	0	+1	+1	+1	0	3	0.6	pass
Strategic Decision-making	+1	+1	0	+1	+1	4	0.8	pass
1.Assessing needs	0	+1	+1	+1	+1	4	0.8	pass
2 .Measure strengths	+1	0	+1	+1	+1	4	0.8	pass
3.Develop a plan	+1	+1	0	+1	+1	4	0.8	pass
Resource collection	+1	+1	0	0	+1	3	0.6	pass
1.Data collection	0	+1	+1	+1	0	3	0.6	pass
2.Material collection	0	0	+1	+1	+1	3	0.6	pass
3.Experience Sharing	+1	+1	-1	+1	+1	3	0.6	pass
Physical ability improvement	+1	+1	0	+1	+1	4	0.8	pass
1.Correctly view the failure	0	+1	+1	+1	+1	4	0.8	pass
2.Summaries the successful experience	+1	0	+1	+1	+1	4	0.8	Pass
3.Objective self- evaluation	+1	+1	0	+1	+1	4	0.8	Pass

APPENDIX 7

STUDENT PHYSICAL HEALTH TEST RECORD FORM

Student Physical Health Test Record Form

Class name	Name	Height	Weight	Vital Capacity	50 meters	Standing long jump	Sit forward	800/1000	1 Min sit-up	Pull-up
Class 01	陈灏华									
Class 01	丛润泽									
Class 01	龙冠宇									
Class 01	赖文杰									
Class 01	王粤伟									
Class 01	罗兴涛									
Class 01	罗志攀									
Class 01	韦常智									
Class 01	李国明									
Class 01	黄伟明									
Class 01	赖俊宇									
Class 01	苏晓婷									
Class 01	吕小雨									
Class 01	李惠贤									
Class 01	钟丽霞									
Class 01	黄晓雪									
Class 01	刘秋霞									
Class 01	黄晴									
Class 01	汤学梅									
Class 01	胡晓琴									
Class 01	李静宜									
Class 01	陈丽琪									

Class 01	林若冰									
Class 01	蔡浚乐									
Class 01	罗翠芬									
Class 01	何煊华									
Class 01	刘洁									
Class 01	张秋语									
Class 01	周盈盈									
Class 01	莫倩宜									
Class 01	章欣怡									
Class 01	陈烨									
Class 01	王馨仪									
Class 01	梁啊敏									
Class 01	刘姝姝									
Class 01	黄俊豪									
Class 01	梁志宁									
Class 01	杨秀丽									
Class 01	黄可盈									
Class 02	杨梓超									
Class 02	苏鸿飞									
Class 02	陈浩然									
Class 02	毛顺桢									
Class 02	刘家隆									
Class 02	赖伟坤									
Class 02	尹鸿泽									

Class 02	黄茗柯									
Class 02	吴烜毅									
Class 02	唐炜舜									
Class 02	黄振钊									
Class 02	汪小雨									
Class 02	单颖钧									
Class 02	陈宣霏									
Class 02	莫紫怡									
Class 02	秦雨桐									
Class 02	麦芷琪									
Class 02	朱子琳									
Class 02	梁诗墁									
Class 02	邓文妍									
Class 02	李诗妮									
Class 02	许芊晖									
Class 02	李蓉蓉									
Class 02	邓嘉敏									
Class 02	刘媛									
Class 02	吴锦婷									
Class 02	邓怡菲									
Class 02	陈施彤									
Class 02	郭秋玉									
Class 02	巫苑霞									
Class 02	叶雨馨									

Class 02	罗瑶									
Class 02	李佩芸									
Class 02	刘婷婷									
Class 02	莫雅晶									
Class 02	戴维群									
Class 02	李文辉									
Class 02	陈宇亨									
Class 02	陈鑫									
Class 02	黄馨									
Class 02	梁梓琦									
Class 02	李嘉玲									
Class 02	张鹤馨									
Class 03	唐剑涛									
Class 03	郑柯潼									
Class 03	欧阳延									
Class 03	闫博深									
Class 03	刘玮扬									
Class 03	高文明									
Class 03	刘培									
Class 03	卢开宁									
Class 03	郭滨纬									
Class 03	董玉斌									
Class 03	李晓鹏									
Class 03	莫秋玲									

Class 03	符雪薇									
Class 03	陈洁萱									
Class 03	葛幸									
Class 03	梁秋冰									
Class 03	池洁									
Class 03	刘雅琴									
Class 03	徐铭洽									
Class 03	王若馨									
Class 03	高玉莹									
Class 03	符芳芳									
Class 03	黄瑞林									
Class 03	张颖文									
Class 03	李幸滢									
Class 03	程章莉									
Class 03	李燕双									
Class 03	黄炜仪									
Class 03	梁欣怡									
Class 03	邓莹									
Class 03	潘彦彤									
Class 03	陈滢									
Class 03	李王梓									
Class 03	黄子存									
Class 03	王琳鹭									
Class 03	莫燕珊									

Class 03	苏昭月									
Class 03	黃嘉英									

APPENDIX 8

STANDARDS FOR EXAMINATION AND EVALUATION

The Ministry of Education of China issued the National Physical Health Standards for Students (Revised in 2014).

1. Assessment standard weight index of physical education curriculum evaluation

Examination content	*BMI*	*vital capacity*	*HR*	*50 Meter*	*Sitting forward bend*	*sit-up/ pull-up*	*Standing long jump*	*800/1000*
Weights%	*15*	*10*	*5*	*20*	*10*	*10*	*10*	*20*

2. BMI evaluation criteria (kg/m^2)

Level	Score	Standard
Normal	100	17.9≦X≦23.9
Low	80	X<17.9
Overweight	80	24≦X≦27.9
Obesity	60	X≥27.9

3. Assessment standard of Vital Capacity of Students (Unit: ml)

Score	100	95	90	85	80	75	70
Male	5000	4900	4800	4550	4300	4050	3700
female	3400	3350	3300	3150	3000	2650	2500
Score	65	60	50	40	30	20	10
Male	3500	3100	2900	2700	2500	2200	2000
female	2250	2000	1960	1920	1880	1840	1800

4. Heart Rate (HR) evaluation Criteria (18-25)

	Excellent	Good	Mean level (ML)79--	Unqualified
	100-90	90--80	70	70--0
Male	56-61	65-69	70-73	85+
Female	54-65	65-69	74-78	85+

6.50-meter Rating Table (Mi/Second)

Score	100	95	90	85	80	75	70
Male	6.7	6.8	6.9	7.0	7.1	7.6	8.1
female	7.5	7.6	7.7	8.0	8.3	8.6	9.3
Score	65	60	50	40	30	20	10
Male	8.4	9.1	9.3	9.5	9.7	9.9	10.1
female	9.8	10.3	10.5	10.7	10.9	11.1	11.3

6. Sitting forward bend evaluation Criteria (18-25)

Score	100	95	90	85	80	75	70
Male	24.9	23.1	21.3	19.5	17.7	14.0	10.7
female	25.8	24	22.2	20.6	19.0	16.0	12.5
Score	65	60	50	40	30	20	10
Male	6.8	3.7	2.7	1.7	0.7	-0.3	-1.3
female	6.7	6.0	5.2	4.4	3.6	2.8	2.0

7. Standing long jump evaluation criteria (18-25)

Score	100	95	90	85	80	75	70
Male	273	268	265	256	248	238	228
female	207	201	195	188	181	170	166
Score	65	60	50	40	30	20	10
Male	222	208	203	198	193	188	183
female	158	151	146	141	136	131	126

8. pull-up and sit-up(1 min) evaluation criteria (18-25)

Score	100	95	90	85	80	75	70	65	60	50	40	30	20	10
Male	19	18	17	16	15	14	13	12	10	9	8	7	6	5
female	56	54	52	49	46	41	36	33	26	24	22	20	18	16

9. 1000/800 meters evaluation criteria

Score	100	95	90	85	80	75	70
Male	3'17	3'22	3'27	3'34	3'42	3'55	4'02
female	3'18	3'24	3'30	3'37	3'44	3'57	4'09
Score	65	60	50	40	30	20	10
Male	4'15	4'32	4'52	5'12	5'32	5'52	6'12
female	4'21	4'34	4'44	4'54	5'04	5'14	5'24

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