Sports Public Service Used in Sports Teaching Curriculum

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Abstract: The application of sports public service in physical education (PE) has attracted much attention. It plays an important role in providing teaching resources, improving the quality of teaching, promoting community participation and evaluating policies. By providing a professional coaching team and state-of-the-art facilities, the Sports Public Service provides students with a good learning environment and conditions to help them fully develop their sports skills. At the same time, it also helps teachers improve their teaching level through professional training and guidance, and organizes various competitions and activities to provide students with practical training opportunities and promote the development of their comprehensive quality. In addition, sports public services can also organize community sports activities and public welfare projects, attract more social groups to participate in them, and promote social harmonious development. By evaluating policies, sports public services can find problems and deficiencies in time, and take corresponding measures to improve and perfect, provide scientific basis for decision makers, and promote the development and innovation of sports public services. Through the experiment, it can be seen that the improvement range of the academic performance of the experimental subjects is between 12% and 20% after the sports public service is used in the PE course. To sum up, the research and application of sports public service is of great significance for improving the quality of sports teaching, promoting students' physical and mental health and social participation.

Keywords: Physical Education, Public Service, Teaching Curriculum, Educational Informatization, Learning Interest

1. Introduction

In contemporary society, PE training has become an important research field. Long Bo once pointed out that "PE training is an important research" [1]. In order to better implement PE, Xu Zhixing believes that "in practice, families, schools and society need to form a PE community" [2]. Wang Hui further added: "In PE, students' good physical and mental quality should be cultivated to promote their ability and accomplishment and meet the needs of the society" [3]. In the field of higher education, Li Wenbo emphasized that "the major courses of PE in colleges and universities are the main positions to carry out moral education and cultivate people" [4].

Chen Yuan-xin had an in-depth view on the definition and importance of public service. He said, "Public service is an important means to meet the needs of people for a better life, and a positive response and direct way to ensure the needs of mass sports in the new era" [5]. Han Li agrees and adds that "the design of teaching courses in universities is of great significance" [6]. However, Wang Bo also reminded us that "at present, some students are not interested enough in learning, and their learning initiative is not strong enough" [7]. This also means that in PE teaching, it also needs to continue to explore and innovate to better meet the needs of students.

To sum up, the importance of PE training is self-evident, it can not only improve the physical and mental quality of students, meet the needs of the society, but also meet the needs of the people's better life through public services. However, it should also note that some students' learning interest and initiative are not strong enough, which requires us to constantly explore and innovate in PE teaching to better meet the needs of students. In general, the research and application of sports public service is of great significance for improving the quality of sports teaching, promoting students' physical and mental health and social participation.
2. PE Teaching Curriculum

2.1 Growth Trend of PE

The data on a university's investment in sports facilities between 2017 and 2022 comes from the annual reports of the university's finance department and sports department. To be specific:

Sports equipment expenditure: This part of the data mainly comes from the school's purchasing department and sports department. Every year, the school would purchase sports equipment according to the needs of teaching and students, and these procurement records are recorded in detail in the school's financial system. In addition, the sports department would also carry out regular inventory and maintenance of equipment, which would also incur certain costs.

PE teacher expenditure: This part of the data mainly comes from the school's personnel department and PE department. The school recruits and trains teachers every year according to the teaching needs, and these costs are recorded in detail. In addition, further training and development opportunities would be provided for existing PE teachers, and the cost of these training would also be recorded.

Other expenditure on sports: This data is mainly derived from the sports departments of the schools and the sports organizations of the various colleges. This includes improving sports venues, increasing the variety of sports courses, and organizing sports activities. The cost of each activity or project is recorded in detail and summarized in the annual report.

In order to ensure the accuracy and completeness of the data, the school also conducts regular internal audits and invites third-party auditors to conduct external audits. These audit reports are archived and made available to relevant regulators and stakeholders when required. Experimental data are shown in Figure 1.

![Figure 1: PE expenditure of a school from 2017 to 2022](image)

According to the analysis of Figure 1, it can be seen that from 2017 to 2022, a university's investment strategy for sports facilities has undergone significant changes. The expenditure on sports equipment increased from 3.9712 million yuan to 9.1094 million yuan, which reflects the high importance the school attaches to advanced sports equipment. These equipment not only meet the needs of students for diversified sports, but also improve the effectiveness and quality of PE to a great extent.

Teacher expenditure increased from 8.122,800 yuan to 12.877,800 yuan, which means that schools
have increased their investment in PE during the five years. This is not only reflected in the recruitment of more professional PE teachers, but also in providing more in-depth training and development opportunities for existing teachers to ensure that they are able to master the latest teaching methods and techniques.

The increase in other expenditures could not be ignored, from 1,018,700 yuan to 3,014,900 yuan. The funds have been used to improve sports venues, add new sports courses, organize various sports events and competitions, and introduce new sports management and teaching techniques. These initiatives not only provide students with more abundant and diversified opportunities for physical exercise, but also enrich the campus culture to a large extent, making sports an important part of the school culture.

Overall, the substantial investment in the past few years has led to a significant improvement in the university's sports facilities and teaching standards, creating a healthier, more active and beneficial sports environment for students. This also reflects the high importance the school attaches to PE and its firm determination to cultivate students' all-round development.

2.2 Characteristics of PE

As an important carrier of mental health education, PE plays an important role in promoting the healthy growth of college students' mental health and improving their overall quality [8]. In addition, PE, as an indispensable part of the school education system, assumes multiple important roles and responsibilities. It is not only a kind of cultivation and improvement of students' physical quality, but also a strong promotion of students' overall development and healthy growth. In this process, PE integrates a variety of teaching methods and concepts, aiming to cultivate students' physical and mental coordination and teamwork spirit.

The Basic Skills competition for students majoring in PE can effectively test the educational level of PE majors and improve the teaching skills of students majoring in PE. The uniqueness of PE is not only reflected in its promotion of students' physical health, but also in its ability to cultivate students' self-discipline, perseverance and teamwork. It is a comprehensive education that covers all aspects of the physical, mental and social aspects. In the process of the implementation of PE, there are some characteristics and values that need to be paid attention to and discussed.

The characteristics of PE can be subdivided into the following aspects:

Physical fitness training: PE focuses on cultivating students' physical fitness, including strength, speed, endurance, flexibility and other aspects of development. Through physical exercise, students can improve their physical function, enhance their physique and improve their physical fitness level.

Comprehensive quality training: PE not only focuses on the physical development of students, but also focuses on the cultivation of students' comprehensive quality. By participating in various sports activities and competitions, students can develop comprehensive qualities such as teamwork, competitiveness, and leadership.

Personality development: PE focuses on the respect and development of individual differences. Every student has his or her own strengths and potential in sports, and PE should provide personalized training and guidance according to students' interests and strengths, so that every student can find a sports program that suits him or her.

Health education: PE is an important part of health education. Through sports activities, students can understand health knowledge, master a healthy lifestyle, develop good exercise habits, and improve physical and mental health.

Combination of education and entertainment: PE pays attention to the combination of education and entertainment. Through a variety of sports activities and games, stimulate students' interest in learning and enthusiasm, make PE more lively and interesting.

The major of PE mainly cultivates the comprehensive quality of morality, intelligence, physical beauty [9], and the characteristics of PE make it an indispensable part of school education. It can not only promote students' physical and mental health, improve their comprehensive quality, but also cultivate students' teamwork spirit and leadership ability, laying a solid foundation for students' future development.
2.3 Sports Public Service and PE

The citizen-centered concept of public service theory is conducive to the realization of the goal of national park sharing and participation by all people [10]. As an important part of social health and public well-being, the sound and efficient operation of public sports is crucial to promoting national fitness and improving national health. However, pain points and problems in multiple areas can be observed in actual operation and management. These issues not only affect public participation in sports, but also create challenges for venues and government management. The pain points are shown in Figure 2.

![Figure 2: Pain point analysis diagram of public sports](image)

**Figure 2: Pain point analysis diagram of public sports**

The supply of high-quality public service facilities is an important aspect for cities to reflect social equity, as well as an important starting point for efficient allocation of resource elements [11]. However, the pain points of public education cannot be ignored. The main analysis of public in Figure 2 is as follows:

Limited access channels, difficult to control venue resources: When the masses participate in sports activities, they often face the problem of tight venue resources, limited access to venues, resulting in many people cannot smoothly participate in sports training and events. The solution can be to establish a centralized public sports information platform, providing a variety of sports resources, activities and training information, so that the public can easily access to all kinds of sports resources information.

Difficult to participate in sports training and events: Due to the limited resources of venues, many people cannot successfully participate in sports training and events, which brings difficulties to the physical exercise and competitive opportunities of the masses. The solution can be to regularly publish and promote upcoming sports training and events through social media, mobile apps and other digital
channels, so that people can timely learn about the time, location and registration of various events, and facilitate participation.

Scientific construction knowledge is difficult to acquire: In the field of sports, scientific training methods and construction knowledge are essential to improve the level of sports. However, it is difficult for the general public to obtain scientific training methods and construction knowledge, which leads them to be unable to get effective guidance in physical exercise. The solution can be to organize experts to carry out public scientific fitness lectures, and provide online fitness guidance and tutorials, so that the public can understand the knowledge and methods of scientific fitness, and improve the fitness effect.

Venue information and low degree of intelligence: Due to the low degree of information and intelligence of many venues, they lack advanced equipment and technical support, resulting in limited venue management and service level, which cannot meet the needs of the masses. The solution can be to invest in modern management systems, such as intelligent access control, automated equipment management, etc., to improve the information and intelligence of the venue and provide a better user experience. In addition, the construction of education informatization in today's society has been continuously promoted and the application results have been continuously accumulated [12].

Poor venue experience, low business integration ability: some venues have a poor sense of experience, outdated facilities, inadequate services, and cannot provide a good sports venue and environment. In addition, the venue's business mode integration ability is also low, unable to meet the diversified sports needs of the masses. The solution can be to cooperate with other formats (such as catering, entertainment, etc.) to carry out cross-border cooperation activities, such as sports + music, sports + food, etc., to provide more diversified experiences.

The government can not accurately obtain venue operation data: in terms of venue management and planning, the government often cannot accurately obtain venue operation data, resulting in the government can not fully understand the use of venues and management effects. The solution can be to promote the implementation of a unified data reporting system for venues to ensure the accuracy and timeliness of data, so that the government can learn about the operation of each venue in a timely manner, and provide a basis for policy formulation and resource allocation.

Public service governance is an important part of the modernization of sports governance system and governance capacity [13]. However, the collection of national health physique is difficult: the government is faced with difficulties in collecting national health physique and cannot accurately understand the physical condition of the whole people, so it cannot formulate sports policies and promote national health in a targeted manner. The solution could be to promote health checkups and physical tests, encourage people to have regular health checkups, and include the data in a unified health database so that the government can understand the health status of the entire population and provide a basis for health policies.

Unable to implement the collection of all kinds of data without two-way communication platform for information release: the government has difficulties in information collection and release, unable to establish a two-way communication platform for collecting all kinds of data and realizing information release, resulting in poor information transmission, affecting the management and promotion of sports affairs. The solution can be to establish a public sports information exchange platform to achieve two-way communication between the government, venues and the public, so that the government can timely release policies and information, venues and the public can feedback questions and suggestions, and realize information sharing and interoperability.

Many management loopholes and cost redundancy: In public sports management, there are problems of management loopholes and cost redundancy, leading to the waste of resources and low efficiency. The solution can be to adopt modern management tools and methods, such as big data analysis, cloud computing, etc., to improve management efficiency and reduce redundancy.

The timeliness and accessibility of information are not strong: the timeliness and accessibility of public sports information are poor, and many people cannot obtain relevant sports information in time, which affects their participation and understanding. The solution can be to use mobile apps, social media and other digital channels to enhance the exchange of information with the people, so that the government can release information to the people in a timely manner, and the people can easily access the relevant information, improving the timeliness and accessibility of information. It can be seen that the healthy development of public sports is not only related to the daily life and health of every citizen, but also to the long-term development of the country and the health of the nation.
3. Sports Public Service Combined with Sports Teaching Courses

3.1 Pain Point Treatment

Public service is one of the important contents of building a comprehensive society [14], and the importance of public sports in daily life as the cornerstone of national health and social harmony is unspeakable. However, at the same time, it also faces a series of challenges and pain points.

Public service is a hot topic in the field of public administration. In order to better serve the general public and improve the popularity and quality of sports, it must deeply understand these problems and find effective solutions.

Public service restricts the level of social and economic development and the realization of residents' better life. Only by accurately identifying public service demand and carrying out targeted supply can residents' demand be met and their satisfaction be improved [15]. The following are some proposed measures to address the above pain points, as shown in Figure 3:

- Establish a public sports information platform
- Hold lectures and provide online instruction
- Promote physical examinations and physical fitness tests
- Establish correct and active public opinion
- Strengthen information exchange with the public
- Cooperate with other formats
- Promote the implementation of a unified data reporting system for venues
- Establish correct and active public opinion

![Figure 3: Pain point treatment of sports public service](image)

The main ways in Figure 3 are described as follows:

Access to limited channels, venue resources are difficult to control: In addition to establishing a public sports information platform, it can also share venue resources through cooperation with communities, schools, enterprises, etc. For example, in cooperation with schools, venues can be opened after school for the use of community residents; In partnership with companies, venues can be opened for employees to use during non-working hours.

Sports training, events difficult to participate in: In addition to posting information through social media and mobile apps, sports societies and clubs can be established to organize regular training and events. For example, community sports clubs can be set up to regularly organize various sports training and competitions, so that people have more opportunities to participate.

Scientific construction knowledge is difficult to obtain: In addition to holding lectures and providing online guidance, PE platforms can also be established to provide professional PE courses. For example, in cooperation with sports colleges and professional institutions, online courses are set up so that the public can systematically learn scientific knowledge of sports construction.

Education informatization is an important means to promote education reform, realize education modernization, and ultimately enhance comprehensive national strength and international competitiveness. However, the low degree of informatization and intelligence of venues is an obstacle to sports public service and sports education [16]. In addition to investing in modern management systems, virtual reality (VR) and augmented reality (AR) technologies can also be introduced to enhance the informatization and intelligence level of venues. For example, VR technology is used to provide virtual venue visits and experiences, so that the public can know the venue facilities and environment in advance, and education informatization has become an important symbol to promote national education reform and innovative development [17].

Poor venue experience and low business integration ability: In addition to cooperating with other business formats, it can also enhance the experience and attractiveness of the venue by holding theme activities and launching special services. For example, sports and cultural festivals are held and artists and musicians are invited to perform, providing a more diversified entertainment experience for the public.

The government does not have accurate access to venue operation data: in addition to pushing venues to implement a unified data reporting system, it can also establish a venue operation evaluation mechanism to evaluate and monitor venues on a regular basis. For example, a special venue management department can be set up to supervise and evaluate the operation of the venue to ensure the accuracy and reliability of data.
Difficulty in collecting universal health physique: In addition to promoting health examination and physical fitness testing, it can also cooperate with medical institutions to establish health records and health management systems. For example, in cooperation with hospitals, physical test results can be linked to personal health records to provide personalized health management advice to the public.

Unable to implement the collection of all kinds of data without information release two-way interoperability platform: In addition to establishing a public sports information exchange platform, big data analysis technology can also be used to deeply mine and analyze the data, which can provide a more accurate basis for government decision-making. For example, through big data analysis, people's sports preferences and needs can be understood, which can provide a reference for the government to formulate sports policies.

Management loopholes, cost redundancy: in addition to the use of modern management tools and methods, it can also strengthen personnel training and management capabilities. For example, a professional venue management team can be established, training and training opportunities can be provided, and the professionalism and management level of managers can be improved.

Timeliness and accessibility of information are not strong: In addition to strengthening information exchange with the public, multi-channel information release platforms can also be established, including television, radio, outdoor advertising, etc. For example, television and radio media can be used to regularly broadcast promotional videos of sports activities and related information to improve the coverage and reach of information.

Through the implementation of the above solutions, it can effectively solve the pain points faced by the masses, venues and governments in the field of public sports. It can provide more convenient access channels, better venue resource management, more opportunities to participate in sports training and events, and more scientific access to fitness knowledge, which would promote the development of national fitness cause. At the same time, it can improve the venue experience and business integration ability through information and intelligent venue management, and provide more diversified sports and entertainment choices for the public. The government can accurately obtain venue operation data, collect national health and physical data and establish a two-way communication platform for information release, which would provide scientific basis for government decision-making and improve management efficiency and decision-making accuracy. Public sports management can be improved through cooperation, training and the introduction of modern management tools to address management loopholes and redundant costs. To sum up, joint efforts can solve the pain points in the field of public sports, promote the vigorous development of the national fitness cause, and let more people enjoy the health and happiness brought by sports.

3.2 Sports Public Service Used for Sports Teaching Courses

The objectives of the teaching curriculum can be rethink to broaden the humanistic vision of the curriculum, and at the same time to relieve the pressure caused by over-extended teaching plans. This paper explores the concept of cultural identity and attitudes towards others, and sports public service refers to the public facing sports activities and facilities provided by the government or other relevant institutions. PE curriculum is a part of the school education system, aiming at cultivating students' physical literacy and physical health. Combined with the analysis of public sports pain points, it can be considered from the following aspects:

Inadequate sports facilities: Many areas lack suitable venues and facilities for sports activities, which makes PE difficult. The government can provide better sports public services and better conditions for sports teaching by investing in the construction of sports venues, sports venues and other facilities.

Poor maintenance of infrastructure: The existing sports facilities in some areas have problems with poor maintenance, resulting in damage or non-normal use of the facilities. The government can strengthen the maintenance and management of sports facilities, ensure their long-term sustainable use, and provide stable venues and equipment for sports teaching.

Lack of teachers: PE requires professional teachers and coaches to guide students in sports activities. However, there is a shortage of PE teachers and coaches in some areas. The government can attract more talents to engage in PE and improve the quality of PE by providing training opportunities and improving treatment.

Students' low interest in sports: Some students lack interest in sports activities, which may be due to
the lack of sports cultural atmosphere or the single nature of sports activities. The government can stimulate students' interest in sports and improve their enthusiasm to participate in sports teaching by organizing diversified sports activities, such as competitions, sports meetings, fitness activities, etc.

In short, the combination of sports public service and sports teaching curriculum can solve the public sports pain points and improve the quality and effect of sports teaching by improving sports facilities, strengthening teachers and enhancing students' interest in sports.

3.3 Processing Formula

Sports public service satisfaction formula:

$$M = (0.4 \times Q + 0.3 \times S + 0.3 \times T) \times (1 + \alpha)$$

(1)

Formula (1) is used to evaluate the satisfaction of sports public service. Among them, M represents the satisfaction of sports public service, Q represents the quality of facilities and resources provided, S represents the quality of service, and T represents the quality of teaching. By weighted summation of these three indicators, the quality of sports public service can be evaluated comprehensively. The setting of the weights can be adjusted according to the actual situation and the purpose of the study to reflect the importance of different indicators. In addition, α in the formula represents additional satisfaction factors, which can be user feedback, social factors, etc., to consider other factors that may affect satisfaction.

PE teaching effectiveness formula:

$$C = (0.6 \times K + 0.4 \times I) \times (1 + \beta)$$

(2)

Formula (2) is used to evaluate the effectiveness of PE courses. Among them, C represents the evaluation of the effectiveness of sports teaching courses, K represents the improvement of students' sports knowledge and skills, and I represents the improvement of students' sports interest and participation. Through the weighted summation of these two indicators, it can comprehensively evaluate the influence of PE teaching courses on students. Similarly, the setting of weights can be adjusted to reflect the importance of different indicators according to the actual situation and the purpose of the study. β in the formula represents additional effectiveness factors, which can be student background, learning environment, etc., to consider other factors that may affect effectiveness.

Formula of matching degree between demand and supply of sports public service:

$$P = (0.5 \times D + 0.5 \times G) \times (1 + \gamma)$$

(3)

Formula (3) is used to evaluate the matching degree between the demand and supply of sports public services. P means to evaluate the matching degree between the demand and supply of sports public services. D represents demand satisfaction and G represents supply satisfaction. Through the weighted summation of these two indicators, it can comprehensively evaluate the matching degree between the demand and supply of sports public services. The setting of the weights can be adjusted according to the actual situation and the purpose of the study to reflect the importance of different indicators. γ in the formula represents additional matching factors, which can be resource allocation, policy support, etc., to consider other factors that may affect the matching degree. These formulas are designed to take into account multiple indicators and factors to more comprehensively evaluate the quality, effectiveness and compatibility of sports public services and sports teaching courses. Through the setting of weights and the introduction of additional factors, it can be flexibly adjusted according to the actual situation and research purpose to provide more accurate and detailed research results.

4. Experiment of PE Teaching Curriculum

Experimental subjects: In this paper, 10 students participating in PE courses are randomly selected. The numbers ranged from 1 to 10. The experimental group received sports public service support, while the control group did not receive any additional support.

Experiment duration: The experiment lasted for one semester, and the PE teaching course was conducted twice a week.

Experimental content: The subjects have the same PE course content, including basic sports skills,
Sports rules and tactics.

Sports public service intervention: The experimental group received additional sports public service support in the PE teaching course.

Experimental data are shown in Figure 4.

![Figure 4: Experimental data of PE public services used in PE teaching courses](image)

Through the data analysis in Figure 4, it can be seen that the academic performance improvement range of the experimental subjects after the sports public service is used in the PE course is between 12% and 20%. This indicates that sports public service has a significant positive impact on students' academic performance. After receiving sports public service support, the study performance of the experimental subjects improved significantly compared with that of the control group. This may be due to the fact that sports public services provide a better learning environment and resources, stimulate students' learning interest and enthusiasm, and thus promote the improvement of their academic performance.

5. Conclusions

The application of sports public service in PE curriculum is of great significance for improving students' academic performance, promoting physical and mental health and social participation. By providing a professional coaching team and state-of-the-art facilities, the Sports Public Service provides students with a good learning environment and conditions to help them fully develop their sports skills. At the same time, through the organization of competitions and activities, sports public services provide students with practical exercise opportunities to promote their comprehensive quality development. In addition, sports public services can also organize community sports activities and public welfare projects, attract more social groups to participate in them, and promote social harmonious development. By evaluating policies, sports public services can find problems and deficiencies in time, and take corresponding measures to improve and perfect, provide scientific basis for decision makers, and promote the development and innovation of sports public services. In the future, it can further deepen research and promote practice, explore more scientific and effective sports teaching models, strengthen cooperation with relevant departments and institutions, and jointly promote the development and application of sports public services. This can provide students with better PE resources and services, and make greater contributions to the overall development of students.
and social progress.

References