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Retraction

Retracted: Data Collection and Analysis of Physical Education Teaching Practice Based on Multisensor Perception

Security and Communication Networks

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This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] J. Tong and L. Ge, "Data Collection and Analysis of Physical Education Teaching Practice Based on Multisensor Perception," *Security and Communication Networks*, vol. 2022, Article ID 5758292, 12 pages, 2022.

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Research Article

Data Collection and Analysis of Physical Education Teaching Practice Based on Multisensor Perception

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Because our country is constantly updating training standards, the first mechanism for assessing physical fitness is far from current needs. A good assessment process can help to stimulate student learning, identify strengths and weaknesses, and better improve sports knowledge. In this paper, based on the multisensor perception of physical education and teaching practice data collection and analysis, it is found that the original sensor data often have some defects, but the Kalman filter can be processed, which can make the data more accurate. After comparing the data, it can be found that each group of data basically has an error of 0.02–0.9. After processing, the data better reflect the changes in the measurement. With the reform of the professional evolution of boxers, higher requirements have been placed on athletes. The sensor can be continuously tested. According to the experiment, the basic probability of different sensors on the test paper can be found that the fused sensor data are 1/2, while the single sensor data are 1/6, and the data of a single sensor are much lower than the confidence of fused sensors, effectively improving the comprehensive ability of boxing.

1. Introduction

Multisensory educational equipment provides an educational tool that allows multisensory utilization to facilitate student learning. The educational tool consists of a learning board with multiple sides, at least one of which includes textured features thereon to allow tactile and kinesthetic manipulation of the board [1]. The conditions of teachers teaching physical education and health (PEH) in elementary schools and their opportunities to pursue inclusive teaching to reach all students were examined. Compilation essays are not only composed of different articles that provide knowledge from the perspective of students and teachers but also include the teaching and learning process of in situ research. The first article helps to understand how different relevant variables influence motivation to learn and how cultural aspects influence the shaping patterns of attitudes, beliefs, and values shared by students. The second article considered teachers' perspectives and examined teachers' discourse representations of low-motivated students and associated beliefs about inclusive teaching and strategies for all students [2]. The aim was to examine preservice teachers' physical education training and its teaching effect on preschool physical education. Following the observation method, each of the 48 trainees recorded two lessons for data collection and analysis. Data analysis revealed that (a) student training needs to be re-examined and revised, (b) teachers' expectations for PE teaching in kindergarten may need to be revised, (c) components of effective teaching, such as time management, student organization, use of technology and others, need student improvement, (d) the school environment itself brings trouble to PE teaching, and (e) how preservice teachers attach importance to PE and their attitudes toward the curriculum, which not only affects the conduct of the curriculum but also the effectiveness of their teaching [3]. The industry believes that the National Vocational Standards Board (NPTS) is an important factor in improving student performance and says it needs a way to

recognize and reward good teachers. This study investigated the effectiveness of full-time sports education classes for NBCPET and non-NBCPET students and their students. All repetitive interviews with teachers included past skill training and changes in physical activity development and learning. In addition, NBCPET students did not differ significantly in the amount of time spent on moderately active physical activity (MVPA) compared to non-NBCPET students [4]. The industry believes that the National Vocational Standards Board (NPTS) is an important factor in improving student performance and says it needs a way to recognize and reward good teachers. This study investigated the effectiveness of full-time sports education classes for NBCPET and non-NBCPET students and their students. All repetitive interviews with teachers included past skill training and changes in physical activity development and learning. In addition, NBCPET students did not differ significantly in the amount of time spent on moderately active physical activity (MVPA) compared to non-NBCPET students [5]. Models such as physical education can give students a different and better experience. One of the main requirements for physical education is that students are socially active in group work where they have different roles and responsibilities. Elizabeth Cohen has made a comprehensive analysis of teamwork in the curriculum model. Although teamwork is well-known as an educational policy that facilitates learning, Noh Cohen found differences in student participation and achievement in teamwork and student identity. In this case, the curriculum describes specific situations according to the characteristics of the students, who enjoy participating in sports. It was assumed that circumstances would affect the social interaction of students in group work. It should be noted that the situation is determined contextually and culturally by students working in groups. Curriculum models such as physical education are a way of explaining the impact of situations on group performance as long as we recognize and value their importance [6]. Purpose: The purpose of this study was to examine the factors associated with the adoption of additional online teaching practices by high school physical education (PE) teachers. Methods: Semistructured and open-ended telephone interviews with 28 high school physical education teachers were used as the primary method of data collection. All teachers used or used an additional online teaching system during the study period. The Unified Theory of Acceptance and Use of Technology (UTAUT) governs the analysis of target content. Results: Four main categories were developed, including programmatic, educational, and inclusive; minimal effort from individual users and students; support schools and curriculum providers to promote exploitation; and long-term use is determined by the administrator. Discussion/Conclusion: The results agree well with UTAUT and make it possible to place the theory in the context of secondary PE. [7]. Its purpose is to assess the beliefs of physical education teachers (PET) when teaching students with disabilities. Teachers agreed that more basic developmental training was needed. School districts should require that GPE teachers regularly attend relevant professional development training with a focus on physical education for students with disabilities [8]. This paper analyzes the reform of university physical education information services based on artificial intelligence technology and conducts thorough and innovative research on it. AI is a leader in school transformation in data acquisition. Opportunities for decision management, education, research support, and health assessment changes. Following the requirements of education modernization, we aim to address the issues that exist in the management of physical education at the university, with a focus on intelligent and humanized education management goals [9]. With the continuous growth of colleges and universities to improve the quality of school sports management, the need for sports management is increasing. The main task of the system, to improve the quality of management and to meet the requirements of university sports management, is the student knowledge management module. Teacher experience education planning is part of student selection, student class, student management class, and student achievement [10]. Social science research and various statistical methods form an important core, but when applying statistical analysis, respondents have difficulty in completing surveys. In other words, the respondents' answers are not always correct. This study uses vague statistics that combine the natural nature of ambiguity and uncertainty in everyday statistical tasks to analyze the differences in time management between educators [11]. The biggest challenge facing electronics manufacturers is the efficient collection and analysis of quality data and rework tracking. Network-centric systems also allow data to be analyzed through engineering and management. Web-centric manufacturing execution systems collect the information needed to improve efficiency and meet customer needs and deliver these benefits in an easy-to-deploy and maintain architecture [12]. Data showing high, medium, and low responses in continuous and nonconstant patterns were generated by electromechanical equipment to determine if the same data were collected by time sampling. Are the recording intervals and recording frequencies displayed in the same way? It turns out that temporal sampling provides extremely inaccurate response estimates [13]. It provides an analytical framework to take into account the spatial conditions associated with network sensor data management algorithms. Standard data columns are considered open temporary connections. The reception will restore the area immediately. Our experiments show that robust analysis yields different results than expected. The same is true for noncommunicative and traditional methods of communication. The analytical methods proposed in this paper can be easily extended to real-time data reconstruction problems, taking into account different transmission methods, node distribution, and reconstruction methods [14]. We study the role of real-time smart sensor networks in sensory information, assuming the information is integrated into time and space. This process also helps in providing an efficient and conflict-free data delivery process to the recipient. Our results were validated by collecting data in fields with different correlation coefficients. The proposed analysis algorithm can be based on different pipeline schemes, node classification, and reconstruction methods [15]. In the existing work mentioned

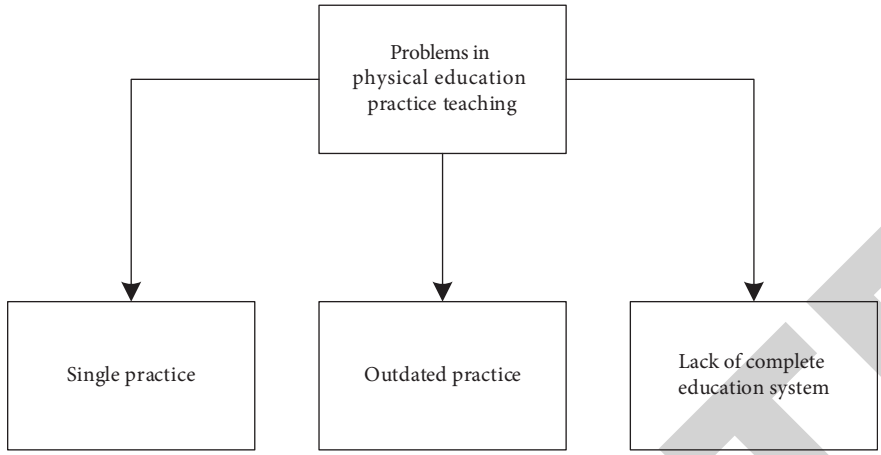


Figure 1: Problems existing in physical education teaching practice.

above, there are large data acquisition errors in sports data acquisition, and there are many errors in information fusion between different sensors, which lead to low accuracy of data acquisition. The results cannot correctly reflect the real effect of physical education practice, and the teaching effect is quite different. Because the content of physical education practice data is old, it cannot meet the needs of new data collection, and it cannot scientifically implement the teaching task from the analysis effect. Sports practice data collection lacks a complete collection process and analysis methods and lacks real-time analysis of corresponding data.

2. Physical Education Teaching Practice

2.1. The Practical Significance of Physical Education Practice. Physical education will face a major problem in the widespread implementation of quality education in the new era. Physical education is the main content of quality education, and physical education is the way to realize the real educational content in the process of educational modernization. In modern physical education programs, children have physical ability, physical knowledge, and aesthetics. A "perfect person" realizes the socialization of people through physical learning, creates opportunities for people to learn and creative work, and has human resources suitable for social development.

2.2. Problems in Physical Education Practice Teaching. The current training system includes military training, enrollment training, learning experience, experimental training, referee training, sports basic skills competition, physical education teacher basic skills assessment, trial training, and other training courses before practice. The practice of teachers' basic skills and social questioning vary. Currently, some internships are sporadic, and the internship courses are outdated; research activities are conducted only through dissertations, and off-campus practice is limited to educational practice, summer social practice, social research, etc. It can be seen that there is a gap between the practical aspects of talent training and society's demand for applied talents. It is urgent to continuously reform the training practice content and curriculum system and urgently build a perfect and integrated practical training system. Only pay attention to the form, ignore the actual effect. On-site investigation by professionals found that many schools still use the old-fashioned teaching model. The equipment is outdated, not practical, and even only does superficial work, and there are very few things that can really be used in actual learning (Figure 1).

2.3. Countermeasures to Realize the Sustainable Development of Physical Education. Its structure largely depends on the ability to teach physical education. The development of organizational skills, health management skills, sports management skills, physical education teacher quality, and ethical standards, taking into account the integration of practical lessons into the curriculum, the structure and content of practical lessons from an extracurricular perspective, and the rules for recreation and training. Decentralized sports are conceived at the school level, sports are assessed against individual educational goals, and society needs to set rules for the athletic ability to qualify for sports. The essence of teaching practice is to combine with teaching. You can improve your training skills with the help of physical training. Most importantly, you have the opportunity to practice the skills you use, combining foundational theory with acquired skills to hone and improve your teaching skills. In practice, the internal structure should be systematic, comprehensive, and clear. The curriculum structure should include specialized knowledge, instruction, and general reading skills. Pay attention to your knowledge level and learning pattern under the conditions of modern social development, not only in the development of mathematical and legal skills and the gradual development of skills and knowledge but also in the large-scale process of advanced technology and globalization. The subject of physical education has changed many times over time (Figure 2).

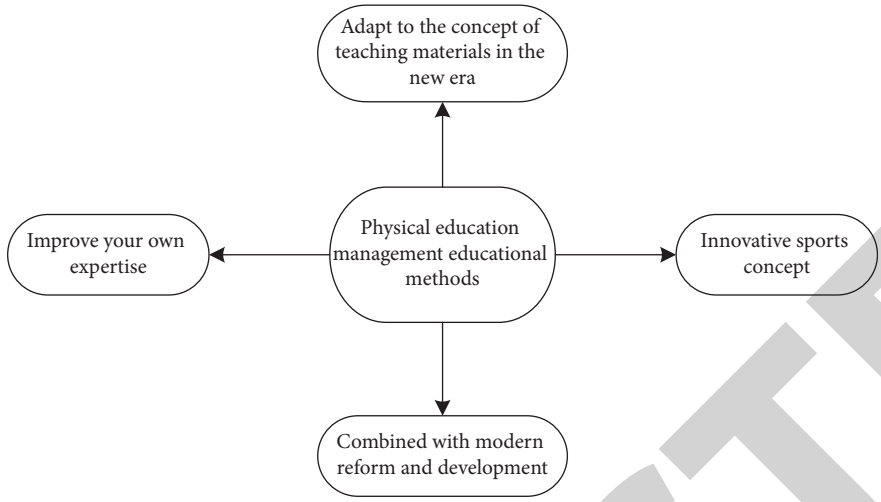


Figure 2: Countermeasures for the sustainable development of physical education.

(1) Continuously improve their professional knowledge and innovate sports concepts

(2) In combination with modern reform and development, to adapt to the teaching material concept of the new era, establish a more standardized teaching material system for physical education

2.4. Construction and Implementation of Physical Education Practice Teaching System. The main body is the physical education teaching ability, organizational creativity ability, health management ability, the ability to guide exercise, and the humanistic quality and behavioral norms of physical education teachers. Excavate the practical teaching content in the curriculum system and consider the construction of the practical teaching system from the perspectives of in-class and extracurricular, in-school and out-of-school, centralized and decentralized. According to the level construction, combined with the laws of physical and mental development, the laws of the formation of sports skills, according to the goals of each talent training, combined with the society's ability needs for physical education professionals; the content of practical teaching is organically divided into in-class practice, concentrated practice, and out-of-school practice. Practice three levels or three aspects to form an organic and unified whole. Through the physical education skill training course, the educational practice ability is cultivated. It mainly cultivates application ability and can combine the basic theory and skills learned to hone and improve teaching skills in teaching practice. The construction of practical course content should be systematic, complete, and hierarchical. The curriculum content system should involve professional knowledge, teaching practice, comprehensive literacy, and other aspects and angles and form a system; pay attention to the level of knowledge, the law of knowledge mastery, the development of sports skills, the law of education and teaching ability mastery, and the knowledge and ability to pass through step by step. Under the background of modern social development, extensive high-tech technology, and the process of globalization, the physical education profession has undergone great changes with the progress of the times (Figure 3).

The main body is the ability of physical education teaching, organizational creativity, health management, ability to guide exercise, and the humanistic quality and behavioral norms of physical education teachers.

3. Multisensor Perception Models

3.1. Wireless Sensor Network Coverage Model. It is assumed that each wireless sensor node randomly deployed in the detection area has the same sensing radius. The set of wireless sensor nodes is expressed as, the coordinates of the wireless sensor nodes in this set are expressed as (x_i, y_i, z_i) detection area midpoint p_j the coordinates are expressed as (x_i, y_i, z_i) thus, from the node s_i to the point p_j the distance is defined as follows:

$$d(s_i, p_j) = \sqrt{(x_i - y_j)^2 + (y_i - y_j)^2 + (z_i - z_j)^2}. \quad (1)$$

The detection probability of the sensor node s_i to the target point p_j is as follows:

$$p(p_j, s_i) = \begin{cases} 1, & d \le r - r_e, \\ \dfrac{-\lambda_1 \alpha_1^{\beta_1}}{e\alpha_2^{\beta_2}} + \lambda_2, & r - r_e \le d \le r + r_e, \\ 0, & \text{other}. \end{cases} \quad (2)$$

Among them, r is the detection radius of the sensor node, which is the reliability parameter measured by the wireless sensor node, $\lambda_1, \lambda_2, \beta_1, \beta_2$ represents the relevant characteristic parameters of the wireless sensor node, $a_1 = r_e - r + d(s_i, p_j)$, $a_2 = r_e + r - d(s_i, p_j)$. In order to reduce the computational complexity, the abovementioned formulas (2) and (3) can be simplified as follows:

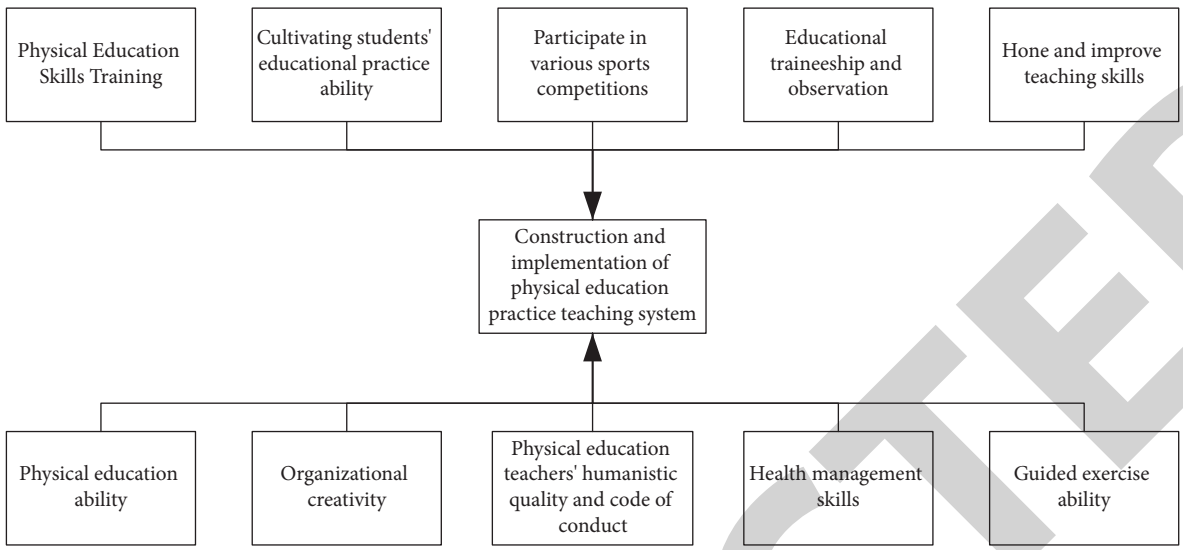


Figure 3: Construction and implementation of the physical education practice teaching system.

$$p_{(pj,si)} = \begin{cases} 1, & d(s_i, p_j) \le r, \\ 0, & \text{other}, \end{cases} \tag{3}$$

The common perception radius of all deployed nodes to point p in the wireless sensor network model is as follows:

$$p_u(s_{all}, p) = 1 - + \prod_{i-n} \left(1 - p_{(p,s_i)}\right). \tag{4}$$

3.2. Sensor Perception Model. The sensing range of each sensor is a circular area with the location of the sensor node as the center and a radius of R_S, where R_S is the sensing radius of the node, and its size is determined by the physical characteristics of the node sensing unit. If the event occurs within the sensing radius of the node, the perceived probability is 1; if it occurs outside the sensing radius, the perceived probability is 0.

Using the Boolean perception model, the perception probability of node s to position $p(x_p, y_p)$ can be expressed as follows:

$$C_p(s) = \begin{cases} 1, & if\ d(s, p) < R_3 \\ 0, & \text{other} \end{cases}, \tag{5}$$

where $d(s, p)$ is the Euclidean distance between node s and position p.

$$d(s, p) = \sqrt{\left(x_s - x_p\right)^2 + \left(y_s - y_p\right)^2}. \tag{6}$$

3.3. Wireless Sensor System Model and Problem Description. In the binary sensing model of wireless sensor networks, the sensing probability s_i of sensor nodes $P(x, y)$ to any point$*$ in the monitoring area $C_{xy}(s_i)$ can be expressed as a binary function:

$$C_{xy}(s_i) = \begin{cases} 1, & if\ d(s_i, p) < r_s, \\ 0, & \text{otherwise}, \end{cases} \tag{7}$$

where $d(s_i, P)$ represents the Euclidean distance between the monitoring point $P(x, y)$ and the node s_i.

However, in practical applications, the sensing ability of sensor nodes is uncertain due to the influence of noise interference and signal strength attenuation with transmission distance. For this, a probabilistic recognition model is used, expressed as follows:

$$C_{xy}(S_i) = e^{-\lambda \alpha^{\beta}},\ if r - r_e < d(si, P) r + r_e, \tag{8}$$

where $r_e = (r_e < r_s)$ represents the fault-tolerant perception radius of the node. If ≈ 0, the binary perception model of formula (7) is used; if > 0, the probability perception model of formula (8) is used. $a = d(s_i, P) - (r - r_e)$, α and β represent the attenuation coefficient of the monitoring quality of the sensor node, respectively.

In addition, since each node of the sensor network works independently, any point $P(x, y)$ in the monitoring area is perceived by the sensor node as an independent event, that is, random events $C_{xy}(S_i)$ and $C_{xy}(s_j)$ are independent of each other, i , $j \in [1, N]$ and $i \neq j$, then the probability that the point $P(x, y)$ is covered by the node set S is The union of $C_{xy}(S_i)$, expressed as follows:

$$\begin{aligned} C_{xy}(S) &= P\left\{\bigcup_{i=1}^{N} C_{xy}(S_i)\right\} = 1 - P\left\{\bigcap_{i=1}^{N} C_{xy}(\overline{s_i})\right\} \\ &= 1 - \prod_{s_i \in S} \left(1 - C_{xy}(S_i)\right). \end{aligned} \tag{9}$$

In order to measure the coverage of the wireless sensor network to the entire monitoring area, the threshold of the perception probability of P_{th} representing the points in the monitoring area $P(x, y)$ is defined, and the binary function $P_{xy}(S)$ is defined as

$$P_{xy}(S) = \begin{cases} 1, & if\ C_{xy}(S) > P_{th}, \\ 0, & \text{otherwise.} \end{cases} \tag{10}$$

Then the total area size $P_{XY}(S)$ monitored by all sensor nodes can be obtained as

$$P_{XY}(S) = \sum_{x}\sum_{y} P_{xy}(S). \tag{11}$$

In the two-dimensional monitoring area A, the sensor node set $S = \{s_1, s_2, \ldots, s_n\}$, sin k node is located in the center of the monitoring area, and a suitable algorithm is needed to select a subset C_i from the node set S, so that the network coverage $P_{XY}(C_i)$ is the largest and the number of working nodes $|C_i|$ is the least. The problem can be formulated as

$$Max \begin{cases} f_1(x) = P_{yx}(C_i) \\ f_2(x) = 1 - \dfrac{|C_i|}{|S|} \end{cases}. \tag{12}$$

In addition, due to the multi-hop communication and many-to-one traffic characteristics of the sensor network, the nodes closer to the sink need not only to complete their own sensing tasks but also forward messages from peripheral nodes. Therefore, this paper considers deploying as many nodes as possible around the sink node in the set of key nodes selected in each cycle. The distribution density of nodes around the sink must be greater than the minimum distribution density threshold, with constraints

$$s.t. \pm \frac{|s_i| s_i \in C_i, d(s_i,\ \sin k) < r_c}{\pi r_c^2} > \rho_{\min}. \tag{13}$$

3.4. Sensor Node Perception Model. The sensing model of the sensor node represents the sensing ability of the sensor node to the surrounding target objects, and the difference in the sensing model directly affects the solution to the coverage problem. The more commonly used node perception model is the binary perception model.

The binary sensing model in the two-dimensional plane is an ideal sensing model that is not affected by the transmission distance. The sensing range is the period, the center of the circle is the sensor node position, and the sensing radius is R_S. That is to say, the pixels within the sensing radius of the node can be monitored by the node with probability 1, otherwise, the probability is 0. Assuming that point $P(x, y)$ is any pixel in the plane of the two-dimensional monitoring area, the probability that it is perceived by the sensor node $s_i(x_i, y_i)$ is as follows:

$$C_p(s_i) = \begin{cases} 1, & d(s_i, P) \le R_S \\ 0, & \text{other.} \end{cases} \tag{14}$$

Among them, $d(s_i, p)$ is the Euclidean distance from node s_i to point P expressed as

$$d(s_i, p) = \sqrt{(x_i - x)^2 + (y_i - y)^2}. \tag{15}$$

Furthermore, consider the joint probability of pixel point P being monitored by node set $S = \{s_i, s_i, \cdots s_N\}$ of N sensor nodes. First of all, for the convenience of representation, an event $c_i\ (i \in [1, N])$ is introduced to indicate that the pixel point P is within the sensing range of the sensor node s_i which is as follows:

$$c_i:\ d(s_i, P) \le R_S. \tag{16}$$

Use $P\{c_i\}$ to represent the probability of the event c_i occurring, that is, the probability that the sensor node s_i can monitor the pixel point P which is defined as

$$P\{c_i\} = C_p(s_i) = \begin{cases} 1, & d(s_i, P) \le R_S, \\ 0, & \text{other.} \end{cases} \tag{17}$$

Let $\overline{c}_i$ denote the complement of c_i, that is, the probability that the pixel P is not detected by the node s_i but

$$P\{\overline{c}_i\} = 1 - P\{c_i\} = 1 - C_p(s_i). \tag{18}$$

Assuming that each node in the network area monitors any pixel point independently, that is to say, the probability that node s_i and node $s_j\ (j \in 1, N)$ can cover pixel point P is as follows:

$$P\{c_i \bigcup c_j\} = 1 - P\{\overline{c}_i \bigcap \overline{c}_j\} = 1 - P\{\overline{c}_i\} \cdot P\{\overline{c}_j\}. \tag{19}$$

For the entire node set S of the network, the probability that a pixel point P is covered can be expressed as

$$C_P(s) = P\left\{\bigcup_{i=1}^{N} c_i\right\} = 1 - P\left\{\bigcap_{i=1}^{N} \overline{c}_i\right\} = 1 - \prod_{i=1}^{N}\left(1 - C_p(s_i)\right), \tag{20}$$

where $C_P(s_i)$ is the node perception, $d(s_i, p)$ is the node Euclidean distance, and R_s is the perception radius.

4. Research on Physical Education Teaching Practice Data Based on Multisensor Perception

4.1. Evaluation and Analysis of Teaching Ability of Physical Education Major. Based on the teaching characteristics of a physical education major, combined with the literature theory on pedagogy, physical education, and sports core literacy ability indicators, consult experts and scholars in related fields, discuss and exchange opinions in-depth, and design and formulate specific teaching ability evaluation indicators teaching ability. The evaluation indicators include 6 first-level indicators and 23 second-level indicators. The first-level indicators are teaching design, teaching implementation, teaching assistance, technical maintenance, teaching quality evaluation, and reflection and research skills training. Among them, the ability to design learning is divided into formulating learning plans, formulating teaching methods, formulating learning plans, using teaching tools, etc.; learning implementation ability is divided into 9 secondary indicators: student comprehension, presentation of new courses, language expression, review analysis, activity

Table 1: Classification of contents of physical education teaching ability.

First-level indicator	Secondary indicators
Instructional design ability	Ability to set lesson plans
	Ability to develop teaching methods
	Ability to write lesson plans
	Applied instructional media competencies
Teaching implementation ability	Learn about student abilities
	Introduce new class capabilities
	Language expression skills
	Examining analytical ability
	Action explanation and demonstration ability
	Technology leadership
	Classroom management skills
	Exercise organizational skills
	Classroom induction ability
Teaching assistance and technical maintenance ability	Technical maintenance capability
	Fixed wrong action ability
Ability to judge teaching quality	Teaching evaluation ability
	Teaching effectiveness evaluation ability
	Teaching method channel application evaluation ability
Teaching reflection skills	Self-reflection skills
	Students' learning effectiveness reflection ability
Teaching and research ability	Teaching innovation ability
	Scientific research application ability
	Information retrieval ability

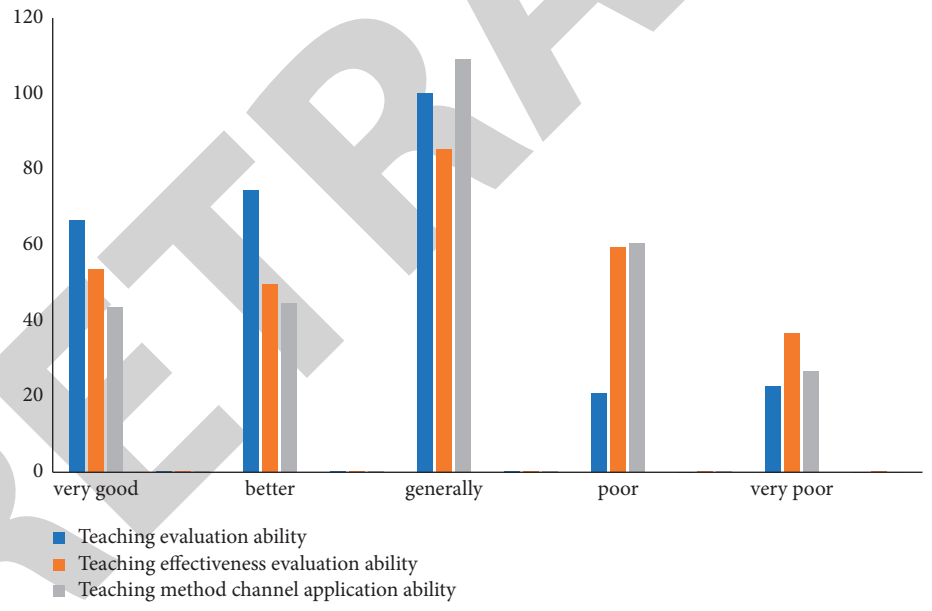


Figure 4: Teaching evaluation of physical education students.

report presentation, technical guidance, class management, organizational ability, and classroom implementation ability as shown in Table 1.

Judging from the educational self-evaluation of the secondary index of PE students' educational evaluation ability, 84.6% of PE students have more choices in educational evaluation ability than general options of the total, indicating that the teaching evaluation ability is strong; teaching In the effectiveness evaluation ability, 30% of the total number of people chose the general, indicating that the students majoring in physical education have average teaching effectiveness evaluation ability. Among the options for the application ability to teach methods and channels, the general, poor, and very poor options accounted for 69% of the total number of people. This shows that physical education students are more vulnerable to weakness in the application of teaching methods (Figure 4).

According to the survey data in the table, it is greatly affected by factors such as teaching hardware conditions,

practice base cooperation, and teacher guidance, and the proportion of selected students is more than 50%, respectively, teaching hardware conditions account for 60%, practice bases account for 80% and teacher guidance accounted for 66.7%; the influence of school curriculum arrangement factors was less than 40%, accounting for 40.0%. From the perspective of teachers, the internal factors that affect the teaching ability of physical education students are far more important than external factors as shown in Figure 5.

A good assessment can motivate students to study a major and help students see the benefits and disadvantages of physical education majors, and improve the study of physical education majors.

Students (84.6%) chose in physical education the general or abovementioned options for their own teaching evaluation ability, indicating that the teaching evaluation ability is strong; in the teaching effect evaluation ability, 30% of the total number of students choose the general evaluation ability, indicating that the teaching of physical education students. The ability to judge the effect is average. Among the options for the application ability of teaching methods and channels, 69% of the total number of people choose the options general, poor, and very poor, indicating physical education students have a poor ability to apply teaching methods and approaches.

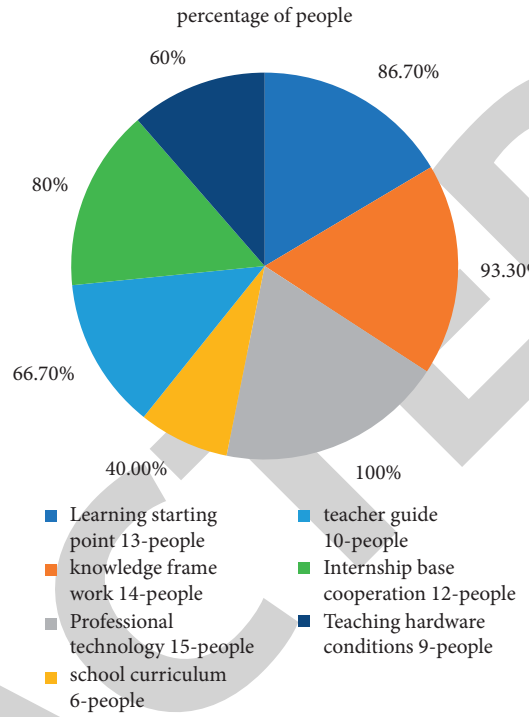


Figure 5: Influencing factors of teaching ability of physical education major.

4.2. Research on the Innovation Path of Physical Education and Cultural Communication in Colleges and Universities. With the continuous development of information technology, information and culture are being accessed in various ways. Colleges and universities are important positions for the development and dissemination of physical education culture. In order to promote the effective dissemination of physical education culture in colleges and universities, under the background of new media, colleges and universities should have various forms, such as extracurricular sports events, sports training, competitive competitions, and other forms. Innovate ideas, explore channels, and use new media platforms to provide simple, convenient, and diverse communication methods to spread sports culture, so as to deepen students' understanding of sports culture, effectively cultivate students' physical education and cultural literacy, and promote student development. According to the frequency of exposure to different media types in the questionnaire, we calculated the scores, weighted them, and divided them by the total number of samples to obtain the cognitive mean (see Table 2).

The research shows that among the more than 500 cases of students who are exposed to online sports information "almost every day" in the mean data survey, there are three typical ones. Among them, there are 3 typical ones. The highest proportion is mobile phone customers, accounting for 72.67%. Computer networks accounted for 23.33%. And the "almost every day" exposure to cognition means was greater than the other groups (see Table 3).

As can be seen from Table 3, from the perspective of contact time, the average value of sports cognition in the sample population of "more than 3 hours" is greater than that within 0.5 hours, 0.5–1 hours, 1–2 hours, and 2–3 hours. The reason is that college students have more free time in their spare time and objectively have more contact time. With the improvement of contact time, the awareness of physical education has also deepened, and they can better understand the value of physical exercise and understand scientific exercise methods (see Table 4).

Online sports education dissemination can provide a wealth of sports information and sports knowledge, this plays a very obvious role in the understanding of sports education for most college students. Physical education awareness has a stimulating effect.

In the context of the network, the culture of physical education can be disseminated through various means such as three micro terminals, mobile TV, digital magazines and radio, and desktop test windows.

Online sports education communication can provide richer sports knowledge and information and can deepen students' understanding of sports culture, effectively cultivate students' sports cultural literacy, and promote students' all-around development effect.

4.3. Data Processing Method Based on Kalman Filter. From Table 5, the data collected by the sensor has a relatively large fluctuation value of around 20, such as the measured value between the third and fourth sampling points, where the difference between the measured values of the two sampling points is about 1.5. It is processed to improve the accuracy of data fusion.

It can be seen from Table 6 that the fluctuation of the data processed by the Kalman filter is relatively small, and the

Table 2: Contact frequency and college students' sports cognition scores.

Type	Three micro one end	Mobile TV	Digital magazines & radio	Desktop windows
Almost everyday	15.1	14.92	14.08	14.1
Often (2–3 times/worship)	14.37	13.9	12.33	12.01
Generally (1 time/worship)	12.62	11.38	11	10.21
Not in contact	12.11	10.78	10.75	10.05

Table 3: Contact time and college students' sports cognition scores.

Type	Three micro one end	Mobile TV	Digital magazines and radio	Desktop windows
>3 h	13.88	13.44	12.87	12.67
2 h–3 h	13.32	13.1	12.33	12.14
1 h–2 h	12.68	11.45	11.01	10.67
0.5 h–1 h	12.01	10.98	10.87	10.52
<0.5 h	11.21	10.26	9.52	9.47

Table 4: Sports communication has a positive effect on sports attitudes.

Frequency	Number of people	Percentage (%)
Strongly disagree	8	1.50
Not agree.	14	2.60
It does not matter	105	19.20
Identify	277	50.70
Very much agree	142	26.00

Table 5: Sensor raw data.

Sampling point	Measurements	Sampling point	Measurements
1	19.9	11	19.412
2	19.931	12	20.169
3	20.826	13	19.659
4	19.691	14	20.046
5	20.511	15	20.304
6	20.291	16	19.646
7	19.846	17	19.931
8	19.444	18	20.452
9	19.99	19	19.134
10	20.099	20	20.792

processed data fusion can improve the accuracy of the fusion results.

After the sensor data is processed, the measured value is more consistent with the actual ambient temperature, the data fluctuation range is smaller, and the change in the measured value is better reflected.

The fluctuation of the data processed by the Kalman filter is relatively small, and the processed data can improve the accuracy of the fusion result.

4.4. Multisensor Sports Data Fusion. The reform of the boxing professional process has made the competition more substantial and perfect, improved the competition level of athletes, and increased the demand for boxing coaches. The constructed boxing coach model and specific index system clarify the core quality of boxing coaches, deliberately train coaches and effectively improve the overall skill of boxing coaches, which is of great theoretical and practical importance in boxing competition levels. The following are examples of data processing of monitoring data by various sensors, each of which is part of the monitoring data of the laboratory environmental monitoring system, and the obtained laboratory environmental status results are shown in Figure 6. The result values of five types of sensor data fusion at different times are described.

Table 6: Preprocessed sensor data.

Sampling point	Measurements	Sampling point	Measurements
1	19.92	11	19.876
2	19.902	12	19.928
3	19.997	13	19.88
4	19.959	14	19.91
5	20.037	15	19.981
6	20.076	16	19.92
7	20.041	17	19.922
8	19.941	18	20.018
9	19.95	19	19.858
10	19.976	20	20.027

The sample data in the table come from different times, so the representative sample data is selected. Typical sample values of different events are obtained by consulting the performance indicators of the metering equipment and the historical environmental monitoring data of the laboratory, as shown in Figure 7.

First, according to the Hamming distance between different sensor data and typical sample values, the results are shown in Figure 8.

The sum of Hamming distances for all boxing events is then calculated, and the result is shown in Figure 9.

Finally, the basic probability of different sensors for boxing events is calculated, and the results are shown in Table 7.

According to the abovementioned content, the reliability of using a single sensor data is much lower than that after fusing all sensor data, and it is feasible to use sensors to fuse laboratory monitoring data for various boxing items.

By calculating the basic probability of different sensors for boxing events, it can be found that the measurement

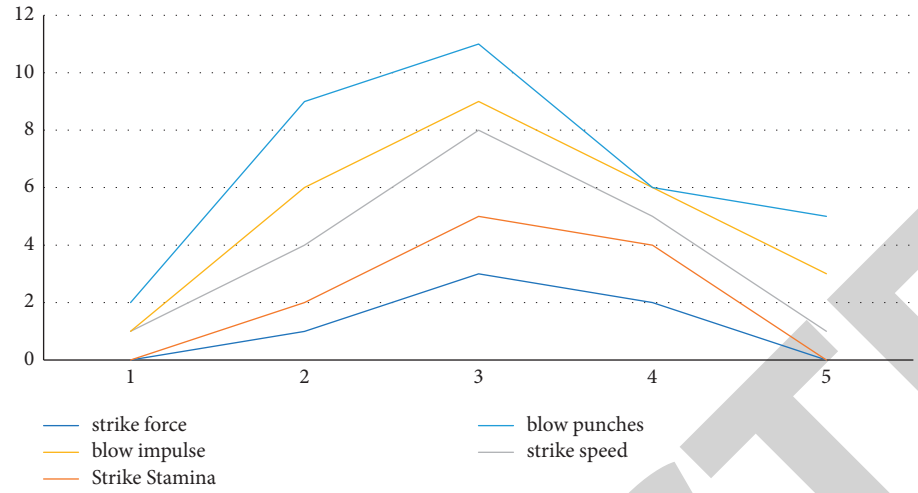
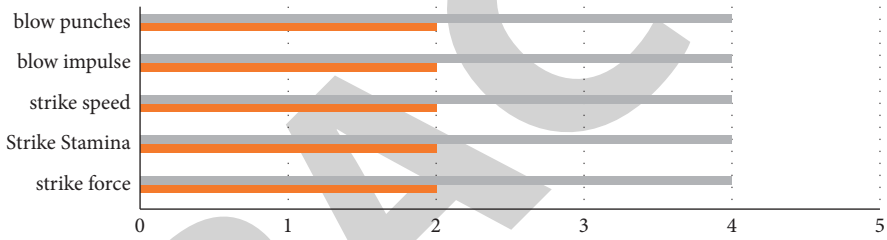
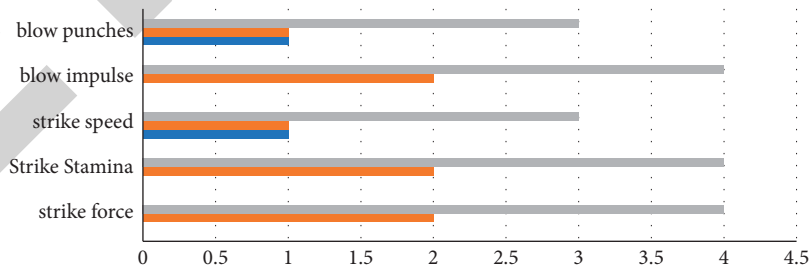


Figure 6: Fusion results of laboratory environmental monitoring data.



	strike force	Strike Stamina	strike speed	blow impulse	blow punches
Seriously affect the measurement accuracy	4	4	4	4	4
Slightly affects the measurement accuracy	2	2	2	2	2
Measurement accuracy is not affected	0	0	0	0	0

Figure 7: Typical sample values for different events.



	strike force	Strike Stamina	strike speed	blow impulse	blow punches
Seriously affect the measurement accuracy	4	4	3	4	3
Slightly affects the measurement accuracy	2	2	1	2	1
Measurement accuracy is not affected	0	0	1	0	1

Figure 8: Different sensor data and typical samples worth the Hamming distance.

accuracy is not affected by 1/2, the measurement accuracy is slightly affected by 1/3, and the measurement accuracy is severely affected by 1/5. It can be found that the reliability of single sensor data are much lower than that of fused sensor data. Experiments show that it is feasible to use sensors to fuse various experimental data of boxing.

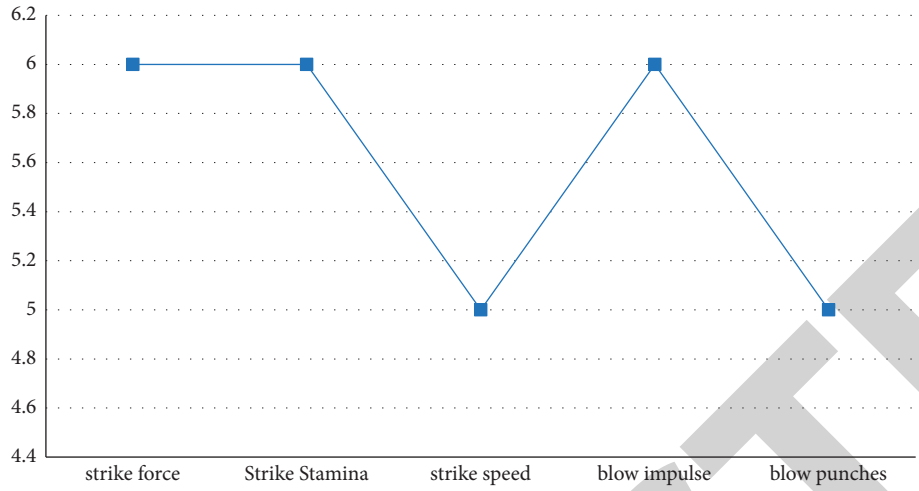


Figure 9: Hamming distance and sum of different events.

Table 7: Basic probability of events for different sensors.

Event	Strike force	Strike stamina	Strike speed	Blow impulse	Blow punches
Measurement accuracy is not affected	1/2	1/2	1/2	2/5	2/5
Slightly affects the measurement accuracy	1/3	1/3	2/5	1/3	2/5
Seriously affect the measurement accuracy	1/6	1/6	1/5	1/6	1/5

5. Conclusion

Chinese universities need to strengthen and improve their ability to educate PE students. At present, the physical education teaching equipment is single, the content of the curricula is outdated, there is no coherent education system, and it only focuses on the form and ignores the actual effect. With the continuous development of physical education, combined with modern reform and development, we will continuously improve our professional knowledge, innovate sports concepts, and adapt to the teaching material concepts of the new era. You can also continuously improve your own knowledge through physical education practice, combine basic theory and skill teaching practice to hone and improve teaching skills, and develop students' practical skills. Against the background of the development of modern society, the wide range of high-tech technology, and the process of globalization, the physical education major has undergone great changes with the progress of the times. It can effectively cultivate students' sports culture through WeChat, QQ, TV, and various communication methods. Literacy contributes to the all-round development of students. Understand the sports culture and make the physical education profession more diversified and standardized so that the development of my country's physical education profession can reach a new level.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding this work.

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