

Retraction

Retracted: Physical Educatity on Curriculum and Physical Education Model Based on Smart Classroom and Mobile Computing

Wireless Communications and Mobile Computing

Received 18 July 2023; Accepted 18 July 2023; Published 19 July 2023

Copyright © 2023 Wireless Communications and Mobile Computing. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets 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 own 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] X. Liu, "Physical Educatity on Curriculum and Physical Education Model Based on Smart Classroom and Mobile Computing," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 7781177, 9 pages, 2022.

Research Article

Physical Educatity on Curriculum and Physical Education Model Based on Smart Classroom and Mobile Computing

Xian Liu 

Henan University of Animal Husbandry and Economy, Zhengzhou, Henan 450000, China

Correspondence should be addressed to Xian Liu; liuxian@hnuah.edu.cn

Received 19 January 2022; Revised 15 February 2022; Accepted 16 February 2022; Published 15 March 2022

Academic Editor: Xin Ning

Copyright © 2022 Xian Liu. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Physical education is an essential part of a child's education. With the extensive reform of education in recent years, the old physical education teaching mode now faces a situation of low teaching efficiency, low student learning efficiency, low student interest, and lack of classroom participation, which is incompatible with the spirit of modern education and the needs of social development. Smart classrooms are emerging to meet the demands of the new curriculum reform. Smart classroom teaching is a good teaching concept: physical education teaching should reflect experience, generation, innovation, and morality. In physical education, the situational teaching method is a new teaching mode. It replaces the old boring and assembly-line teaching method with a method that allows students to take control of the classroom. Smart classrooms have emerged as a new hot spot in school information teaching due to the rapid development and widespread application of the new generation of information technology, as well as the deepening integration of information technology and teaching.

1. Introduction

With the continuous progress of social development and the deepening of understanding, people are more and more following the ecological way of life and education [1]. The principles and methods of ecology are gradually recognized by sociology, anthropology, pedagogy, and demography [2]. The industrialization of Internet of things and cloud technology has brought new vitality and possibility to modern education [3]. However, at present, China has been in the exploratory stage of the new curriculum reform, in which situational teaching is one of the main directions of the reform. In the contemporary era of vigorously advocating the new century education, adhering to the concept of "people-oriented," we need to reunderstand and be cautious about our way of education and training people [4]. With the advancement of science and technology, an increasing number of excellent front-line teachers are turning to smart classrooms to modernize their teaching methods and bringing it into the classroom from three perspectives: educational concept, science and technology, and practical application, as well as using information-based methods to objectively display

knowledge points in the classroom [5]. Different students have different physical education needs, but college and university physical education classrooms are limited. It is difficult to meet all of a student's developmental needs [6]. Physical education classrooms, as the focal point of physical education instruction, are critical to improving educational quality. How to change the inherent physical education teaching mode, maximize the benefits of physical education classrooms, make physical education teaching and physical education classroom teaching intelligent, and finally make physical education classroom teaching reach a certain height and grade, which is the current focus of physical education teaching [7]. Smart classrooms are very beneficial to physical education teaching as a new teaching concept [8]. It can concentrate on developing students' innovative spirit and highlighting their learning abilities [9]. Physical education has undertaken the important responsibility of cultivating people in the long history of the past [10]. Facing the needs of social reform and development, how to make gymnastics a part of our life and education, and how to reform gymnastics classroom teaching in colleges and universities have also become a problem that cannot be ignored by our scholars [11].

At the beginning of the shift in the research of physical education curriculum, teachers are required to participate in the curriculum as researchers and examine, analyze, and reflect on the problems existing in teaching practice [12]. “Effectiveness” is not only the essential feature of teaching but also the core idea of the current curriculum reform, and it is also the inevitable requirement for education to realize the connotation development [13]. At present, as far as China’s educational standards are concerned, although there are some new changes in physical education, many teachers are still at a loss when they encounter new words such as “people-oriented,” “constructivism,” and “humanism” [14]. As a result, we can conclude that China’s current educational behavior is inefficient, if not ineffective. Teachers’ original rigid curriculum views will inevitably change as their roles change, promoting the formation of new curriculum views [15]. The physical education classroom is a multisymbiotic, interactive, and rich environment, and a variety of unknown factors influence which “generation” is more diverse and rich. Physical education activities should better adapt to students’ interests, cognitive needs, and psychological needs if teachers pay attention to these generative resources and adjust teaching in real time [16]. Physical education classes today lack scientific monitoring methods, and teachers are hesitant to allow students to have a high level of physical fitness. However, the smart physical education classroom intervention can effectively solve this problem and plan an effective sports market by tracking students’ heart rate curve from the perspectives of intelligence, science, wisdom, and safety, which has far-reaching implications for the reform of physical education classrooms [17]. Smart classrooms allow students to learn independently in a variety of ways, including group learning and video learning, making the entire physical education classroom process more meaningful, innovative, and engaging for students [18]. Moreover, the wisdom classroom downplays the teacher-centered phenomenon, cultivates students’ ability to actively acquire knowledge, applies knowledge and deal with knowledge, greatly arouses students’ learning enthusiasm, enhances classroom teaching effect, and improves classroom teaching efficiency [19]. The introduction of smart classroom is not only the innovation of educational development but also the inevitable stage of educational development [20].

The purpose of theoretical learning is to apply relevant theories to teaching practice, and there is an intermediate factor between theoretical learning and practice, that is, teachers’ curriculum view [21]. If teachers have carried out a lot of theoretical learning, but their curriculum view has not changed, it is difficult to apply the learned theories to classroom teaching practice. It can not effectively promote the deepening of the new curriculum reform. Although the acceptance level of teachers is still in the preliminary stage, most of them have gained a lot of valuable experience, found, and promoted in time. Aiming at the smart classroom, this paper makes a detailed study on the current physical education mode and teaching curriculum planning, explores the problems of physical education, and integrates the smart classroom for optimization and reform.

2. Literature Review

From a macroperspective, literature [21] explains the concept, principle, and function of educational ecosystem; from a microperspective, literature [21] discusses the work of schools and classes, as well as environmental education, and makes a useful attempt to construct the theoretical framework of educational ecology. The situational teaching model is used in physical education curriculum by Literature [22], so that students can experience beauty, have emotional experiences, and be guided to think. It can then make the course more interesting and encourage students to enroll on their own. In the continuous and repeated alternation of “generation” and “development and utilization” of resources, generative teaching promotes the continuous generation and construction of students’ individual knowledge, according to document [23]. The key to the practice of generative teaching is determining whether generative resources can be better developed and utilized. According to literature [24], the establishment of a curriculum view suitable for the new curriculum reform by physical education teachers is a sufficient condition for the effective promotion of the new curriculum reform, but it is not a necessary condition. The demand of practical transformation is to use curriculum view to take care of teaching practice, and the necessary condition is to use curriculum view to take care of teaching practice. According to literature [25] on the professional development of front-line teachers in primary and secondary schools, physical education teachers must not only continue to acquire and enrich their professional knowledge and skills but also learn how to apply the wisdom gained from mastering those skills. This wisdom is an important symbol of teachers’ professional development level, rather than practice makes perfect in the sense of operation. Teachers can not only teach students a lot of knowledge but also fully show their characteristics and let students master knowledge comprehensively and solidly, according to the application of cloud teaching and smart classroom in literature [26]. Literature [27] has established a precedent for studying teacher personality traits. Many scholars take primary and secondary school students, front-line teachers, and educational managers as the survey objects and use the method of questionnaire to study the problem of “what are the personality characteristics of successful and failed teachers.” Literature [28] puts forward the view of the essence of curriculum: curriculum is what is taught in school; curriculum is a series of subjects; curriculum is the content of teaching materials; the course is a learning plan; the course is a series of materials; courses are subject order; curriculum is a series of behavioral goals; curriculum is the learning process; the curriculum is a variety of activities carried out in the school, including extra-curricular activities, counseling, and interpersonal communication; curriculum is what is taught inside and outside the school under the guidance of the school; curriculum is anything designed by all the staff of the school; curriculum is the experience of learners in school; and curriculum is a series of experience gained by individual learners in school education. Literature [29] holds that “generation” is a complete process in which learners actively construct the

meaning of the information after the interaction between learners' original cognitive structure and receiving new sensory information from the environment. Literature [30] starts from China's reality, adheres to "foreign things for China," pays attention to combining with China's reality when quoting foreign research results, uses Chinese examples as much as possible to explain the concepts and principles of educational ecology, and focuses on connecting with China's reality.

According to the above literature, it can be seen that at present, our educational curriculum research has been very deep, and the focus of every scholar's direction is teaching reform. Although the current educational reform is still in the initial and developing stage, it cannot be integrated with the specific teaching content, and it even ignores the interaction between teaching behavior and specific teaching environment. But things are constantly changing, so is the definition of curriculum. With the development of society and the deepening of people's understanding of curriculum, it is enough for us to fully understand teaching and improve teaching, and the definition of curriculum will be constantly improved and developed.

3. Strategies for Physical Education in Smarter Classrooms

The development of physical education in China is closely integrated with the intelligent environment. Information technology can help students carry out scientific and effective physical exercise. In the intelligent environment, part of the heavy human teaching of physical education in colleges and universities is shared and transformed into personality education. In the introduction, the examples in life, the most hot issues at present, the latest scientific research achievements, the dynamics most concerned by students, the discussion of students, and the love of students are used as the materials introduced into the physical education classroom to realize the fundamental change of the learning mode of physical education classroom and update the teaching mode of physical education teachers. Let physical education teachers realize that a new teaching method is more effective than the original teaching method. Next, let us introduce the connotation of smart classroom in detail.

3.1. The Connotation of Smart Classroom. Introducing wisdom into physical education is a great innovation in physical education teaching. The so-called smart classroom refers to analyzing the relevant theoretical and practical problems of smart classroom from the three dimensions of concept, technology, and application. Simply put, it is to explain knowledge points to students in the classroom from the perspective of informationization. "Smart classroom" is an intelligent and efficient classroom which is built by using information technologies such as intelligent monitoring, intelligent data analysis, and basic information management and realizes the whole process of preview before class, monitoring in class, and reviewing after class. For example, in the physical education classroom, teachers show sports short films to make the teaching process more three-dimensional

and realistic for students, while also emphasizing the importance of physical activity to draw students' attention to physical education. Teaching content, teaching methods, and teaching strategies are all part of a teaching process that prioritizes the development of students' wisdom as a goal and teachers' teaching wisdom as a necessary condition for that growth. Wisdom class places a strong emphasis on students as the main body of the class, utilizing their potential in the teaching process and fully utilizing their role. It is a once-in-a-lifetime opportunity for comprehensive passion and wisdom growth. The main role of students in the classroom is emphasized, as is teachers' role as students in the teaching process. Students can learn knowledge by thinking through group discussion, self-study, and collaboration between teachers and students.

3.2. Physical Education Teaching Strategies Based on Wisdom Customer Care Teaching. First point: integrate into the smart classroom to evaluate whether the sports load meets the standard. General physical education can be divided into four stages: start, preparation, basic, and end. The student's heart rate can be detected at each stage by using the information equipment "student Bracelet." Using scientific and technological means to adjust the amount of exercise of each student and the time to observe the exercise, as well as the physical condition of the students, so as to solve the problem that teachers are afraid of hands and feet in traditional courses. The design steps of smart classroom teaching scheme are shown in Figure 1.

Second: let students have a sense of experience in class. Physical education classroom is different from other disciplines. The purpose of physical education is to exercise students' physique and enhance students' system. Therefore, in the process of physical education teaching, we should pay special attention to students' sense of practical experience. As long as children are allowed to practice, students can better master physical skills. For example, in long-distance running, teachers can explain the body movements of sports to children, reduce injuries in the process of sports, and let children master the essence in practice.

The third point is to use instructional design to create situations that will pique students' interest. A good lesson is a touching story with twists and turns that makes people feel like twists and turns, an unexpectedly cheerful state of mind, and a pleasant sunny day after rain. A good teaching design is required to support a good lesson. In order to make the sports technical skills learned and practiced based on life and teaching materials, stimulate students' interest in self-study and self-practice, allow students to take the initiative to try, reason in self-study and self-practice, explore the teaching objectives of physical education, encourage students to take the initiative to try, reason in self-study and self-practice, and explore the teaching objectives of physical education.

Fourth, the dominant teaching mode in physical education classrooms is group cooperation and exchange of wisdom, and it is also an important way for students to learn physical education. Teachers switch between teaching-oriented teaching mode and student-oriented independent

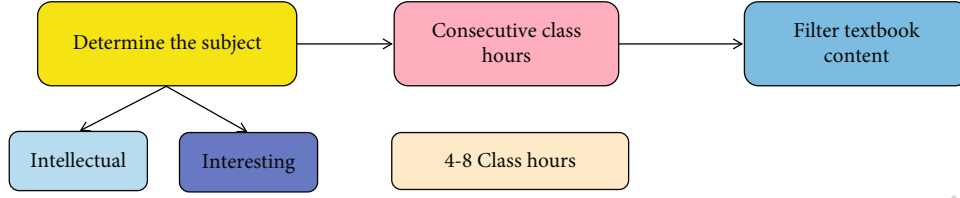


FIGURE 1: Design steps of smart classroom teaching plan.

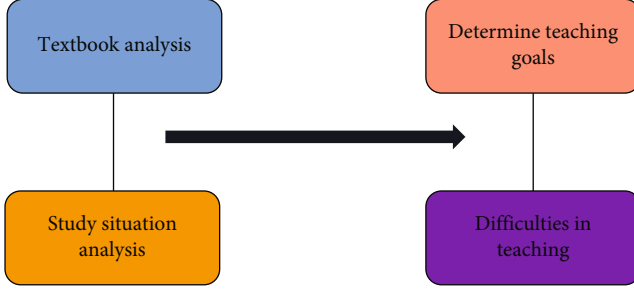


FIGURE 2: Group cooperation and communication process.

learning mode when teaching physical education. Cooperative teaching promotes the development of learning personalities by allowing students to benefit from each other's strengths. It also allows students to form positive interpersonal relationships. Teachers should teach students according to their aptitude, consider the difficulty of sports skills, arrange the contents reasonably to pique students' interest, ignite the spark of wisdom, find the measuring points, and resonate during the teaching process. The group cooperation and communication process is shown in Figure 2.

The fifth point: bring the teacher's humor and knowledge into physical education teaching. A teacher is very important in teaching. The teacher's love by the students is very helpful for teaching. The classroom itself is boring. No one knows the dry way of telling. On the one hand, let the students love physical education, on the other hand, optimize the teaching mode.

3.3. Physical Education Class Indicator Screening. This paper preliminarily constructs the classroom observation index system of PE Teachers' curriculum view in order to make the selected indicators truly reflect the classroom practice transformation of PE Teachers' curriculum view in classroom teaching, based on relevant curriculum theories and combined with the actual characteristics of PE teaching. This study investigated two different groups of experts and front-line teachers in order to obtain comprehensive and objective survey opinions. Only a few experts offered modification opinions on a few indicators based on the survey's overall findings, and the majority of indicators were identified by experts. Below are the specifics of data filtering.

- (1) The coefficient of variation refers to the ratio of the standard deviation of each index to its weighted average. The smaller the coefficient of variation, the smaller the dispersion of expert evaluation results. We generally believe that if the coefficient of varia-

tion is greater than or equal to 0.25, the expert coordination degree of this index is not enough. Let us say that there are n experts and M indicators. The formula is as follows

$$M_j = \frac{1}{n} \sum_{i=1}^n X_{ij}, \quad (1)$$

$$S_j = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (X_{ij} - M_j)^2}. \quad (2)$$

The formula for calculating the coefficient of variation is

$$V_j = \frac{S_j}{M_j}, \quad (3)$$

where V_j indicates the coefficient of variation of the index, the standard deviation of the index, and the arithmetic mean value of the index. The smaller the coefficient, the higher the coordination degree of expert opinions of the index.

- (2) Coordination coefficient refers to whether there are great differences in the evaluation opinions given by experts on each index in the expert group. Through the study of coordination coefficient, we can understand the coordination degree of experts on all indicators and express the coordination coefficient in. The coordination coefficient is between. The significance test of coordination degree adopts grade consistency test (nonparametric test): if the evaluation or prediction of expert opinions is considered to have poor reliability, the evaluation or prediction results are not desirable; If so, it is considered that the evaluation or prediction of expert opinions is reliable and the evaluation or prediction results are credible

Calculation formula of coordination coefficient is

$$W = \frac{12 \sum_{j=1}^n dj^2}{m^2(n^3 - n) - m \sum_{i=1}^m T_i^2}. \quad (4)$$

Consistency test formula of coordination coefficient is

$$X^2 = \frac{1}{mn(n+1) - 1(1/n - 1) \sum_{i=1}^m T_i^2} \sum_{j=1}^n dj^2, \quad (5)$$

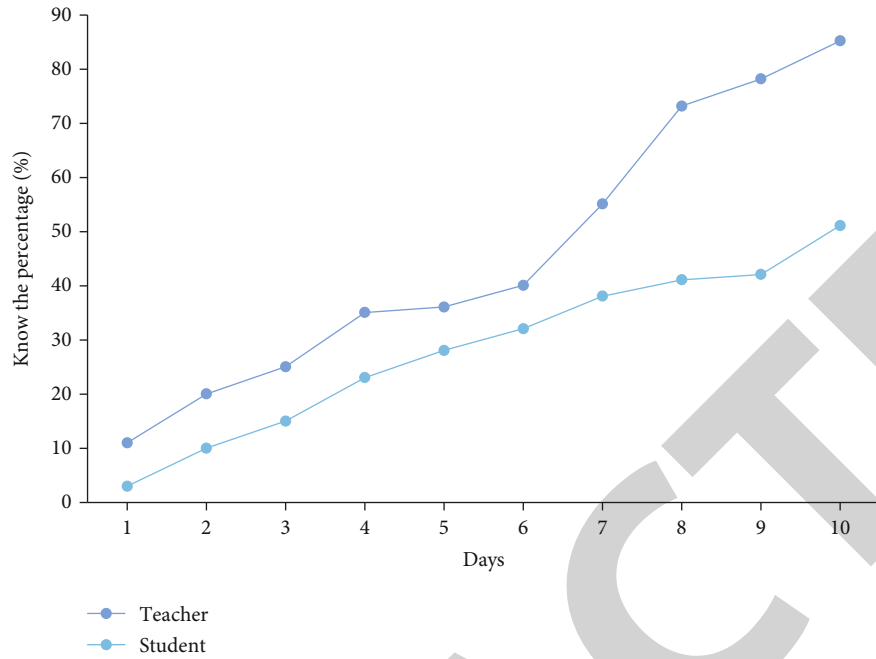


FIGURE 3: The experimental results of teachers and students' understanding.

where M represents the total number of experts, n represents the number of indicators, and D represents the difference between each indicator grade and the mean sum of N indicator grades. T is the correction factor.

The information of all data forms a matrix, expressed as K

$$K = \begin{bmatrix} K_{11} & K_{12} & \cdots & K_{1n} \\ K_{21} & K_{22} & \cdots & K_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ K_{m1} & K_{m2} & \cdots & K_{mn} \end{bmatrix}. \quad (6)$$

3.4. The Advantages of Integrating Sports Courses into Smart Classrooms. Under the traditional teaching mode, because of the limited teaching conditions, students will inevitably have sudden understanding and mastery of physical education knowledge. Combining the efficient physical education class with the smart classroom, students can learn the knowledge of physical education courses online, learn online, use technology to scan students' movements perceptibly, and judge the standards of data movements through data analysis. In the long run, students can not only make breakthroughs in physical education learning but also teachers can improve their classroom teaching quality.

Because each student's ability to accept sports knowledge, learning ability, and talent differs in the classroom, the teacher will use the physical test to highlight the differences between the students. In traditional teaching, many teachers focus solely on the completion of the classroom and frequently overlook student acceptance, which can lead to students' resistance to the course and whether or not the teachers have exerted sufficient positive influence in this

regard. One-to-many instruction is prone to batch teaching flaws, making it difficult to reflect students' individual needs. Students' teaching quality can be effectively improved by arranging fully integrated wisdom classrooms according to personal characteristics. To support Xiali, the smart classroom has a big data recommendation function, which has been reflected on various teaching platforms. Some students have a hazy understanding of their academic abilities. They can use this function to fully analyze and comprehend themselves in order to obtain their own personalized chemistry learning direction and resources. Students can also be tracked in a systematic manner. Teachers can also play relevant videos in the process of teaching to help them explain the rules and actions, which can not only relax students physically and mentally but also make students have a forced body when learning culture classes.

4. Smart Classroom Comprehensive Test

In order to understand the current teachers' understanding and practice of "smart classroom," we spread the experimental content in the school to see how well students and teachers understand this point in 10 days. The experimental results are shown in Figure 3.

I conducted a field survey on 50 people in the photo. As you can see in the image, only a few students are aware of this at the outset. The higher the number of teachers, the lower the proportion. The proportion of teachers has increased significantly in the last few days, but only in terms of theoretical knowledge. After asking teachers about the content of the class and where to find teaching materials in class, they are unsure. As a result, it is possible to conclude that the public's ability to accept primary intelligent classroom integration is insufficient at this stage. The experiment

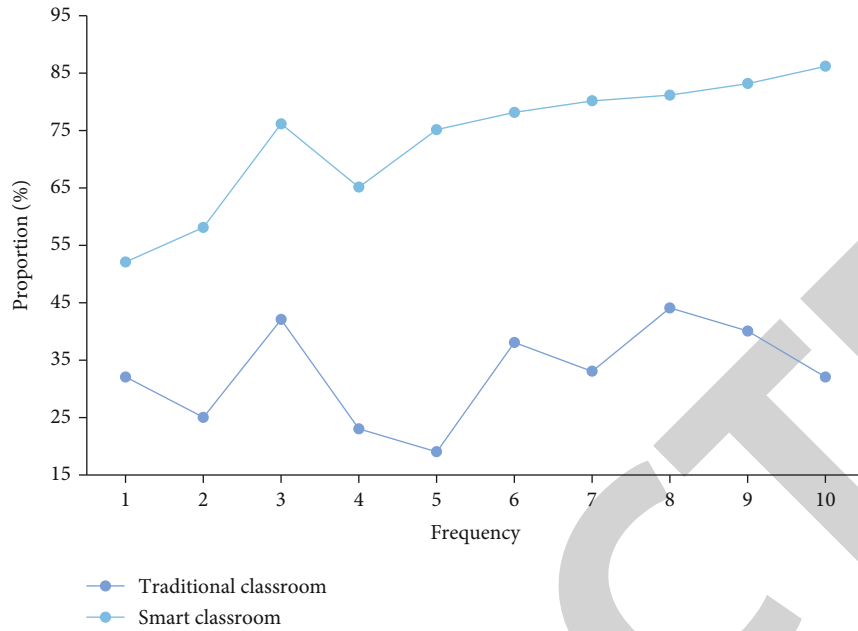


FIGURE 4: Comparison test results of satisfaction with traditional technology and current sports smart classroom teaching.

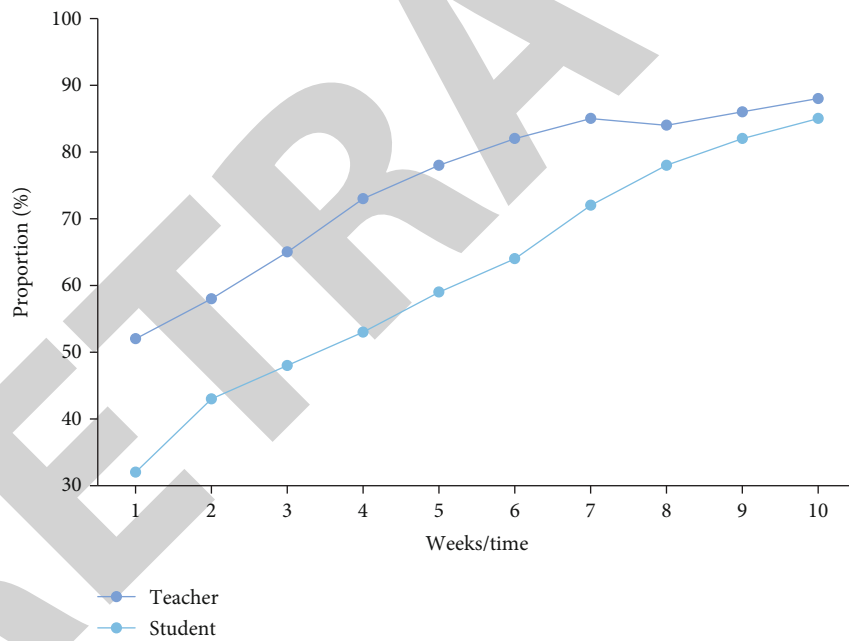


FIGURE 5: Satisfaction survey of traditional classroom and smart classroom.

of practical integration of intelligent classroom has been carried out as a follow-up. Because physical education classrooms differ from classrooms and classes, ecological classrooms focus on the relationship between physical education teachers, students, and the teaching environment. From an ecological standpoint, we believe that an ecological classroom is a unified whole made up of life and the situations that allow it to communicate. Now, compare the satisfaction of traditional technology with that of current physical education wisdom classroom teaching, and the test results are shown in Figure 4.

It can be seen from the Figure 4 that in traditional courses, students' enthusiasm is not high enough, the value is very low, and the distribution of each class is very average. In other words, the original teaching mode has restrained the exertion of students' supervisor's initiative and the realization of creativity. Students have been reluctant to make progress in this state. Many students are unwilling to express themselves since the beginning of teachers. It can be seen that the traditional teaching concept is deeply rooted. The data trend chart of smart classroom shows that this teaching model is deeply loved by teachers. To reform and innovate

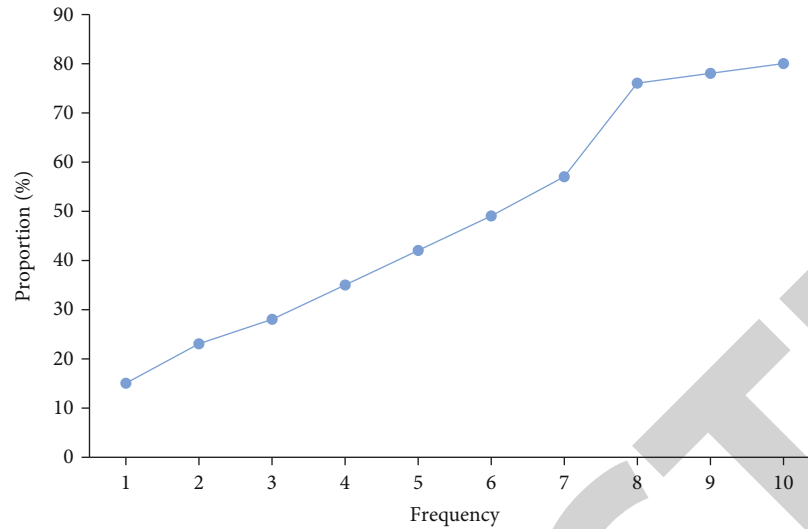


FIGURE 6: Trends in student acceptance.

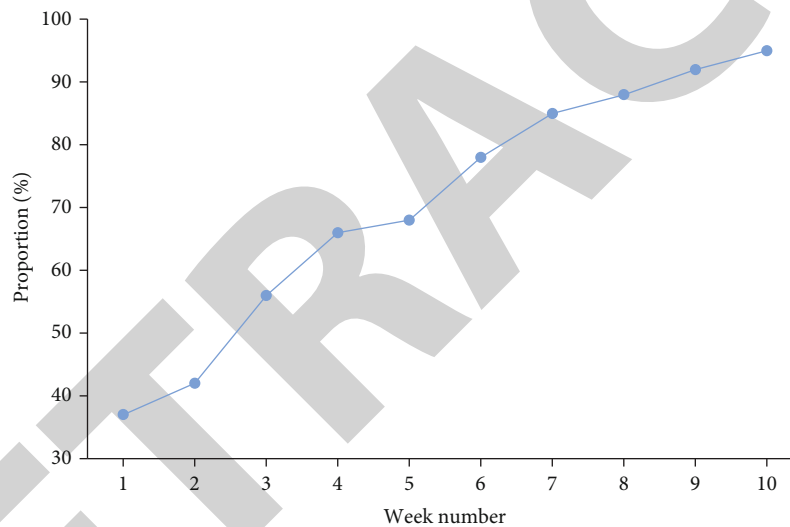


FIGURE 7: Teacher-student relationship survey.

any food, we need to break through all kinds of unnecessary troubles and stand the tests and attacks of all aspects. However, we are very clear that things in the world cannot be perfect, and there can be only a little without shortcomings. The two sides of things exist at the same time, and the advantages and disadvantages are parallel. However, we are always trying to find a teaching mode of seeking advantages and avoiding disadvantages, so as to eliminate those adverse factors as far as possible and achieve the development relationship of harmonious coexistence between teachers and students. Traditional classroom and intelligent classroom teaching satisfaction survey is shown in Figure 5.

Students in smart classrooms use skills to complete actions, allowing students to learn to protect themselves, master the essentials, and then practice. As can be seen, smart classroom teaching requires excellent development opportunities, which today's students appreciate. By creating a positive classroom environment, physical education classroom man-

agement ensures the smooth progression of classroom activities. Because a good classroom environment aids in the transformation of external control into internal control, the formation of a self-discipline psychological mechanism, and the realization of students. Next, compare the students' acceptance of the smart classroom to see how it can be used. Monitor the learning effect of technical actions like "crossing," "drilling," "climbing," and "winding" in obstacle running to verify the teaching effect. We should first conduct a simple evaluation of students' actual obstacle running situation before teaching and then compare the two results. The trend of students' acceptance is shown in Figure 6.

The data in Figure 6 shows that the skills in obstacle running have made a qualitative leap, about 80% of the people can master various skills, and some students have not fully mastered them for the time being, which also reflects the phased progress in the teaching of wisdom classroom. Smart classroom also plays a very positive role in alleviating the

relationship between teachers and students. According to the above test data, it has a positive impact on the relationship between teachers and students. The teacher-student relationship survey is shown in Figure 7.

In the process of teaching, teachers should first understand themselves and their students. In the unused stage, unused teaching methods and management means should be adopted. When to give play to students' initiative and when to give play to teachers' initiative, these need to be explored in the long-term gymnastics teaching process.

5. Conclusion

Colleges and universities in China should actively reflect their advantages in physical education teaching in the sports wisdom teaching mode in the era of big data and information, which can improve not only students' learning enthusiasm but also a historic reform of traditional physical education. Although the development and use of generative resources in the classroom is directly related to promoting students' overall development, there is a paucity of research on the practice and application of smart classrooms in primary school physical education classes. Curriculum view is a collection of fundamental concepts related to curriculum phenomena and activities. It is crucial to grasp this concept in order to comprehend teachers' curriculum events and classroom practices. The value standard and tendency for PE Teachers to judge, evaluate, and choose a series of PE curriculum problems that will guide PE Teachers' curriculum practice behavior is the curriculum view. Now is the time for the classroom to give students more control, to focus on students, and to broaden their teaching horizons. This paper, which is based on intelligent teaching, uses technological means in the classroom to record students and reduce the distance between teachers and children. It is a review of "teaching" for PE Teachers, as well as the final stage of completing the course's teaching task. It can help teachers refine key and difficult aspects of classroom teaching as well as reflect on their own teaching. Physical education teaching and curriculum are not currently standardized in the United States. The follow-up research and exploration will continue due to a time constraint.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The author does not have any possible conflicts of interest.

References

- [1] A. Amagir, H. M. van den Brink, W. Groot, and A. Wilschut, "SaveWise: the impact of a real-life financial education program for ninth grade students in the Netherlands," *Journal of Behavioral and Experimental Finance*, vol. 33, article 100605, 2022.
- [2] W. J. Hall, A. Zeveloff, A. Steckler et al., "Process evaluation results from the HEALTHY physical education intervention," *Health Education Research*, vol. 27, no. 2, pp. 307–318, 2018.
- [3] P. Nader, "Teacher-level factors, classroom physical activity opportunities, and children's physical activity levels," *Journal of Physical Activity & Health*, vol. 15, no. 9, pp. 637–643, 2018.
- [4] K. Thompson, M. I. Johnson, J. Milligan, and M. Briggs, "Rethinking pain education from the perspectives of people experiencing pain: a meta-ethnography to inform physiotherapy training," *BMJ Open*, vol. 12, no. 1, article e046363, 2022.
- [5] L. Wood, M. Lubell, J. Rudnick, S. D. S. Khalsa, M. Sears, and P. H. Brown, "Mandatory information-based policy tools facilitate California farmers' learning about nitrogen management," *Land Use Policy*, vol. 114, p. 105923, 2022.
- [6] D. Vasconcellos, P. D. Parker, T. Hilland et al., "Self-determination theory applied to physical education: a systematic review and meta-analysis," *Journal of Educational Psychology*, vol. 112, no. 7, pp. 1444–1469, 2020.
- [7] C. Roure and D. Pasco, "Exploring situational interest sources in the French physical education context," *European Physical Education Review*, vol. 24, no. 1, pp. 3–20, 2018.
- [8] D. Hortigüela-Alcalá, A. Hernando-Garijo, S. González-Villora, J. C. Pastor-Vicedo, and A. Baena-Extremera, "Cooperative learning does not work for me": analysis of its implementation in future physical education teachers," *Frontiers in Psychology*, vol. 1, no. 1539, pp. 1–10, 2020.
- [9] L. M. Ramjan, Y. Salamonson, S. Batt et al., "The negative impact of smartphone usage on nursing students: an integrative literature review," *Nurse Education Today*, vol. 102, no. 8, p. 104909, 2021.
- [10] V. Varea, G. González-Calvo, and A. García-Monge, "Exploring the changes of physical education in the age of Covid-19," *Physical Education and Sport Pedagogy*, vol. 27, no. 1, pp. 32–42, 2022.
- [11] K. Viskupic, B. Earl, and S. E. Shadle, "Adapting the CACAO model to support higher education STEM teaching reform," *International Journal of STEM Education*, vol. 9, no. 1, pp. 1–20, 2022.
- [12] N. Semeon and E. Mutekwe, "Perceptions about the use of language in physical science classrooms: a discourse analysis," *South African Journal of Education*, vol. 41, no. 1, pp. 1–11, 2021.
- [13] P. Silva, A. A. Jaeger, and V. M. Pedro, "Students perceptions on homophobic and heterosexist behaviors in physical education," *Revista de Psicologia del Deporte*, vol. 27, no. 2, pp. 39–46, 2017.
- [14] L. G. Tan, J. Hannon, C. Webster, L. Podlog, and M. Newton, "Effects of a TAKE 10! classroom-based physical activity intervention on 3rd to 5th grades children's on-task behavior," *Journal of Physical Activity and Health*, vol. 13, no. 7, pp. 712–718, 2016.
- [15] H. Calvert, M. T. Mahar, B. Flay, and L. Turner, "Classroom-based physical activity: minimizing disparities in school-day physical activity among elementary school students," *Journal of Physical Activity & Health*, vol. 15, no. 3, pp. 161–168, 2018.
- [16] H. Montrieux, A. Raes, and T. Schellens, "The best app is the teacher' introducing classroom scripts in technology-enhanced education," *Journal of Computer Assisted Learning*, vol. 33, no. 3, pp. 267–281, 2017.

- [17] M. K. Christensen, "Biographical learning as health promotion in physical education. A Danish case study," *European Physical Education Review*, vol. 13, no. 1, pp. 5–24, 2007.
- [18] J. Viciano, D. Mayorga-Vega, and A. Martínez-Baena, "Moderate-to-vigorous physical activity levels in physical education, school recess and after-school time. Influence of gender, age, and weight status," *Journal of Physical Activity & Health*, vol. 13, no. 10, pp. 1117–1123, 2016.
- [19] I. Sympas, N. Digelidis, and A. Watt, "An examination of Greek physical educators' implementation and perceptions of spectrum teaching styles," *European Physical Education Review*, vol. 22, no. 2, pp. 201–214, 2016.
- [20] P. K. Hoffman, C. S. Davey, N. Larson, K. Y. Grannon, C. Hanson, and M. S. Nanney, "School district wellness policy quality and weight-related outcomes among high school students in Minnesota," *Health Education Research*, vol. 31, no. 2, pp. 234–246, 2018.
- [21] P. A. Hastie and T. Wallhead, "Models-based practice in physical education: the case for sport education," *Journal of Teaching in Physical Education*, vol. 35, no. 4, pp. 390–399, 2016.
- [22] J. Molina-García, A. Queralt, I. Estevan, and J. F. Sallis, "Ecological correlates of Spanish adolescents' physical activity during physical education classes," *European Physical Education Review*, vol. 22, no. 4, 2016.
- [23] Y. Bae, B. M. Hand, and G. W. Fulmer, "A generative professional development program for the development of science teacher epistemic orientations and teaching practices," *Instructional Science*, vol. 1, pp. 1–25, 2022.
- [24] S. Belton, W. O'Brien, E. Murtagh et al., "A new curriculum model for second-level physical education; Y-PATH PE4Me," *Curriculum Studies in Health and Physical Education*, vol. 1, pp. 1–22, 2022.
- [25] A. M. Alim, S. Sumaryanti, and P. Sukoco, "Knowledge of elementary school physical education teachers in Bantul Regency about learning model," in *Conference on Interdisciplinary Approach in Sports in conjunction with the 4th Yogyakarta International Seminar on Health, Physical Education, and Sport Science (COIS-YISHPESS 2021)*, Atlantis press, 2022.
- [26] D. Kirk, "Physical education, youth sport and lifelong participation: the importance of early learning experiences," *European Physical Education Review*, vol. 11, no. 3, pp. 239–255, 2005.
- [27] P. E. Leirhaug, "Exploring the relationship between student grades and assessment for learning in Norwegian physical education," *European Physical Education Review*, vol. 22, no. 3, pp. 298–314, 2016.
- [28] T. Sato and J. A. Haegele, "Graduate students' practicum experiences instructing students with severe and profound disabilities in physical education," *European Physical Education Review*, vol. 23, no. 2, pp. 196–211, 2017.
- [29] S. M. A. Z. Shawon, Z. D. Carballo, V. S. Vega et al., "Surface modified hybrid ZnSnO₃ nanocubes for enhanced piezoelectric power generation and wireless sensory application," *Nano Energy*, vol. 92, p. 106653, 2022.
- [30] W. Jian, S. Bo, X. Luo, Q. Hu, and A. C. Garn, "Validation of a teachers' achievement goal instrument for teaching physical education," *Journal of Teaching in Physical Education*, vol. 37, no. 1, pp. 91–100, 2017.