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*Retraction*

# Retracted: Application of Emotional Education in College Physical Education Based on Mobile Internet of Things Model

**Wireless Communications and Mobile Computing**

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] Y. Huang and K. Li, "Application of Emotional Education in College Physical Education Based on Mobile Internet of Things Model," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 8728925, 12 pages, 2022.

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*Research Article*

# Application of Emotional Education in College Physical Education Based on Mobile Internet of Things Model

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Emotional education is an indispensable and important link in today's educational philosophy. In college physical education, students' emotions are often easily ignored, resulting in a feeling of weariness. What kind of method can effectively apply emotional education to physical education to improve students' enthusiasm for learning has become one of the current research topics that has attracted much attention. Aiming at this problem, it has great research significance for the field of sports emotion education. With the deepening of emotional education research, the research on mobile Internet of Things (IoT) in college education continues to deepen, which is the key to solving the application problem of emotional education. The purpose of this paper is to study the application of college physical education and emotional education integrating mobile IoT model. Through the analysis and research of mobile IoT and emotional education, it can be applied to the construction of emotional education methods to solve the problem of improving students' enthusiasm for learning. This paper analyzed mobile IoT, college physical education, and emotional education, which conducted experimental analysis of method functions and used related theoretical formulas to explain. The results have shown that the emotional education method is more effective than the traditional method in improving students' enthusiasm for learning, and the difference between the two in the evaluation of teaching satisfaction is 31.89%. It can be seen that this kind of emotional education can meet the needs of improving students' enthusiasm for learning, and the satisfaction and learning efficiency are greatly improved.



## 1. Introduction

Under the advocacy of the current emotional education concept, traditional physical education has carried out emotional education integration. Ordinary physical education methods have been unable to meet students' increasing requirements for emotional experience in terms of richness and attractiveness for students who are in urgent need of emotional care. Emotional education is a new teaching model that can solve students' psychological and emotional problems. Due to its advantages in emotion, it has been applied to the teaching of various subjects to successfully solve various students' emotional problems [1]. Emotional education is a concept opposite to cognitive education and is an essential part of the complete educational process. In sports emotional education, its teaching content exists in a rich form, which has far-reaching significance for how to effectively integrate emotional education into a large number of rich physical teaching contents. It is the result of the collision and integration of the three fields of mobile communications, mobile terminals, and the Internet of Things and is an important mode and approach for the development of the Internet of Things. Mobile IoT has a good effect on the integration of emotional education in teaching and has fewer restrictions, so its application range is very wide. In recent years, scholars have used the Internet for emotional education applications, but the application and research of mobile IoT in this field are relatively rare. Therefore, the research on applying the mobile IoT to improve the application effect of emotional education in this paper is innovative.

At present, the concept of emotional education in the knowledge teaching system continues to deepen, and more and more scholars have explored the application of emotional education in the teaching of various subjects. Among them, Zamora described the systematization of emotional education curriculum to emphasize the value of emotional education in training future educators [2]. To improve students' abilities, Raatikainen et al. introduced the concept of qualified empathy to describe professional empathy work skills and conducted a semester of affective intervention for students [3]. In order to have a better platform to implement social-emotional education, Ljubetic and Maglica analyzed emotional education platforms according to the criteria of key social-emotional competencies and related social-emotional skills [4]. In order to improve the quality of nursing, Judge et al. proposed to provide emotional education for nursing students in nursing schools [5]. Bartlett described how health educators can incorporate health education practices and social-emotional learning topics into their curricula [6]. However, the methods used in the teaching of emotional education are not effective.

The mobile IoT model can be used in emotional education in colleges and universities, which has a good effect in stimulating students' interest and improving their enthusiasm for learning. Among them, in order to make it easier for students to understand the abstract chemical principles, Mutambuki et al. proposed to use mobile IoT to integrate the practical experience of virtual reality into the chemistry curriculum [7]. Wang explored whether augmented reality could support software editing courses and examined the learning effects of blended education strategies [8]. In order to solve the problem of disconnection between teaching software and teaching materials, Zhou and Zhang proposed to combine mobile IoT technology with classroom teaching and teaching materials [9]. Christensen and Knezek studied how targeted professional development can help ensure effective integration of mobile learning into classroom settings [10]. These methods are beneficial to promote the teaching effect of emotional education in colleges and universities to a certain extent, but they are somewhat complicated to realize.

In order to solve the problem that the above-mentioned emotional education is not effective in teaching, this paper used the mobile IoT model to analyze emotional education and simulated the teaching process to achieve the effect of improving students' enthusiasm for learning. The innovation of this paper is using mobile IoT to analyze how mobile IoT model and emotional education play a role in the application analysis and research of emotional education in college physical education integrating mobile IoT model. This paper expounded the proposed application method of emotional education. Through experiments, it is found that the method has good effect and strong practicability and greatly improves students' enthusiasm for learning.

## 2. Methods of Applied Analysis of Emotional Education

Emotional education has been neglected in traditional education. The combination of emotional education and cognitive education is a complete educational process, but the lack of emotional education for students in the process of physical education in colleges and universities has caused some problems, such as students are disgusted with learning and resist teachers or classmates, so the research on the application analysis of emotional education in physical education in colleges and universities is very important [11, 12]. The manifestations of lack of emotional education are shown in Figure 1: Figure 1(a) is the emotion of dislike of learning, and Figure 1(b) is inferiority complex.

Through the investigation, it is found that the current research on the application analysis of emotional education in college physical education integrating the mobile IoT model is not complete, that is, most of the research focuses on the theoretical analysis and summary of the implementation of emotional education, so this paper proposes a research on the application of emotional education in college physical education using mobile IoT [13]. This paper analyzes the related methods of mobile IoT, college physical education, and emotional education applications and proposes related methods for emotional education applications. The experimental analysis shows that the emotional education application integrating mobile IoT can help students learn better.

This paper mainly introduces the research background of the application analysis of emotional education in physical education in colleges and universities that integrates the mobile IoT model and leads to the problems to be solved to illustrate the purpose and significance of this paper. Then, a general analysis is made on the research status of the application field of emotional education and the application field of IoT model, and the content and innovation of this paper are explained. The organization structure and method of the full text of this paper are described, and the content of related methods of mobile IoT model and emotional education application is analyzed and described. After arranging the data, the current application of emotional education, the constraints of emotional education, students' final grades, and the results of students' evaluation of teaching satisfaction are analyzed and the conclusion is drawn, and finally, the full text is summarized.

*2.1. College Physical Education and Emotional Education System Integrating Mobile IoT Model.* IoT is, in a sense, part of the Internet. IoT combines object-identifying technologies such as radio frequency tags and wireless sensor network technology to enable the exchange of information between things. IoT has the advantages of efficient use of resources, cost, and time savings. Due to the advantages of IoT functions, good application results have been achieved in many fields [14]. The application areas of IoT are shown in Figure 2.

As shown in Figure 2, the Internet of Things has been gradually applied in various industries. The industry has been intelligentized, which has brought great convenience. In smart medical care, it can monitor the physiological state of people through sensors, mainly referring to medical wearable devices, and record the acquired data into electronic health files, which are convenient for individuals or doctors to consult. In the field of logistics, it is supported by

(a) Aversion to learning (b) Inferiority complex

Figure 1: Symptoms of lack of emotional education.

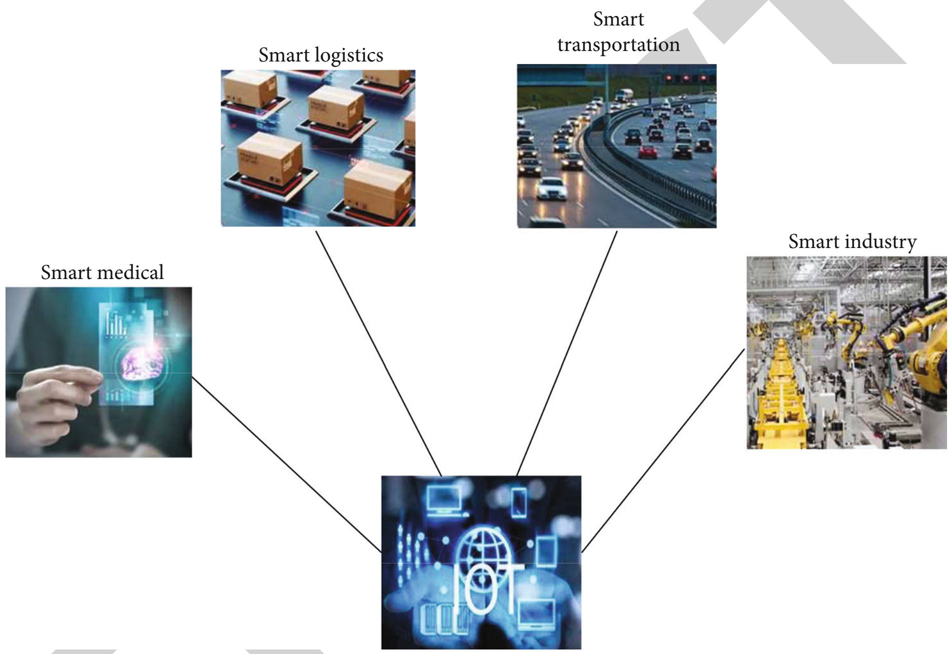



Figure 2: Applications of IoT.

information technology such as the Internet of Things, big data, and artificial intelligence and realizes functions such as system identification, comprehensive analysis, and processing in all aspects of logistics such as warehousing, transportation, and circulation. In terms of transportation, information technology is used to closely integrate people, vehicles, and roads, improve the transportation environment, and ensure traffic safety, so as to improve the utilization of road resources. In terms of industry, this is mainly reflected in the transformation of digital and smart factories, such as factory machinery and equipment monitoring, factory environmental monitoring, and lean production management [15].

According to the needs of emotional education applications in colleges and universities, this paper builds an emotional education system that integrates the mobile Internet of Things model. The system integrates data mining (DL) and virtual reality (VR) technologies. The mobile Internet of Things VR reality teaching platform, the PC-side web page, and the personalized emotional education center are the three subsystems of this system. The energy flow and information transfer between subsystems constitute a virtuous cycle through cooperation, compensation, and feedback. Such a system promotes the rich forms, wonderful contents, personalization, and three-dimensionalization of physical education and emotional education in colleges and universities [16]. The network ecological diagram of the system is shown in Figure 3.

As shown in Figure 3, the system itself has three subsystems: PC-side web pages, mobile Internet of Things microstations, and emotional education centers. The PC-side webpage mainly provides general education services, and the microstation mainly provides personalized education services based on data evaluation, as for the Emotional Health Education Center is responsible for providing theoretical and technical services. These include VR reality scene teaching, DL-based VR virtual classroom, offline activities, and other supported personalized emotional education services [17]. Practical activities can be closer to the actual life of students and have the intuitiveness of teaching.

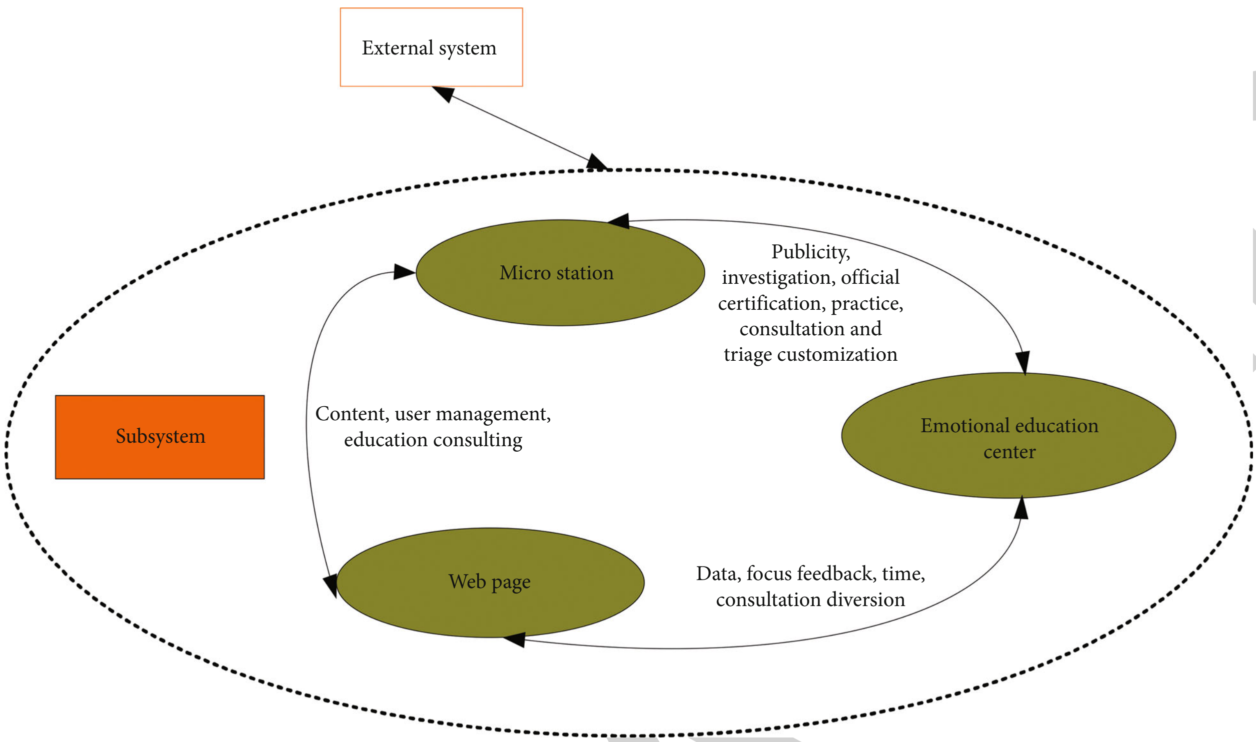



FIGURE 3: System network ecology diagram.

*2.1.1. VR Simulation.* This paper combines the mobile IoT network platform and VR technology to build a realistic scene. The construction of the scene and the character object model requires computer vision technology and feature clustering algorithms.

Before constructing a simulation scene, it is necessary to obtain the relevant element parameters of the modeled object, and this process can be realized by computer vision [18]. For VR scene simulation, the acquisition and preprocessing of image data are very important. Thanks to the advantages of computer vision, objects can be scanned accurately, thus laying the foundation for high-quality simulation results.

Preprocess the immersive image of physical education, including image smoothing filtering, contrast enhancement, and image feature extraction. Errors and biases in preprocessing directly affect the accuracy of subsequent processing and decision-making. Precise preprocessing provides reliable input data for subsequent processing.

The image processed by the averaging method in this field can be expressed by

$$P(m,n) = \frac{1}{X}\sum_{(i,j)\in J}\sum p'(i,j) = \frac{1}{X}\sum_{(i,j)\in J}\sum \left(p(i,j)+\beta(i,j)\right). \quad (1)$$

Among them, $p'(i,j) = p(i,j) + \beta(i,j)$ is an image with noise; $\beta(i,j)$ is white noise; $J$ is a set of points; $X$ is the number of pixels.

The calculation process of the mean value of the noise component in the above formula is shown in

$$Z\left\{\frac{1}{X}\sum\sum\beta(i,j)\right\} = \frac{1}{X}\sum\sum P\{\beta(i,j)\} = 0. \quad (2)$$

Among them, $Z = 0$ is the average value of residual noise, and the distortion of the image becomes blurred as the variance $C$ decreases.

The variance of the noise component is calculated as shown in

$$C\left\{\frac{1}{X}\sum\sum\beta(i,j)\right\} = \frac{1}{C^2}\sum\sum C\{\beta(i,j)\} = \frac{1}{X}\chi^2. \quad (3)$$

Median filtering is a method of dealing with image noise. Under some specific conditions, median filtering can overcome the blurring of image details caused by linear filtering and is the most effective method to eliminate impulse interference and particle noise. Its mathematical description is shown in

$$p_i = X\{y_{i=b}, y_{i-1}, y_i, y_{i+1}, \cdots, y_{i+b}\}, \quad i \in M,\ b = \frac{(B-1)}{2}. \quad (4)$$

Among them, $B$ is the number of elements removed in the one-dimensional sequence $y_1, y_2, \cdots, y_n$; $i$ is the center position.

In this paper, accurate feature extraction is achieved by weighting the $K$-means algorithm. Its objective function is shown in

$$Q(t, y, u) = \sum_{t=1}^{k} \sum_{i=1}^{n} l_{it} \sum_{j=1}^{m} e_j^{\partial} \left(x_{ij} - vpj\right)^2. \quad (5)$$

Among them, the constraints are shown in

$$\sum_{j=1}^{m} e_j = 1. \quad (6)$$

Among them, $e_j^{\partial}$ is the added weight parameter. Its function is to compute the sum of weighted distances for each dimension while minimizing the distance for the entire cluster; that is, the influence of each dimension on the clustering results is adjusted by different weight values.

The feature extraction and allocation parameters of the scanned object can be obtained by adding the weight parameter $k$-means algorithm. After that, feature matching greatly improves the matching accuracy [19].

Use the function to detect the corners of the image, and its expression is shown in

$$W(v) = \sum_{i=0}^{n} KP_{i,k}(v). \quad (7)$$

Among them, $P_{i,k}(v)$ is the harmonic function, and its definition is shown in

$$P_{i,1}(v) = \begin{Bmatrix} 1, t_i \le v \le t_{i+1} \\ 0, \text{other} \end{Bmatrix},$$
$$p_{i,k}(v) = \frac{(v - t_i) P_{i,k-1}(v)}{t_{i+k-1}} + \frac{(t_{i+k} - v) P_{i+1,k-1}(v)}{t_{i+k} - t_{i+1}} (t_{k-1} \le v \le t_{n+1}). \quad (8)$$

$t_i$ is the node value.

Using the maximum curvature to detect the corner points, the points on the curve can be shown in

$$D = p_0(v) O_{i-1} + p_1(v) O_i + p_2(v) O_{i+1} + p_3(v) O_{i+2}. \quad (9)$$

3D modeling of 2D images of multiple scene images through AI computer vision technology and feature clustering algorithm. Realize VR simulation of sports scenes [20]. The VR simulation effect is shown in Figure 4.

Traditional physical education is limited by the venue. Sports that integrate VR technology and 3D visual scenes can make physical education classes more efficient, make students more relaxed physically and mentally, and experience the immersive experience brought by sports in different visual spaces. The peculiar visual space and immersive interactive experience allow students to release their emotions. Completing physical education in entertainment can not only meet students' learning requirements but also allow students to experience different emotional experiences. In addition, many of our daily sports can also be realized in VR simulation, such as simulation shooting, simulation archery, simulation ball, and other sports.

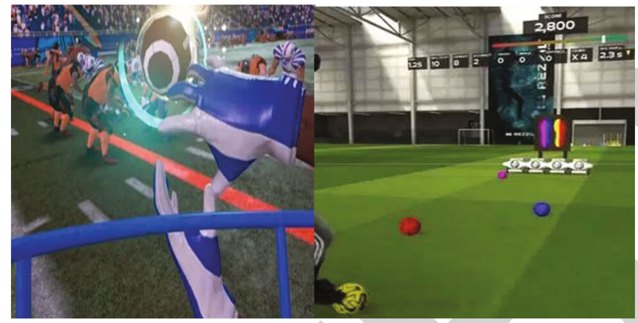



Figure 4: VR simulation.

*2.1.2. Personalized Recommendation.* For the recommendation accuracy of the personalized recommendation service in the system, this paper uses the DL algorithm to grasp the student behavior and status data information to achieve [21].

In this paper, a forward neural network with multiple hidden layers is constructed to model the user-item relationship. In this model, the user's preference for a sample can be shown in

$$H_{\widehat{jk}} = e\left(U^{T*} X_j^y, V^{T*} X_k^w | U, V, \alpha\right) \quad (10)$$

Among them, $X_j^y$ is user auxiliary information; $X_k^w$ is item auxiliary information; $e$ is network definition; $\alpha$ is network parameter.

To predict the rating of an item, a weighted adjustment is defined as a loss function, as shown in

$$\eta = \sum_{(j,k) \in 0 \cup 0-} r_{jk} \left(J_{jk} - \widehat{J_{jk}}\right)^2 \quad (11)$$

Binary scoring and implicit feedback are performed on it, and the function is defined as cross-entropy, as shown in

$$\eta = \sum_{(j,k) \in 0 \cup 0-} \left(J_{jk} \log \widehat{J_{jk}} + \left(1 J_{jk}\right) \log \left(1 \widehat{J_{jk}}\right)\right) \quad (12)$$

If there is a large amount of unobserved user and item interaction information in the dataset, negative sampling can be used to improve training efficiency.

The model can obtain latent representations through methods similar to matrix factorization and does not require feature engineering to determine the characteristics of users or items. The disadvantage is that other features of the user or item cannot be used more effectively, such as certain attributes of the item, the user's age, occupation, or the evaluation of the item user is affected by time. The applicable opportunity of this model is mainly a scheme that only uses the evaluation information of project users to make recommendations when more functions of users or projects cannot be obtained.

Wide and Deep Learning has an application that combines single-layer perceptrons and multilayer perceptrons, allowing the system to capture both memorized and generalized relations. The accuracy of prediction and the diversification of recommendation results are optimized. The expression of its width learning part is shown in

$$u = S_k^P\{m, \vartheta m\} + e. \tag{13}$$

Among them, $S_k^P$ and $e$ are model parameters; $\{m, \vartheta m\}$ is the feature set, and $m$ is the original feature set.

The expression of each layer of its deep learning part is shown in

$$d^{(z+1)} = h\left(S_k^P v^{(z)} + c^{(z)}\right). \tag{14}$$

Among them, 1 is the first layer, $h$ is the activation function, $S_k^P v^{(z)}$ is the parameter, and $S_k^P v^{(z)}$ is the bias.

By combining some of the above formulas, the prediction model can be obtained as shown in

$$M\left(N_{jk} \widehat{=} 1|z\right) = \sigma\left(S_k^P\{z, \vartheta z\} + S_k^P e^{(mh)} + c\right) \tag{15}$$

Among them, $\sigma$ is the sigmoid function; $\widehat{N_{jk}}$ is the predicted value range between 0 and 1; $e^{(mh)}$ is the activation value output by the last layer.

The strength of this model is that it allows the model to be built to take advantage of the rich functionality of users and projects, thereby improving model performance.

This paper improves on the traditional model by adopting denoising techniques and adding auxiliary information to reduce the impact of cold start [22]. Its loss function is shown in

$$\xi = \tau\left(\sum_{i\in I(o)\cap I(c)}\left[l\left(\widehat{N}^{(i)}N^{(i)}\right]^2\right) + \upsilon\left(\sum_{i\in Y(o)\cap Y(c)}\left[l\left(\widehat{N}^{(i)}N^{(i)}\right]^2\right) + \vartheta^* R \tag{16}$$

Among them, $Y(o)$, $Y(c)$ are the index values of observation and noise, respectively; $\tau, \upsilon$ are two hyperparameters; $l(\widehat{N}^{(i)})$ is the reconstructed output value after noise.

Adding auxiliary information to the model to expand it can obtain the reconstructed output value expression as shown in

$$l\left(\left\{\widehat{N}^{(i)}, F_i\right\}\right) = f\left(S_2^*\left\{d\left(S_1^*\left\{N^{(i)}, F_i\right\} + \sigma\right), F_i\right) + c\right) \tag{17}$$

Among them, $F_i$ is auxiliary information; $\{N^{(i)}, F_i\}$ is the connection between $N^{(i)}$ and $F_i$.

Next, it performs ranking prediction, takes the observed implicit feedback as input, masks the added noise, and reconstructs the output value as shown in

$$Y\left(N_p^{(j)}\right) = f\left(S_2^* h\left(S_1^* N_p^{(j)} + T_j + c_1\right) + c_2\right). \tag{18}$$

Among them, $T_j$ is the parameter vector corresponding to the user node, and the reference of the user parameter vector can significantly improve the performance. This parameter is obtained by minimizing the reconstruction error, and the process is shown in

$$\underset{S_1,S_2,V,c_1,c_2}{A\min}\frac{1}{H}\sum_{j=1}^{H} E_p\left(\tilde{N_p}^{(i)}\middle|N_p^{(i)}\right)\left[\psi\left(\tilde{N_p}^{(i)}, l\left(\tilde{N^{(i)}}_p\right)\right)\right] + \vartheta^* R. \tag{19}$$

Among them, loss function $\psi$ can take various forms, such as logarithmic or square loss function.

This paper builds a physical education emotional education system that integrates mobile IoT. It adopts the mobile IoT model to apply it to college education and analyzes its implementation effect in improving student performance, stimulating students' interest, and improving students' satisfaction with teaching.

## 3. Data Sources of Emotional Education Application

The data used in the analysis of this paper are collected through questionnaire survey and interview to investigate the current situation of teachers' use of emotional education in physical education in colleges and universities. In the questionnaire survey, a total of 54 points of teacher questionnaires were distributed, 48 valid questionnaires were recovered, and the questionnaire recovery rate was 88.9%. The survey objects are 48 physical education teachers from the school of physical education of Zhoukou Normal University. Examples of basic information of some survey objects are shown in Table 1.

Among them, the basic data information of the respondents includes the gender, age, teaching experience, educational background, and professional title of teachers. Teachers can be classified according to different types of data attributes. According to gender, it can be divided into male and female groups; teachers can be divided into three groups according to age, namely, age < 30 years old, 30-45 years old, >45 years old; according to teaching, age can also be divided into three groups, namely, teaching age < 5 years, 5-10 years, and >10 years; according to the academic qualifications, it can be divided into three groups: undergraduate, master, and doctorate; according to the grade of professional title, it can be divided into three groups: primary, intermediate, and advanced.

At the same time, in order to use the method of comparative experiment to explore the application effect of emotional education in physical education in colleges and universities. This paper conducts a group experiment and conducts emotional education integrating the mobile Internet of Things model for class A and traditional education

Table 1: Basic data of some respondents.

| Project | Teacher 1 | Teacher 2 | Teacher 3 |
|---|---|---|---|
| Gender | Female | Male | Male |
| Age | 32 | 28 | 41 |
| Teaching age | 7 | 2 | 13 |
| Education | Master | Undergraduate | Ph.D. |
| Job title | Intermediate | Primary | Advanced |

Table 2: Basic data of some students in experimental classes.

| Project | Student 1 | Student 2 | Student 3 |
|---|---|---|---|
| Gender | Female | Female | Male |
| Age | 18 | 20 | 19 |
| Household registration | Urban | Country | Urban |
| Admission sports scores | 66 | 71 | 68 |

Table 3: Example of an effectiveness evaluation questionnaire.

| Scoring item | Student 1 | Student 2 | Student 3 |
|---|---|---|---|
| Physical ability | 4.21 | 3.36 | 3.74 |
| Sports learning interest | 3.54 | 3.27 | 4.35 |
| Teacher-student relationship | 5.00 | 3.24 | 4.17 |
| Learn self-confidence | 2.37 | 4.24 | 3.36 |
| Learning initiative | 4.85 | 5.00 | 3.17 |
| Satisfaction | 3.27 | 4.13 | 2.86 |

for class B. After one semester, the teaching effects of the two classes were compared to judge the application value of emotional education in physical education in colleges and universities.

For the two classes entering in the fall of 2018, one of the classes is the control class and the other class is the experimental class. Finally, 46 students in each class were selected as experimental subjects. The basic situation of the students in the two classes is shown in Table 2.

The data includes the student's gender, age, household registration, and sports scores at the time of admission.

The independent sample test showed that there was no significant difference in gender, household registration, and physical education performance at the time of admission between the two classes; $t = -0.461$, 0.381, and 0.117, respectively; $p = 0.667$, 0.684, and 0.907, respectively, all $p > 0.05$, whose studies are comparable.

At the end of the experiment, the effect of emotional education was evaluated by issuing subjective evaluation questionnaires to the students who participated in the experiment. An example of the content of the effect evaluation form is shown in Table 3.

Among them, comprehensive evaluation is carried out in terms of sports ability, learning interest, teacher-student relationship, learning self-confidence, learning initiative, and overall satisfaction. The questionnaire is carried out on a 5-point scale, and the higher the score, the higher the satisfaction.

## 4. Results and Discussion of Applied Analysis of Emotional Education

*4.1. Investigation and Demand Analysis of Emotional Education Application Status.* With the gradual implementation of the concept of quality education in college teaching, more and more college physical education teachers realize the role of emotional education in physical education, hoping to improve the quality of teaching through emotional education. This paper investigates the application status of physical education teachers in colleges and universities through questionnaires and interviews. The survey results of the basic situation of the interviewed teachers are shown in Figure 5.

As shown in Figure 5, the basic situation of the surveyed teachers was obtained in the current situation survey. Figure 5(a) shows that there are 28 male teachers and 20 female teachers, and there are more male teachers than female teachers, which may be related to the fact that males are more gifted in sports; Figure 5(b) shows that in terms of age, there are 13 teachers < 30 years old and 26 teachers between 30 and 45 years old. There are 8 teachers > 45 years old, mainly young and middle-aged teachers < 45 years old, accounting for 81.25%. However, the proportion of young teachers is still relatively low, at 27.08%; Figure 5(c) shows that in terms of teaching age, 7 were <5 years old, 23 were 5-10 years old, and 18 were >10 years old. The proportion of <5 years is only 14.58%, 85.42% of teachers have been teaching for more than 5 years, and the proportion of teachers > 10 years is 37.50%; Figure 5(d) shows that in terms of professional titles, there are 15 people with primary titles, 26 with intermediate titles, and 7 with senior titles. Intermediate titles are the main ones, accounting for 54.17%, and teachers with senior titles account for only 14.58%; Figure 5(e) shows that in terms of academic qualifications, there are 24 undergraduates, 18 masters, and 6 doctorates. Undergraduate is the main component, accounting for 50.00%, but 50.00% of the interviewed teachers have obtained master and doctoral degrees.

Through the questionnaire survey and interview with physical education teachers, the current situation of the application of emotional education in physical education was investigated, and the specific survey results were obtained as shown in Figure 6.

Figure 6 shows the results of the investigation on the current physical education teachers' awareness of the importance of emotional education, the degree of initiative in using emotional education in teaching, and the implementation effect of emotional education under the current traditional teaching model. Figure 6(a) shows the perceptions of the interviewed teachers on the importance of emotional education. Among them, 11 teachers think that emotional education is very important, accounting for 22.92%; there are 29 people who think it is important, accounting for 60.42%, that is to say, the teachers who think that emotional education is very important account for the vast majority, accounting for a total of 83.34%; 6 teachers think that emotional education is of average importance, accounting for 12.50%; 2 teachers think that emotional education is not

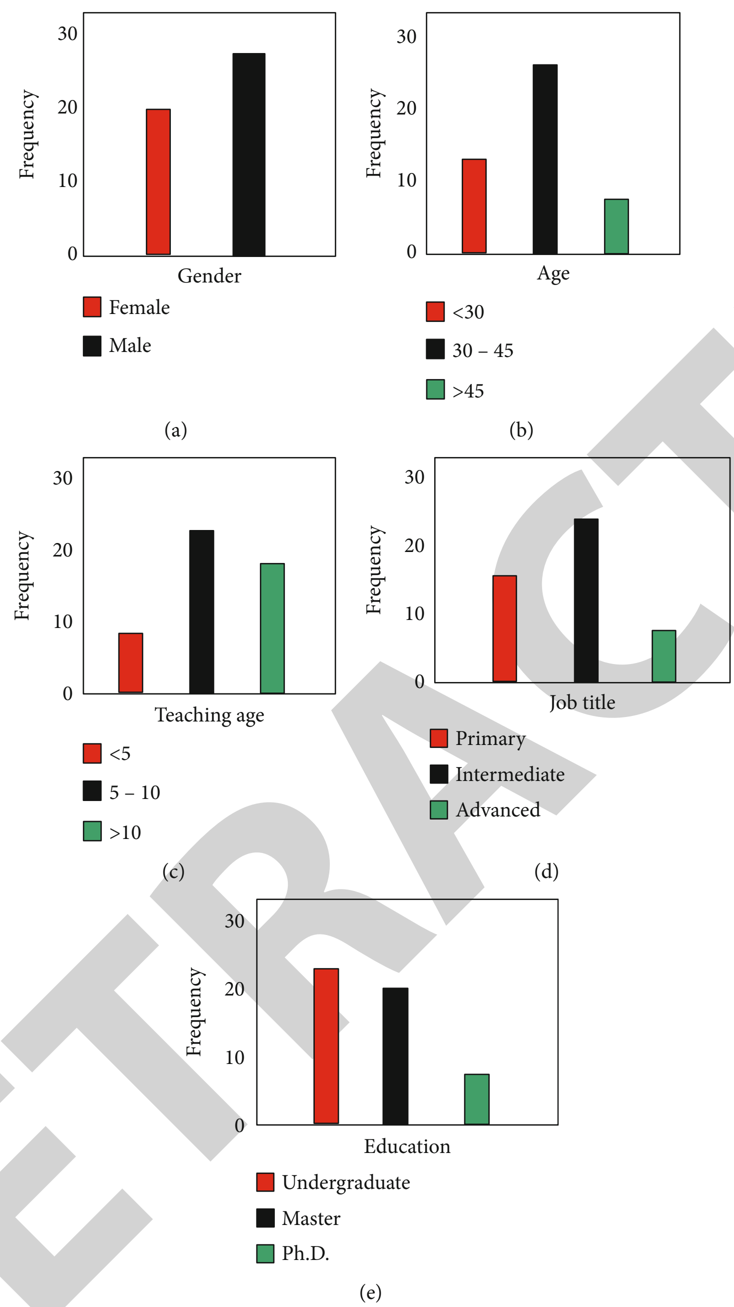



Figure 5: Basic information of interviewed teachers.



important, accounting for 4.17%. It can be seen that the importance of emotional education in physical education has been recognized in the hearts of most teachers, which lays the foundation for the application of emotional education.

In the application of emotional education, if you can actively use emotional education for teaching, you can get very good results. On the contrary, if the initiative to use emotional education is not high, it will restrict its effect. Figure 6(b) shows the teachers' use of emotional education initiative in the teaching process. Among them, there are 5 teachers who can actively use it, accounting for 10.42%; there are 8 teachers who can use it more actively, accounting for 16.7%; there are 27 teachers who use it in general, accounting for 56.25%; there are 8 teachers who use it more passively, accounting for 16.7%. It can be seen that the number of teachers who can actively use emotional education is small, and most teachers use it in general. It can be seen that in the physical education of colleges and universities, the initiative to use teachers' emotional education is not enough.

Figure 6(c) shows the teachers' evaluation of the effect of emotional education in the traditional teaching model. Among them, there are 6 teachers who think the effect is very good, accounting for 12.50%; there are 10 teachers who think the effect is good, accounting for 20.83%; 27 teachers think the effect is average, accounting for 56.25%;

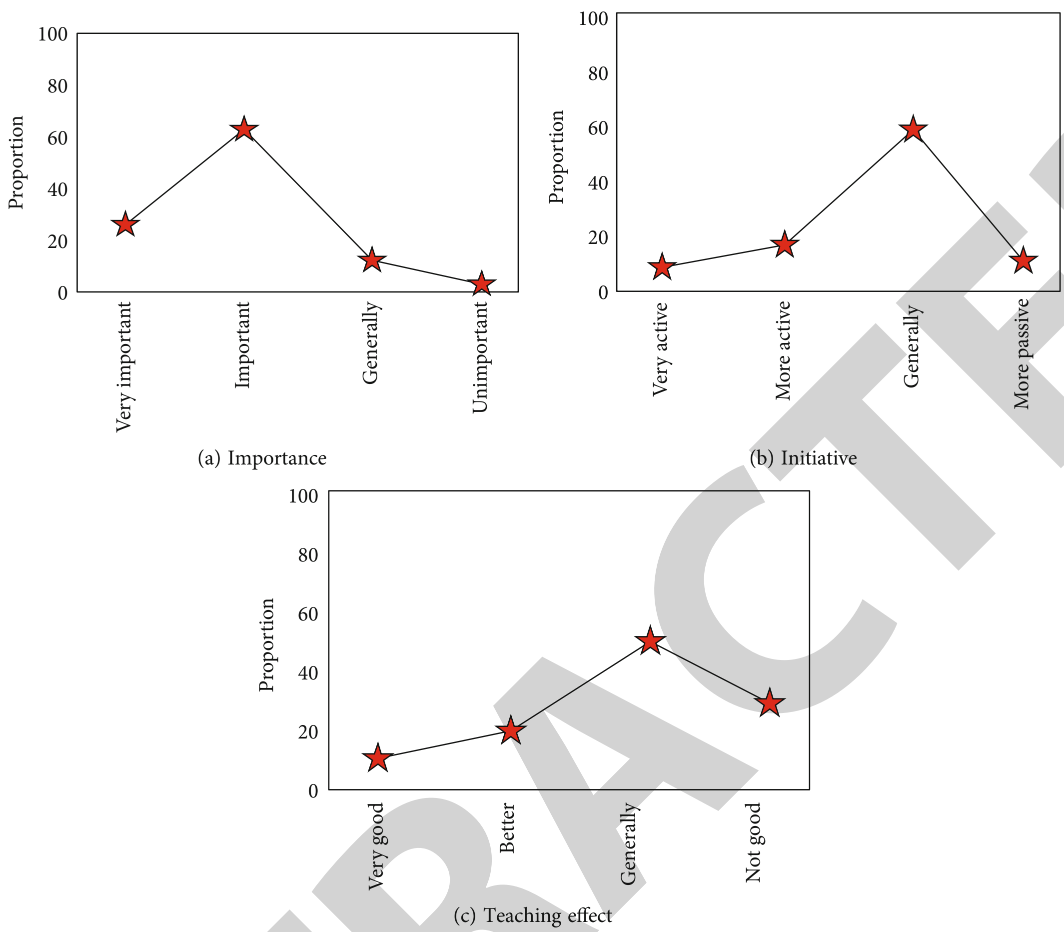



Figure 6: Current situation survey results.



5 teachers think the effect is not good, accounting for 10.42%. It can be seen that the implementation effect of emotional education under the traditional teaching model is not good, which is due to the general lack of interest in learning among students under the current model, which affects the implementation effect. Therefore, it can be considered that the application of emotional education integrating the mobile Internet of Things model is critical to improving the current situation.

Through questionnaire surveys and interviews with teachers, statistics are made on the survey results of the factors that teachers think restrict the implementation of emotional education. The specific results are shown in Table 4.

From the table, traditional teaching model, teachers' teaching ability, and teacher-student relationship have become the main factors restricting the implementation of emotional education. Teachers' teaching ability and teacher-student relationship are the basic conditions for the smooth implementation of emotional education. Teaching model also affects the implementation of emotional education. Under the traditional education model, the teaching content revolves around textbooks, which is more difficult to stimulate students' interest in learning and cultivate self-confidence in learning. Teachers pay more attention to the effect of subject teaching and students' test scores and take advantage of the lack of motivation in emotional education.

Table 4: Constraints to the implementation of emotional education.

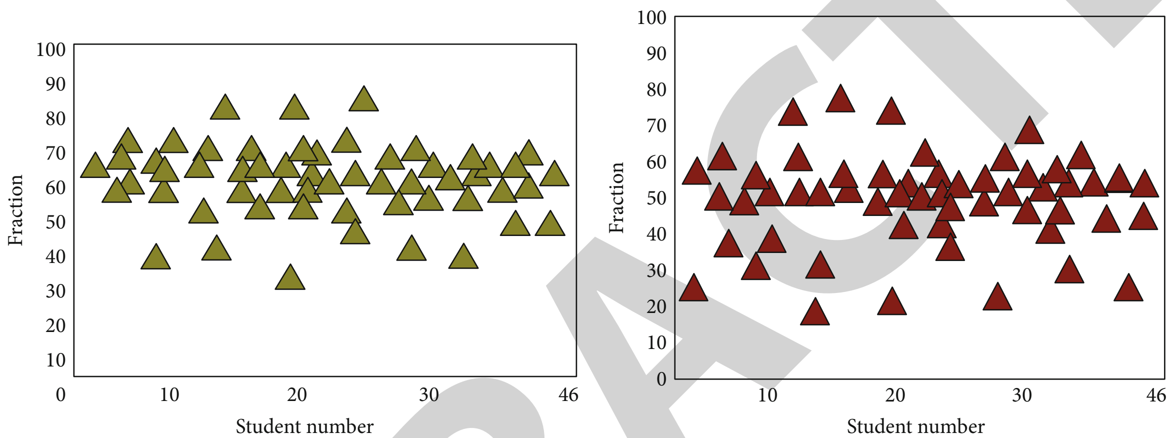
| Influencing factors | Number of people | Proportion |
|---|---|---|
| Test-oriented educational environment | 41 | 85.42% |
| Traditional teaching model | 48 | 100.00% |
| Teacher teaching ability | 48 | 100.00% |
| Student sports fundamentals | 43 | 89.58% |
| Emotional quality of students | 36 | 75.00% |
| Teacher-student relationship | 48 | 100.00% |

In the mobile Internet of Things model, linking teaching with teachers and students through the network and equipment can not only expand teachers' teaching ability but also stimulate students' interest in learning and improve the viscosity of teacher-student relationships. It can be seen that the influence of the change of teaching model on the implementation effect of emotional education is holistic.

*4.2. Application Effect of Emotional Education.* This article takes two classes enrolled in the fall of 2018 as the object to conduct a controlled experiment on the application effect

Table 5: Basic information of the experimental and control groups.

| Project | Index | Class A ($n = 46$) | | Class B ($n = 46$) | |
|---|---|---|---|---|---|
| | | Number of people | Proportion | Number of people | Proportion |
| Gender | Male | 34 | 73.91% | 32 | 69.57% |
| | Female | 12 | 26.09% | 14 | 30.43% |
| Household registration | Urban | 28 | 60.87% | 31 | 67.39% |
| | Country | 18 | 39.13% | 15 | 32.61% |
| Admission sports scores | <60 | 16 | 34.78% | 14 | 30.43% |
| | 60-80 | 24 | 52.17% | 27 | 58.70% |
| | >80 | 6 | 13.04% | 5 | 10.87% |




(a) Class A (b) Class B

Figure 7: Distribution of final sports scores.

of emotional education. Class A is the experimental class and class B is the control class. Finally, 46 students in each class were selected as experimental subjects. In physical education, the emotional education integrated with the mobile Internet of Things model is carried out for class A, and the traditional education is carried out for class B. After one semester, the teaching effect of the two classes was evaluated to judge the application value of emotional education in physical education in colleges and universities. Teaching effect evaluation includes objective evaluation and subjective evaluation. The objective evaluation is based on the final physical examination results of the two teaching classes and uses a 100-point system to count the scores. The higher the score, the better the teaching quality. Subjective evaluation was carried out by means of a questionnaire. The questionnaire comprehensively evaluates the sports ability, learning interest, teacher-student relationship, learning self-confidence, learning initiative, and overall satisfaction. The class of the experimental subjects is shown in Table 5.

The independence test showed that there was no significant difference between the two classes, and the $p$ values were all greater than 0.05, which was comparable.

This paper summarizes the physical education final exam results of the two classes to obtain the specific score distribution as shown in Figure 7.

Figure 7 shows the distribution of final physical education scores of the two participating classes. On the whole, there are differences in the distribution of the scores of the two classes. Figure 7(a) shows that the distribution of grades in class A is mainly between 50 and 70 points; Figure 7(b) shows that the distribution of grades in class B is mainly between 40 and 60 points. According to statistics and calculations, the highest score for class A is 85 points, and the highest score for class B is 82 points; the lowest score for class A is 34 points, and the lowest score for class B is 23 points. The average score of class A was 67.43, and the average score of class B was 58.86. The highest and lowest scores and average scores of class A are higher than those of class B, and the average score of class A is 14.56% higher than that of class B. It can be seen that the grades of class A are generally better than those of class B, and students' physical performance can be improved through emotional education.

This paper collects and counts the results of the questionnaire survey on teaching satisfaction of class A and class B and then obtains the satisfaction comparison results as shown in Figure 8.

Figure 8 shows the comparison results of only evaluating the satisfaction of the two classes on the teaching effect after the experiment. It can be seen from the figure that the satisfaction evaluation of class A for the teaching effect is

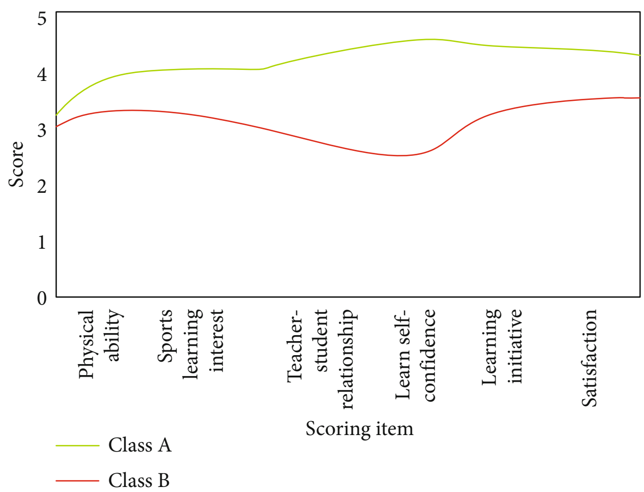



Figure 8: Comparison of teaching satisfaction evaluation.

significantly higher than that of class B. The average score of class A's evaluation of teaching satisfaction is 4.26 points, and the average score of class B's evaluation of teaching satisfaction is 3.23 points. The difference between the two is 1.03 points, which is 31.89% higher than that of class B. It can be seen that the application of emotional education can improve students' satisfaction with teaching and promote students' learning effect.

## 5. Conclusions

Network technology promotes the continuous development of education, and people's requirements for physical education are getting higher and higher. The development of emotional education in physical education is inseparable from the contribution of the mobile Internet of Things. The mobile Internet of Things model has been applied in emotional education due to its advantages. Through comprehensive experimental tests, it can be seen that the emotional education of physical education in colleges and universities integrating the mobile Internet of Things model can effectively improve students' performance, improve students' satisfaction with teaching, and stimulate their interest in learning. Through the analysis of the current situation and needs of emotional education application in colleges and universities, it is found that due to the lack of teachers' initiative to use emotional education, the current emotional education implementation effect is not good. Through the investigation of the factors affecting the implementation of emotional education, it is found that the current traditional teaching model is the main factor restricting the implementation of emotional education, and changing the model can effectively improve the implementation effect of emotional education. Through group experiments, this paper compares the teaching effect of emotional education using the integrated mobile Internet of Things model with traditional education and finds that the implementation of emotional education can effectively improve students' performance and improve students' satisfaction evaluation for teaching. It can be seen that the implementation of emotional education integrating the mobile Internet of Things model provides strong support for improving the level of physical education in colleges and universities and can effectively stimulate students' interest in learning. Finally, this paper reviews the experiments and finds that the experimental results may be more accurate if more variables are set in the experiment. Due to time constraints, no relevant experiments were carried out in this paper, and it is hoped that the results of this paper can provide ideas and references for future research.

## Data Availability

The data that support the research findings are available on request. The data are not publicly available due to the privacy of research participants.

## Conflicts of Interest

We declare that we have no conflicts of interest to report regarding the present research.

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