Research Article

Fuzzy Intelligence in Physical Immersion Teaching System Based on Digital Simulation Technology

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In order to improve the effect of physics teaching, this study combines digital simulation technology to construct a physical immersion teaching system to improve the effect of physics teaching in colleges and universities. Moreover, this study transforms abstract physical knowledge into recognizable digital physical images and realizes the idea of multifeature fusion through reasonable feature selection and the use of a classifier algorithm suitable for the subject of this paper. In addition, this study proposes a new algorithm based on the morphological features of geometric images, which combines the transformation detection method of cluster analysis to realize the intelligent processing of images. Finally, this study verifies the effectiveness of the physical immersion teaching system based on fuzzy intelligence and digital simulation technology through experimental research. The results show that the system can effectively improve the effect of physics teaching.

1. Introduction

Immersion theory relies on technological tools to provide a near-real learning environment for learners, enabling them to complete knowledge and theory creation in an immersed state. Immersion theory is one of the artificial intelligence ideas that has had the most influence on higher education so far. The early immersion theory proposed that, in order to keep users immersed, a balance of abilities and difficulties must be maintained, which may influence the occurrence of “learning behaviour” in users [1]. With the combination of computer technology and immersion theory, the theory’s meaning has expanded to include human-computer interaction and scene-based learning, further strengthening the theoretical foundation of “immersion teaching” [2]. Immersion teaching is a real expression of immersion theory as a new educational paradigm. It offers immersion, intense engagement, and a flexible mode, all of which are beneficial to the development of creative and inventive new media abilities. Traditional media talent training at colleges and universities, on the contrary, has inherent flaws such as a lack of enthusiasm in learning, a single kind of practical training, limited learning involvement, and a lack of innovation potential. In the age of artificial intelligence, this will not be enough to address the training demands of applied and compound media professionals. The question of how to create an appropriate training model for media talent in colleges and universities based on “immersion teaching” has become a crucial issue worth investigating [3].

The modular education thinking is integrated into the training process of media talents in colleges and universities and is oriented to improve the professional skills of students. According to the different training goals and types of physics talents in colleges and universities, each module implements personalized “immersion teaching” according to the characteristics of the major and the requirements of practical training. In the talent training module, artificial intelligence technology, 3D real-time rendering technology, and motion capture and recognition technology are used to build a virtual studio with 3D graphics workstation, camera tracking system, etc. Moreover, students can use the platform to complete virtual training so that students can experience an alternative studio experience in the interweaving of reality and reality. Through the digital synthesis of three-dimensional scenes, moving images, and actual training processes, students’ “immersion” is enhanced, knowledge and abilities
are more easily mastered, and a resource module system is formed.

This study combines digital simulation technology to construct a physical immersion teaching system, improve the effect of physics teaching in colleges and universities, and transform abstract physics knowledge into recognizable digital physics images to help students understand and improve the efficiency of physics teaching.

2. Related Work

The modular education thinking is integrated into the training process of media talents in colleges and universities and is guided by the improvement of students’ professional skills. According to the different goals and types of media talents training in colleges and universities, the talent training process is divided into radio and television director talent-training modules, film and television photography and production majors’ talent training module, and broadcasting and hosting professional talent-training module, and each module implements personalized “immersion teaching” according to different professional characteristics and training requirements [4]. Artificial intelligence technology, 3D real-time rendering technology, and motion capture and recognition technology are combined to create a virtual studio with a 3D graphics workstation, camera tracking system, and other features in the physics teaching talent training module. Students may utilise this platform to complete virtual instruction, allowing them to have a unique studio experience that combines reality and reality. The “immersion” of pupils is improved, and it is simpler to grasp information and talents, thanks to the digital synthesis of three-dimensional settings, moving visuals, and real training process [5], focuses on developing students’ ability to comprehend various scenarios and environments, and can use virtual scene simulation technology to design simulation scene systems, integrating camera perspective roaming, subjective immersive browsing, interactive simulation experience, intelligent scene identification, and other functions, not only can design multiple simulation scene systems. The simulation scene is convenient for students to freely explore unknown scenes according to their personal cognitive situation, transform knowledge, and skills and can easily perform camera operations, compare the effects of different operation schemes, and enhance students’ perception of the scene. [6].

Immersive virtual reality (immersive VR) provides participants with a fully immersive experience so that users have a feeling of being in a virtual world, so it can best show virtual reality effects. Related equipment includes helmet-mounted displays, walking equipment, cave-style stereoscopic displays, devices, data gloves, and spatial position trackers [7]. The obvious characteristics of immersive virtual reality are the use of closed scenes and sound systems to isolate the user’s visual and auditory from the outside world so that the user can be completely immersed in the computer-generated environment; it has a high sense of immersion, high real time, good system integration, and parallel processing capabilities [8]. At present, the common immersive virtual reality systems include helmet-type virtual reality systems, cockpit-type virtual reality systems, projection-type virtual reality systems, and cave-type virtual reality systems. Compared with desktop virtual reality and distributed virtual reality, immersive virtual reality will be one of the important contents in the application of virtual reality technology in college physics teaching in the future [9].

Immersive virtual experiment technology allows college professors to use novel and different teaching approaches. It offers several benefits in experimental education, including a high usage rate, excellent safety, and ease of maintenance. It is an active investigation in colleges and universities to promote “intelligence + education,” and it will become a college, and universities rebuild the education ecosystem and create the essential link of intelligent education [10]. The greatest impediment to the use of immersive virtual reality in smart teaching in colleges and universities is its high cost. The cost of research and development and equipment acquisition, such as location tracking and location tracking, is greater, as it is the cost of repair and maintenance [11]. The problem that restricts the application of immersive virtual reality in smart teaching in colleges and universities is a technical problem of personnel. Compared with non-immersive VR systems and semi-immersive VR systems, immersive VR systems have higher requirements for smart teaching administrators in colleges and universities [12]. Generally speaking, the operation of nonimmersive VR systems and semi-immersive VR systems is relatively simple. Smart teaching administrators in colleges and universities only need short-term training to achieve skilled operation. Immersive VR systems require a deep understanding of virtual reality technology. To ensure the long-term stable operation of the immersive VR system, not only professionals are required to operate the equipment but also professionals are required to perform repairs and maintenance [13]. In order to improve the reader’s immersive and exchangeable experience of immersive VR systems, it also depends on the further improvement of visual scene generation technology. The panorama technology generally used in smart teaching in colleges and universities that use nonimmersive VR systems and semi-immersive VR systems can help readers find their favorite books in smart teaching in colleges and universities as much as possible. The technical cost requirements are lower, but the immersive and exchangeable experience is poor [14]. The 3D modeling technology generally used in the immersive VR system has the characteristics of good immersion and interactivity, but the construction process of complex models is relatively heavy and complicated, and the construction of an effective interactive virtual scene requires a large amount of programming and technology. The difficulty requirement is higher [15].

3. Digital Simulation Technology

As seen in Figure 1, the RGB model describes a colour by a point in three-dimensional space. Each pixel contains three components that indicate the pixel’s colour’s red, green, and
blue brightness levels. The brightness value range for frequently used 24-bit colour digital photographs is normally a closed interval [0, 255], which may represent more than one million colours. The RGB colour system is based on the idea that colours emit light. To put it in another way, it is like having three lights: red, green, and blue. The colours are blended when the lights of these three lamps are overlaid on each other, and the brightness equals the total of the two brightnesses. The greater the brightness is, the more blended it is, that is, additive mixing [16].

The hue circle in Figure 2(a) describes the two parameters, hue and saturation. The hue is expressed in angle, which reflects the wavelength of the light wave in the spectrum that the colour is closest to. Generally, 0° is defined as red, 120° as green, and 240° as blue. Hue from 0° to 240° covers all colours of the visible spectrum in the physical sense, and hue between 240° and 300° is the nonspectral (purple) of the human eye coursework.

As illustrated in Figure 2, the three attribute parameters of the HSI model establish a three-dimensional circular three-dimensional space (b). The grayscale shadows go from black at the bottom to white at the top along the axis, with increasing brightness until the maximum point. Figure 2 shows that the colours with the highest saturation are found around the perimeter of the cylinder’s top surface.

The formula for converting the RGB colour model to the H model is as follows.

For any three R, G, and B parameter values in the [0, 255] closed interval, the calculation of the I, S, and H components in the corresponding HI model is as follows:

1. \[ I = (1/3)(R + B + G) \]
2. \[ S = 1 - (3/(R + G + B))[\min(R,G,B)] \]
3. \[ H = \arccos\left\{\frac{((R - G) + (R - B))/2}{(R - G)^2 + (R - B)(G - B)}\right\}^{1/2} \]

The value range of H calculated by formula 3 is \([0^\circ, 180^\circ]\), corresponding to \(G \geq B\).

The grayscale histogram of an image reflects the distribution of each grayscale pixel in the image and also reflects the grayscale in the image and the probability relationship of a certain grayscale. The scale of the abscissa represents the grayscale of the image, and the scale of the ordinate represents the number of pixels of a certain grayscale, or the number of pixels with a certain grayscale value in the image. The ratio of the total number of pixels in the image is shown in Figure 3 [17].

3.1. Gray Value Linear Transformation Method. In order to optimize the contrast of the image, we can use the method of redistributing the pixel value domain, and we can use the linear mapping method to expand the gray value range of the image, as shown in Figure 4.

The gray value of the image is \(f(x, y)\), the gray value range is \([m, M]\), and the gray value of the image after linear gray value transformation is \(g(x, y)\). The gray value range is extended to \([n, N]\), which is the value range of \(g(x, y)\). The gray value linear transformation enhancement formula is

\[
g(x, y) = \frac{(N - n)[f(x, y) - m]}{(M - m) + n}.
\]

where \(x\) and \(y\) represent the coordinate position of the pixel in the image.

3.2. Histogram Equalization. The gray value histogram of an image is to describe the image in the Cartesian coordinate system through a discrete function of gray level, which can be described as

\[
H_s(s_k) = \frac{n_k}{n}, \quad k = 0, 1, \ldots, N - 1,
\]

where \(H_s(s_k)\) represents the probability of occurrence of gray level \(k\), \(n\) represents the total number of pixels in the image, and \(n_k\) represents the total number of pixels with gray level \(k\) in the digital image.

Histogram equalization is generally divided into the following steps:

1. The algorithm computes a grayscale histogram from the original grayscale image: \(H_s(s_k) = n_k/n, \quad k = 0, 1, \ldots, N - 1\)
② The algorithm calculates $r_k = \sum_{i=0}^k H_s(s_i) = \sum_{i=0}^k n_i/n$ to obtain the cumulative gray-level histogram of the original grayscale image.

③ The algorithm determines the gray level $t$ after histogram equalization processing according to the formula $t_k = \text{int}((N - 1)r_k + 0.5)$, where the symbol int represents the forensic value part and $N$ is the number of gray levels in the original gray image.

④ After determining the mapping relationship between the original grayscale image level from $s_k$ to $t_k$, the algorithm converts the grayscale value of each pixel in the original grayscale image according to the relationship [18].

The degree to which an image is disturbed by noise can be expressed by the signal-to-noise ratio (SNR), which is also one of the most commonly used metrics we use to measure image quality:

$$\text{SNR} = \frac{10 \log_{10} \frac{\sum_{x=0}^{N-1} \sum_{y=0}^{N-1} [f(x, y) - f(x, y)]^2}{\sum_{x=0}^{N-1} \sum_{y=0}^{N-1} f(x, y)^2}}$$

(3)

For general images, in order to obtain a better recognition effect, we must filter and denoise the image.

3.2.1. Airspace Method Filtering and Noise Reduction. Neighborhood averaging filtering is an effective method for dealing with point-like noise. The filtering processing principle of the neighborhood average method is to first select a small block of the image, then average the gray levels of each pixel, and finally assign the gray value to the center point $(x, y)$ of the small block as the pixel point. The new gray value $g(x, y)$ of the conversion formula is as follows:

$$g(x, y) = \frac{1}{M} \sum_{f \in s} f(x, y),$$

(4)

where $x, y = 0, 1, ..., N-1 : M$ is the number of pixels included in the neighborhood and $s$ is the set of points in the small neighborhood with $(x, y)$ as the center point. The small neighborhood is also called the Box template. In the so-called Box template market value template, all the coefficients in the template go to the same value. Generally, $3 \times 3$, $5 \times 5$, or other square matrices are selected, as shown in Figure 5.

Neighborhoods are divided into two categories: four-neighborhood and eight-neighborhood. The higher, lower, left, and right points of the tiny block’s center point are only considered in the four-neighborhood technique. The upper, lower, left, right, and four diagonal points of the tiny block’s center point are included in the eight-neighborhood, as illustrated in Figure 6.

Usually, the eight-neighbor template is more commonly used, and the conversion formula for the processing images is

$$g(x, y) = \frac{1}{9} \sum_{i=1}^9 f(x_i, y_i),$$

(5)
where \( g(x, y) \) is the new gray value of the pixel point \((x, y)\), and \( f(x, y) \) is the gray value of the point \((x, y)\) in the original grayscale image.

Gaussian filter is a kind of filter commonly used in image smoothing processing, and this filter has ideal characteristics. The formula for the Gaussian smoothing filter is

\[
G(x, y) = \frac{1}{\sqrt{2\pi \sigma^2}} \exp\left(-\frac{x^2 + y^2}{2\sigma^2}\right), \tag{6}
\]

where \((x, y)\) represents the position of the pixel in the image. If a uniform smoothing scale is used in all neighborhoods in the image, relative to the adaptive smoothing filter, its calculation formula is

\[
w^{(t)}(x, y) = \exp\left(-\frac{d^{(t)}(x, y)^2}{2k^2}\right), \tag{7}
\]

where \(t\) represents the number of iterations, the \(k\)-scale parameter is similar, and \(d^{(t)}(x, y)\) is a metric function reflecting the image features, which determines the edge magnitudes that can be preserved during the smoothing process.

For the signal \( f(x, y) \) of the two-dimensional image, \( d'(x, y) \) is defined as the gradient of \( f(x, y) \). For the above \( 3 \times 3 \) two-dimensional Gaussian template, the gradient formula is

\[
\left(\frac{\partial f^2(x, y)}{\partial x}, \frac{\partial f^2(x, y)}{\partial y}\right) = (f_x, f_y)^t. \tag{8}
\]

The formula for calculating the amplitude is

\[
d'(x, y) = \sqrt{f_x^2 + f_y^2}. \tag{9}
\]

Combining the above two formulas, we can obtain

\[
w^{(t)}(x, y) = \exp\left(-\frac{f_x^2 + f_y^2}{2k^2}\right). \tag{10}
\]

To sum up, we can get the smooth pixel value of the pixel point \((x, y)\). The calculation formula is as follows:

\[
f^{t+1}(x, y) = \frac{1}{\sum_{i=1}^{3} \sum_{j=1}^{3} w^{(t)}(x+i, y+j)} \sum_{i=1}^{3} \sum_{j=1}^{3} f^{(t)}(x+i, y+j)w^{(t)}(x+i, y+j). \tag{11}
\]

### 3.2.2. Frequency-Domain Filtering and Noise Reduction

Three commonly used frequency-domain low-pass filters are ideal low-pass filter (ILPF), exponential low-pass filter (ELPF), and Butterworth low-pass filter (BLPF). The characteristic curves of these three low-pass filters are shown in Figure 7.

- **①** The filter function of the ideal low-pass filter (ILPFE) is

\[
H(u, v) = \begin{cases} 0, & d(u, v) \leq d_0, \\ 1, & d(u, v) \leq d_0. \end{cases} \tag{12}
\]

- **②** The filter function of the exponential low-pass filter (ELPFP) is

\[
H(u, v) = e^{-0.374[d(u,v)/d_0]^2}. \tag{13}
\]

- **③** The filter function of the Butterworth low-pass filter (BLPF) is

\[
H(u, v) = \frac{1}{1 + [d(u,v)/d_0]^{2n}}. \tag{14}
\]

In the above three formulas, \(d\) is the distance from the origin of the frequency plane to the cutoff frequency, and \(d(u, v) = \sqrt{u^2 + v^2}\) is the distance from the point \((u, v)\) to the origin of the frequency plane.

The method of calculating the gray gradient is shown in Figure 8.

The grayscale of the image is represented by \( f(x, y) \). For point \( P(x, y) \), the grayscale values of its adjacent pixels are \( f(x+1, y) \), \( f(x, y+1) \), and \( f(x+1, y+1) \), respectively. The gray...
value gradient of the point $P$ can be calculated by the cross-difference method. The algorithm is divided into two steps.

1. The grayscale gradients in the $x$ and $y$ directions are

$$G_x[f(x, y)] = |f(x + 1, y) - f(x, y)|,$$

$$G_y[f(x, y)] = |f(x, y + 1) - f(x, y)|. \tag{15}$$

2. The gray value gradient of point $P$ can be calculated by the cross-difference method:

$$G_x[f(x, y)] = \sqrt{G^2_x + G^2_y}. \tag{16}$$

Then,

$$G_y[f(x, y)] = |f(x + 1, y + 1) - f(x, y)|$$

$$+ |f(x + 1, y + 1) - f(x + 1, y)|. \tag{17}$$

Commonly used sharpening templates mainly include (a) Robert template, (b) Laplacian template, (c) Sobel template, and (d) Prewitt template, as shown in Figure 9.

We must segment the picture or extract the region matching to the object of interest in the image, in order to retrieve the information about the item of interest in the image. The most basic and often used the picture segmentation method is threshold segmentation. The following is how threshold segmentation is defined:

$$S = \{(x, y) \in R | g_{\min} \leq f_{x,y} \leq g_{\max}\}. \tag{18}$$

Reliability: a feature value of all objects in the same category should be as close as possible. The closer the eigenvalues within the class, the higher the reliability of the eigenvalues used to identify such objects. The reliability of a feature can be qualitatively measured with the following mathematical formula:

$$\sigma = \sqrt{\frac{1}{M} \sum_{i=1}^{N} (X_i - \mu_x)^2}. \tag{19}$$

Among them, the eigenvalue of the $i$th sample is represented by $X_i$, $\mu_x$ represents the mathematical expectation value of the sample eigenvalue of this category, and the number of samples in a certain category is represented by $M$. The smaller the feature standard deviation is, the closer the eigenvalues in the class are and the higher the reliability of this eigenvalue is.

The independence of features can be measured using the following formula:

$$\lambda_{xy} = \frac{1}{M} \sum_{i=1}^{M} (x_i - \mu_x) (y_i - \mu_y) \sqrt{\sigma_x^2 \sigma_y^2}. \tag{20}$$

The greater the difference between the feature values used to identify an object for objects of different categories, the higher the distinguishability of the feature.
for distinguishing different categories. The distinguishability of features can be measured using the following formula:

\[ D_{ab} = \frac{|\mu_{xa} - \mu_{xb}|}{\sqrt{\sigma_{xa}^2 + \sigma_{xb}^2}} \]  

(21)

The calculation formula is as follows.

The first moment is Mean = \( \sum_{i=1}^{N} p_i / N \).

The second moment is Variance = \( \sqrt{\sum_{i=1}^{N} (p_i - \text{Mean})^2 / N} \).

Among them, \( p_i \) is the hue (He) value of the \( i \)th pixel in the image and \( N \) is the number of pixels.

The target coordinate \( y_i \) of the first segment chain code is \( y_i = y_{i-1} + \sum_{j=1}^{N} \Delta y_j \), and the calculation formula of the area is \( A = \sum_{i=1}^{N} (y_{i-1} \Delta x_i + a) \).

Among them, \( \Delta y_i = \begin{cases} -1, & \epsilon_i = 5, 6, 7 \\ 0, & \epsilon_i = 0, 4 \\ 1, & \epsilon_i = 1, 2, 3 \\ -1, & \epsilon_i = 3, 4, 5 \\ 0, & \epsilon_i = 2, 6 \\ 1, & \epsilon_i = 0, 1, 7 \\ -1/2, & \epsilon_i = 3, 7 \\ 0, & \epsilon_i = 0, 2, 4, 6 \end{cases} \), and \( a = -1/2 \).

\[ C = \frac{P^2}{S} \]  

(22)

A quantitative property used to quantify the shape complexity of an item is the format factor, which is a variant of density. The perimeter and area of the item are used to compute it, and the measurement’s result is mapped in a (0.1) interval. The shape parameter’s computation formula is as follows:

\[ e = 4\pi \frac{S}{P^2} \]  

(23)

where \( S \) is the area and \( P \) is the perimeter. If it is assumed that the perimeter of a circle is \( 2\pi r \), then its area is \( \pi r^2 \), and \( e = 1.0 \) is calculated by the above formula, indicating that the value of \( e \) is 1 when the object is a regular center. \( e \) takes a value in the interval (0, 1). When the value of \( e \) is larger and closer to 1, it means that the object is closer to a circle. On the contrary, when the value of \( e \) is smaller and closer to 0, it means that the graph is more complex and less like a circle.

Boundary energy is a curvature-based method to quantify the circularity of an object. For the point \( p \) on the boundary, the coordinates are \( (x, y) \). For digital images, the boundary energy calculation is discretized to obtain the calculation formula as follows:

\[ E = \frac{1}{P} \sum_{j=0}^{P} |C(p_j)| \]  

(24)

where \( P \) is the length of the boundary, that is, the perimeter of the object, \( C(p_j) \) is the instantaneous curvature of the \( j \)th
Figure 12: An example of a simulation image of physical immersion teaching based on digital simulation technology.

Table 1: Effect verification of physical immersion teaching system based on digital simulation technology.

| Number | Teaching effect | Number | Teaching effect | Number | Teaching effect |
|--------|-----------------|--------|-----------------|--------|-----------------|
| 1      | 83.20           | 21     | 81.68           | 41     | 77.74           |
| 2      | 81.07           | 22     | 85.38           | 42     | 76.42           |
| 3      | 79.27           | 23     | 79.71           | 43     | 83.35           |
| 4      | 75.76           | 24     | 77.29           | 44     | 86.76           |
| 5      | 84.12           | 25     | 77.31           | 45     | 75.72           |
| 6      | 82.02           | 26     | 80.17           | 46     | 79.93           |
| 7      | 81.60           | 27     | 81.01           | 47     | 83.31           |
| 8      | 83.43           | 28     | 79.12           | 48     | 80.17           |
| 9      | 79.95           | 29     | 81.59           | 49     | 77.77           |
| 10     | 81.19           | 30     | 78.24           | 50     | 80.26           |
| 11     | 83.20           | 31     | 80.72           | 51     | 75.66           |
| 12     | 75.28           | 32     | 79.74           | 52     | 86.29           |
| 13     | 86.66           | 33     | 75.10           | 53     | 75.80           |
| 14     | 80.45           | 34     | 84.11           | 54     | 80.05           |
| 15     | 76.99           | 35     | 79.69           | 55     | 85.34           |
| 16     | 84.49           | 36     | 86.21           | 56     | 78.41           |
| 17     | 80.91           | 37     | 84.98           | 57     | 85.53           |
| 18     | 77.80           | 38     | 85.48           | 58     | 77.26           |
| 19     | 84.24           | 39     | 79.03           | 59     | 84.66           |
| 20     | 80.47           | 40     | 83.75           | 60     | 84.19           |

The above research verifies the effectiveness of the physical immersion teaching system based on digital simulation technology, which can effectively improve the effect of physics teaching.
boundary point, that is, the radius \( (r(p_i))^{-1} \) of the circle tangent to the boundary at the point \( p_i \). When the object is a regular circle, the boundary energy obtains the minimum value \( 1/R^2 \).

4. Physical Immersion Teaching System Based on Digital Simulation Technology

Immersive VR physics teaching environment, as shown in Figure 10, includes virtual reality hardware devices, such as large screens, projectors, servers, and three-dimensional interactive devices. The related software creates a highly open, interactive, and immersive learning environment for learners. The goal is to visualize scientific data or abstract concepts so that students can see and even “touch” the data interactively.

The connectivity and integration of actual teaching space and virtual teaching space is the foundation for the integration and application of virtual and real teaching space. The functional layer’s key functions include the development of online learning elements as well as the integration and application of virtual and physical teaching venues. Its goal is to create a virtual and physical teaching area that can be mapped, mirrored, and collaborated on. Figure 11 depicts the unique operating structure.

Figure 12 shows the simulation image of Lightning Magic Globe, which can effectively improve the teaching effect of physical immersion teaching.

On the basis of the above research, the effect evaluation of the physical immersion teaching system based on digital simulation technology proposed in this study is carried out, and the evaluation effect shown in Table 1 is obtained.

5. Conclusion

In the training module of physics talents, it focuses on cultivating students’ ability to grasp different scenarios and environments. The virtual scene simulation technology can be used to design a simulation scene system, integrating camera perspective roaming, subjective immersive browsing, interactive simulation experience, intelligent scene identification, and other functions. Students may freely explore unexpected settings and alter information and skills according to their particular cognitive condition by building different simulation scenarios. Furthermore, students may easily conduct experiments, evaluate the impacts of various operating schemes, enhance their perception of the picture, and create an interactive module system. This study combines digital simulation technology to construct a physical immersion teaching system to improve the effect of physics teaching in colleges and universities. The experimental research shows that the physical immersion teaching system based on digital simulation technology has certain effects.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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