

## Research Article

# Teaching Simulation Based on Artificial Intelligence and Big Data Algorithm in Sports Dance Group Dance

**Yingqi Jiang** 

*Guangzhou Sport University, School of Sports and Arts, Guangzhou 510500, Guangdong, China*

Correspondence should be addressed to Yingqi Jiang; 18409429@masu.edu.cn

Received 2 June 2022; Revised 9 July 2022; Accepted 18 July 2022; Published 17 August 2022

Academic Editor: Imran Shafique Ansari

Copyright © 2022 Yingqi Jiang. 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.

Due to the rapid development of information technology, it is necessary to cultivate a large number of sports dance group dance talents, so the teaching simulation research has become more and more important. Although there are many research results of teaching simulation, the results are somewhat general. In order to explore the teaching simulation technology based on artificial intelligence and big data algorithm in sports dance group dance and the benefits brought to people by learning sports dance and group dance, this paper studies and discusses the simulation teaching for the training of sports dance group dance talents. Experimental research shows that teaching simulation is more time-saving and labor-saving than teachers' one-to-one explanation for group dance education; it can greatly improve the subjective initiative of students' learning; it can be very convenient to simulate various situations in the real world according to the required requirements; the application of teaching simulation in sports dance group dance can also develop students' imagination and reduce teachers' burden. Because simulation teaching is an emerging industry, it is not yet common in life and learning, and experts have not done too much research on simulation teaching, so the current results are somewhat general.

## 1. Introduction

Virtual simulation teaching is very important for the teaching of sports dance team dance, because the teaching of sports dance team dance is a very tedious process. Simulation teaching is to use computers to simulate real natural or social phenomena. Simulation teaching can simulate playing a role for skill training and can be applied to sports dance group dance. It requires a lot of teachers and a lot of venues, and sometimes a lot of time. With teaching simulation technology, it is different. Teaching simulation technology does not need to consume a lot of teachers, nor does it require students to spend a whole block of time to study in a designated place. Simulation education can guide students anytime and anywhere, so that students can learn anytime and anywhere. Sports dance group dance is an outdoor activity, which requires teachers to teach face to face. Using simulation teaching can better save teachers and venues. Simulation education is of great help to the more tedious teaching of sports dance group dance. Simulation teaching,

also known as simulation teaching, is a teaching method that uses a computer to simulate a role for skill training. Simulation teaching can make up for the deficiencies of objective conditions to a large extent, such as lack of venues, provide students with a near-real training environment, and improve students' vocational skills, and it is especially important for today's fast-paced life.

The subject of teaching simulation has also been studied by many experts in the past. In order to use teaching simulation technology to make life and education more convenient, many experts have conducted research on it. The purpose of Mdletshe and Oliveira's research on teaching simulation is to design a computer-based teaching simulation tool for training medical imaging students in chest pattern recognition [1]. With the widespread use of data science in contemporary organizational decision-making processes, it becomes increasingly important for future business professionals to understand statistical computing methods, and Holman described Monte Carlo simulation, the most widely applicable statistical computing method for

teaching simulations, whose purpose is to explore the relationship between sports dance and group dance [2]. To et al. practiced some medical skills in the simulation, where participants took turns taking on the roles of care provider and patient. 92% of the participants considered the simulation course to be of high quality [3]. Schrant et al.'s students are able to use the laboratory to familiarize themselves with physical examination skills, procedural skills, and communication skills before attempting them in a real clinical setting. The participation of simulation teaching expands the richness of students' experience [4]. Kumar and Tiwari's motivation is to focus on enhancing the teaching of physics. This paper focuses on the implementation of simulation and visualization techniques in physics teaching. In this case, Kumar and Tiwari in order to better understand the problem, the visualization of the problem can help students understand and try to solve it [5]. Koparan's research aims to investigate learning environments supported by games and simulations. These games are used to assess the basic probability knowledge of future teachers, demonstrate the role of problem solving in the formation of mathematical knowledge, and discuss mathematical ideas in worksheets [6]. At present, because Zhang et al.'s simulation teaching has just emerged, experts have not studied it in depth, especially in medicine, so medical simulation still faces many problems [7]. Although simulation education has made great progress in teaching, no experts have studied the subject of education simulation for the improvement of sports dance and group dance. Therefore, this paper studies the improvement of the efficiency of simulation education and group dance and the convenience brought to people in terms of venues, teachers, and time.

Algorithms based on artificial big data are relatively advanced intelligent methods recently, and many experts have done a lot of research on artificial big data algorithms in order to make life and research more convenient. Since artificial intelligence algorithms are a new and emerging field, but there are still some problems with artificial intelligence guarantee methods, Suresh adopted and proposed a new definition of artificial intelligence guarantee, and compared and tabulated the guarantee methods [8]. AI algorithms are increasingly providing decision-making and operational support across multiple domains. A systematic review of research work related to AI assurance between 1985 and 2021 aims to provide a structured alternative. Batarseh adopted and proposed a new definition of AI assurance and compares and tabulates assurance methods [9]. In the existing artificial intelligence data sharing environment, there are few laws and regulations involving privacy protection and lack of practical operability. The weakening of administrative management and industry self-discipline also reflects China's current weak protection of big data privacy. In order to solve the sharing problem of AI data and algorithms, it becomes very important for An  $N$  to study the legal protection of AI data and algorithms from the perspective of IoT resource sharing. This paper aims to examine the use of laws to protect AI data and algorithms. In order to reduce the bullwhip effect, a most effective bullwhip effect model derivation algorithm is proposed [10]. Leur's clinical

research using artificial intelligence and big data can help predict and/or detect subclinical cardiovascular disease by providing additional knowledge about disease onset, progression or outcome [11]. Todoli-Signes analyzed the protections established in the EU General Data Protection Regulation to protect employees from discrimination. One of the main conclusions that can be drawn is that, in the face of the inadequacies of the GDPR in the field of labor relations, collective governance of workplace data protection is required, and worker representatives are required to participate in the establishment [12]. Abdualgalil and Abraham found the applicability of machine learning algorithms to knowledge discovery in big data very effective. Various researchers have endorsed this application of efficient machine learning algorithms for knowledge discovery. He reviews various searcher approaches to analyze the importance of machine learning algorithms for knowledge discovery in big data [13]. To expand the scope of agronomic research, Ramesh et al. described the use of emerging big data analysis tools, geo-referenced satellite information, drone-based imaging, and artificial intelligence-based techniques. These techniques can handle large datasets, which can be validated through agronomic field trials [14]. From this point of view, no experts have integrated artificial intelligence algorithms into the simulation teaching of sports dance group dance. Therefore, this paper explores the convenience brought by people's learning by integrating artificial intelligence algorithms into the simulation research of sports dance group dance.

With the rapid development of culture and education today, sports dance group dance has become the focus of people's attention, and more and more people are going to learn sports dance group dance. However, since the teaching of sports dance group dance requires a lot of manpower, material resources and venues, in order to enable more people to learn sports dance group dance, experts have studied and proposed simulation teaching. Using simulation teaching to teach sports dance group dance can save manpower, material resources and venues, and then use artificial big data algorithms to compare various data to know that simulation teaching provides great convenience to learners.

## 2. Teaching Simulation System

*2.1. The Overall Framework of the Simulation System.* In order to make a preliminary application program interface, experts divide the simulation framework into user layer, application layer, platform layer, and resource layer [15]. The training and exercise program given below mainly consists of five parts: signal and line system analysis, digital signal processing, automated control systems, communication infrastructure and sensors, and automated monitoring techniques. The experimental project is shown in Figure 1.

It can be seen from Figure 1 that because the system has many users, and at the same time, the system has many entity models, complex models, and large amount of data, which involves a large number of 2D and 3D visual display. Therefore, the response of using the system in Figure 1 is

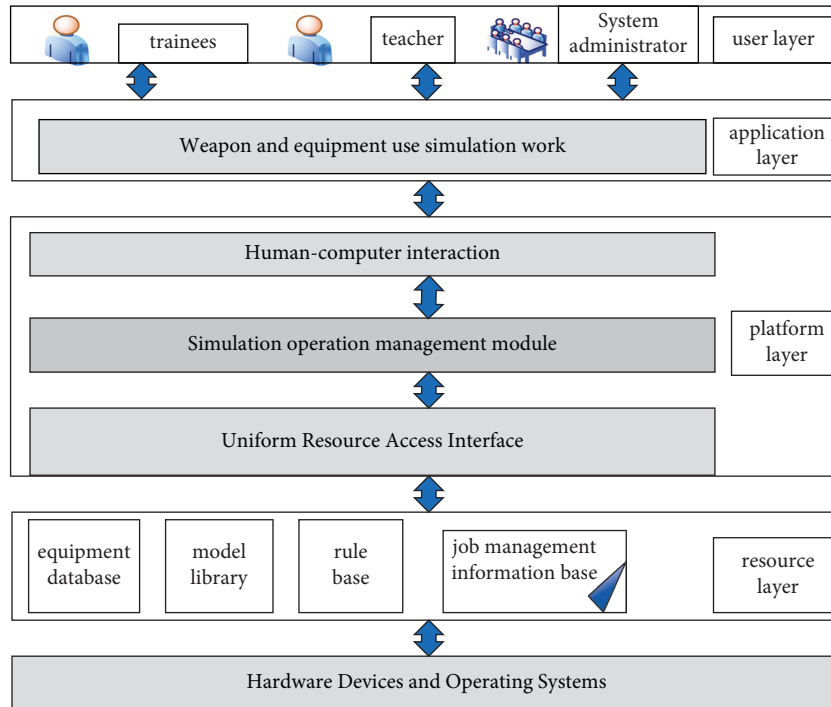


FIGURE 1: System overall frame diagram.

faster. In Figure 1, the user layer submits a simulation job to the application layer, and then the application layer performs human-computer interaction to run the simulation management module on the platform layer. Then, it is reported to the resource layer by the platform layer. Finally, the hardware device and the operating system are imported from the resource layer, and the data operations are exported from the hardware device and the operating system, which saves time and effort compared with manual production.

**2.2. Advantages of Simulation Technology.** One of the simulation teachings is the simulation photography teaching [16], and the use of simulation teaching can make photography teaching more convenient and clear. This system combines the characteristics of the computer composition principle experiment to demonstrate the principle of photography teaching. Figure 2 has 6 microlenses. Microlenses focus on a certain surface of the main mirror. Each perspective mirror can be regarded as an independent camera, which images part of the information captured on the image receptor. The image plane of the microlens may be located in front of or behind the lens. The principle method of photography teaching is shown in Figure 2.

The virtual simulation photography technology shown in Figure 2, as a popular technology in educational applications, has attracted the attention of the majority of educators. How to combine virtual and real technology has become one of the exploration goals of the majority of educators. The simulation photography teaching has developed and used the simulation laboratory with the help of virtual technology, which reduces the teaching cost on the one hand, and improves the teaching efficiency of colleges

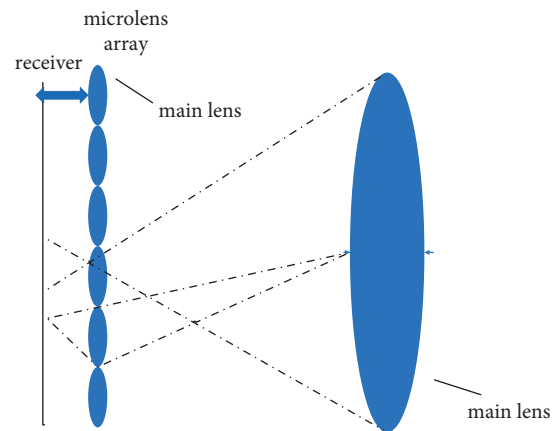


FIGURE 2: Schematic diagram of the structure of a nonfocusing light field camera.

and universities on the other hand. Teaching simulation system is mainly used in automatic detection technology, photography teaching principle, virtual laboratory, contemporary teaching simulation system, centralized control simulation console, and so on. Therefore, the establishment of virtual simulation photography teaching is more and more concerned and respected by educators.

**2.3. Virtual Laboratory for Simulation Teaching.** Students are the end users of the virtual laboratory [17], and simulation teaching sometimes needs to use the virtual laboratory. Because the practice of sports dance group dance needs a venue, and the quality of the dance requires feedback of

information. The feedback of the original information is that after the learners practice, the teacher guides the learners on the strengths and weaknesses in their learning. Now that there is a simulation teaching laboratory, the results of this information feedback can be fed back through the simulation system. The process is shown in Figure 3.

Each user uses their student ID and password as the password to enter and exit the virtual space. In the virtual lab, users can select experiments and use equipment to connect experimental circuits. After the circuit is built, the simulation factor, the client sends the experimental information to the server. The server controls and simulates the circuit commands, and the results are returned to the client. The customer enters the experimental results for the user to observe. Experiment teachers can create experiment templates, incorporate new devices, integrate new tests, and use the teacher ID and password as a sign-up development test step. Program administrators are advanced users of the virtual lab and are responsible for controlling teacher, student information, various lab training resources, and test data. The simulation laboratory module of simulation teaching mainly includes the simulation operation of weapon equipment, simulation operation management module, hardware equipment, and operating system. The overall structure of this paper is shown in Figure 3.

**2.4. Contemporary Teaching Simulation System.** Contemporary teaching is basically inseparable from the teaching simulation system [18]. Figure 4 highlights the horizontal and vertical relationships between the various educational activities of the Electronic Information Sector, which plays a role in educating students and all adults in the building and overseeing the primary implementation plan. There are mainly five elements of signal and line system analysis, digital information processing, automatic control platform, communication and sensor library, and automatic search technology, as shown in Figure 4.

Figure 4 shows the horizontal and vertical relationships between professional information courses, as well as the role of student education and full-staff teacher construction, and analyzes the role of professional construction in which e-learning courses are organically combined with training experiments. Signal and linear system analysis includes: convolution, system response, frequency response, complex frequency response, and analog filters.

**2.5. System Structure Diagram of Centralized Control Simulation Console.** Under many experiments of teaching simulation [19], according to expert research, it has been shown that there are many careful and meticulous schemes for human centralized control of the simulation system, for example, the simulation console can define the basic functions of power plant simulation and ensure continuous power supply. This equipment is composed of two parts: centralized console and power station. It inputs the voltage, current, paralleling, and decoupling switching from the power station to the centralized console; it then inputs the gates and trips back to the power station from the centralized

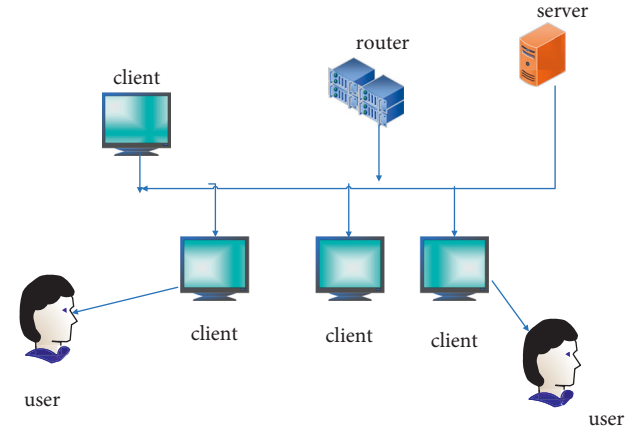


FIGURE 3: System overall structure diagram.

console to control the simulation console perfectly. The experimental results are shown in Figure 5.

As can be seen from Figure 5, a power station in a unit can be a computer simulation station. Power station simulation is traditionally divided into power station process engineering simulation and control engineering installation/automation hardware simulation, i.e., the devices and units of the original system. The power port of the console simulation control center can also be a physical power station or a natural power station. This simulation method is more convenient and improves productivity than the old method without simulation skills. In terms of system overhead, the overhead of simulation photography is relatively large, and it is not suitable for long-term use.

### 3. Teaching Simulation Algorithm

**3.1. Saturation Throughput Calculation.** Further strengthening of the studied simulations can be counted and made  $S$  a standard system [20], the formula is defined as the percentage of time spent in the message by the salary compared to the average channel time. Concluding that the probability of at least one login session sending data when any site is selected, the equation for  $P_{tx}$  is

$$P_{tx} = 1 - (1 - T)^n. \quad (1)$$

Among them, explaining the principle that the data sent by the conference is not as successful as the data sent by the simulation, the calculation formula is

$$P_{tx} = \frac{nt(1 - T)^{n-1}}{1 - (1 - T)^n}. \quad (2)$$

In the calculation of saturated throughput, it is usually necessary to use a specific function to replace the original scheme to design a scheme and prove it to be correct, and the result obtained under the calculation of saturated throughput is correct.

Then the normalized system throughput formula

$$S = \frac{P_{tl}P_{tx}E[P]}{(1 - P_{tl})\sigma + P_{tl}P_{tx}T + (1 - P_{tx})P_{tl}T_e}. \quad (3)$$

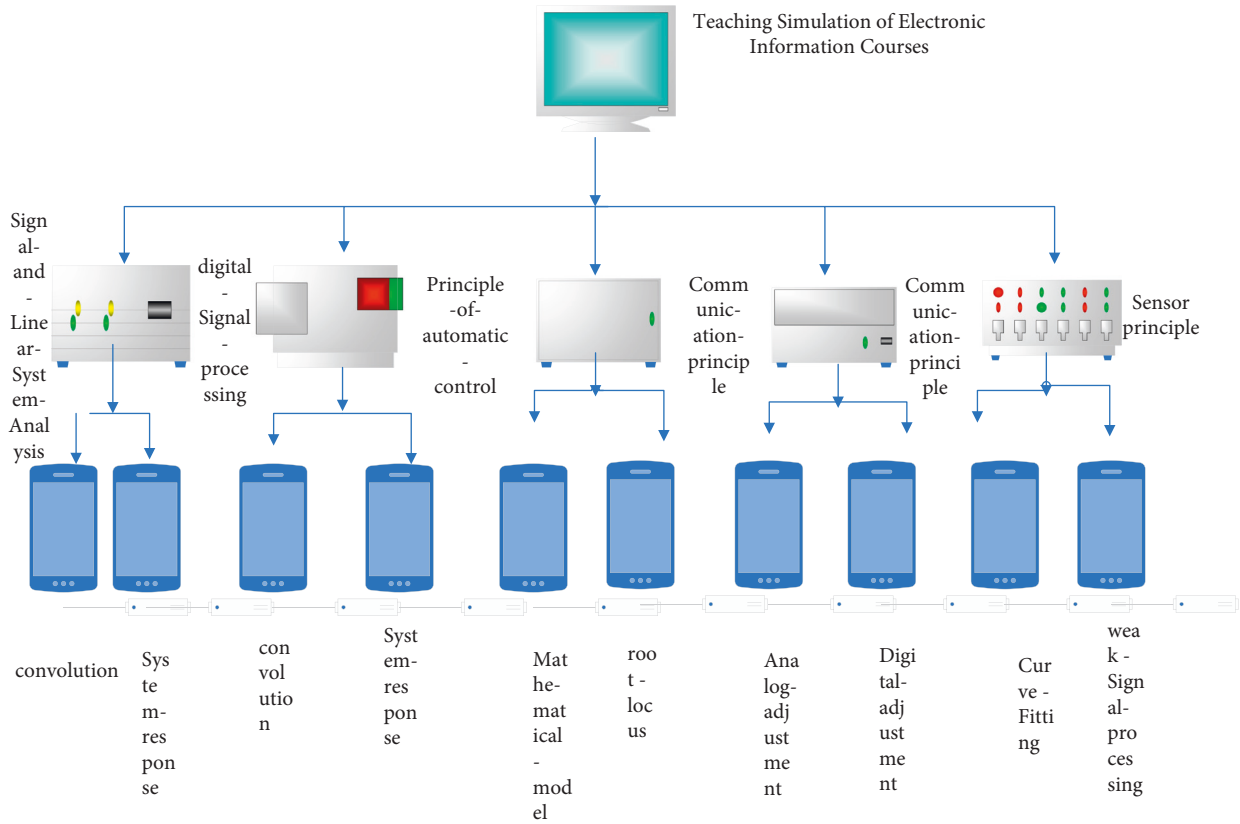


FIGURE 4: Experimental project module diagram.

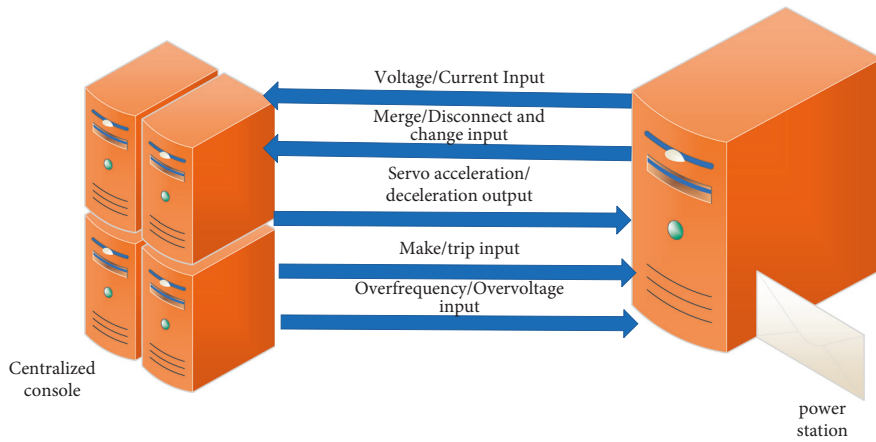


FIGURE 5: Structure diagram of power station centralized control simulation console system.

Among them, research data in this area of  $E[P]$  reveal the average payload, which is the average amount of payload successfully delivered over a period of  $P_{tl}P_{tx}E[P]$ .  $T_c$  is the average time for other nodes to detect that the channel is busy because of the successful transmission of the data packet;  $\sigma$  is the duration of the idle time slot.

The consideration is not comprehensive, and only considers the communication system managed by the basic access mechanism. Set the packet header  $H = PHY_{hdr} +$

$MAC_{hdr}$ , and set  $\sigma$  as the transmission delay, then there are the following relational expressions about  $T_s$  and  $T_c$ :

$$\begin{cases} T_s^{bas} = H + E[p] + \sigma + ACK + DIFS + \sigma, \\ T_c^{bas} = H + E[P^*] + DIFS + \sigma. \end{cases} \quad (4)$$

$P$  represents the overall payload size of the longest packet in the case of collisions.

$E[P^*]$  represents the average load of the largest attack packet.

When analyzing the communication system using the RTS/CTS access mechanism, considering that the collision only occurs in the RTS frame, the relationship between  $T_s$  and  $T_c$  is as follows:

$$\begin{cases} T_s^{rts} = \text{RTS} + \text{SIFS} + 4\sigma + \text{CTS} + \text{SIFS} \\ \quad + H + E[P] + \text{SIFS} + \text{ACK} + \text{DIFS}, \\ T_c^{rts} = \text{RTS} + \text{DIFS}. \end{cases} \quad (5)$$

**3.2. Difference Uniformity and Robustness.** Differential uniformity  $\sigma(S)$  is an important indicator to check whether S-box can effectively resist differential analysis, and differential integration is an important indicator to check whether S-box can prevent differential resolution and can be solved using differential distribution table. Powers can be used to measure the repetition characteristics of frame S, and the calculation types are

$$\eta(S) = \left(1 - \frac{6(S)}{2^n}\right) \left(1 - \frac{\sigma(S)}{2^n}\right). \quad (6)$$

$\sigma(S)$  is the total number of nonzero items in the first column of table differences.

**3.3. Structure and Sampling Principle of Nonfocusing Light Field Camera.** The microlenses record the positional information of the image. In this imaging system, the conversion of light radiation satisfies

$$r^n(x) = r(A^{-1}x). \quad (7)$$

In the formula,  $r$  is the incident light radiation;  $r^n$  is the transmitted light radiation; and  $A$  is the imaging formula matrix. For the nonfocusing light field camera structure,  $A$  is only related to the focal length  $f$  of the microlens, which can be expressed as

$$A = \begin{bmatrix} 1 & f \\ 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ -\frac{1}{f} & 1 \end{bmatrix} \begin{bmatrix} 1 & f \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ -\frac{1}{f} & 0 \end{bmatrix}. \quad (8)$$

In a focusing light field camera, the microlens array is focused on a certain surface on the image side of the main lens. Each microlens can be regarded as an independent camera. Part of the captured information is imaged on the image receiver, and the image plane of the microlens may be located in front of or behind the microlens. Each microlens is located in a position that satisfies the Gaussian formula

$$\frac{1}{a} + \frac{1}{b} = \frac{1}{f}. \quad (9)$$

**3.4. State Equation of Maneuvering Target.** In studying the maneuvering target tracking algorithm, the state equation (dynamic equation) of simulating maneuvering target can be expressed as follows:

$$X(k+1) = F(k)X(k) + G(k)u(k) + V(k). \quad (10)$$

$X(k)$  is the state vector;  $F(k)$  is the state transition matrix;  $G(k)$  is the input control term matrix;  $V(k)$  is a Gaussian noise sequence with zero mean, and  $Q(k)$  is the covariance of  $V(k)$ . The input  $u(k)$  is unknown, and the main task of the maneuvering target tracking problem is to study the input  $u(k)$ .

The above formula represents the state equation of the maneuvering target, and then its corresponding measurement equation is

$$Z(k+1)X(k+1) + W(k+1). \quad (11)$$

In the formula,  $H(k+1)$  is the measurement matrix,  $W(k+1)$  is the Gaussian measurement noise sequence with zero mean, and its covariance is  $R(k+1)$ .

In the tunable white noise model, the maneuver of the target is reflected in the change of innovation. That is, if space is occupied, the update will increase accordingly. Based on this idea, we use a standard improved field to handle site-intelligent searches, which is

$$\mathfrak{F}_r(k) = v(k)S^{-1}(k)v(k). \quad (12)$$

In the formula,  $\varepsilon v(k)$  is the square of the normalized information, and the innovation (filtering residual)  $v(k)$  can be expressed as

$$v(k) = Z(k)K - 1 = Z(k)I - 1. \quad (13)$$

Let  $\varepsilon_{\max}$  be the threshold and  $\beta$  be the significance level, then in the target model under nonmaneuvering conditions, the threshold can be set as

$$P_r\{\mathfrak{F}_r(k) \leq \mathfrak{F}_{\max}\} = 1 - \beta. \quad (14)$$

If  $\varepsilon v(k)$  exceeds the set threshold  $\varepsilon_{\max}$ , it is determined that the target has maneuvered. Then, the covariance  $Q(k-1)$  of the process noise is gradually increased until the normalized innovation square  $\varepsilon v(k)$  is less than the set threshold  $\varepsilon_{\max}$ . If  $\varepsilon v(k)$  is less than the set threshold  $\varepsilon_{\max}$ , it is determined that the target has finished maneuvering, and the original filtering model is restored.

**3.5. Signal Convolution.** Integration of two signals in an electronic information learning simulation: The integrated signal function is an integral part of the signal function and linear analysis and plays an important role in the training process. The signal can be expressed as

$$\begin{aligned} f(t) &= f_1(t) * f_2(t) \\ &= \int_{-8}^8 f_1(\tau) f_2(t - \tau) d\tau. \end{aligned} \quad (15)$$

Although the operation of convergence and any adjustment of the signal can reduce the computational problem after the environment changes, it is a difficult problem that student learning has not overcome. When using MATLAB for calculations, this requires only input signal expressions, which can greatly reduce computational problems. The time-varying equation of the progress program is the first

mathematical model involved in the teaching of this course, and its general form is

$$\sum_{i=0}^n a_i y^{(i)}(t) = \sum_{j=0}^m b_j f^{(j)}(t). \quad (16)$$

## 4. Method of Simulation Teaching

**4.1. Literature Survey Method.** In order to obtain relevant data and concepts, this paper searches for relevant data and information through libraries and websites, so as to facilitate the later study of experimental results. The literature data method mainly refers to the research method of collecting, identifying, and arranging literature, using literature data to indirectly investigate historical events and social phenomena, and forming a method of scientific understanding of facts.

**4.2. Data Collection Method.** This paper investigates and analyzes the data of the teaching simulation system in recent years through the online survey method, so as to obtain the corresponding specific data. In addition, this paper compares and analyzes the problems encountered by different students in dealing with the teaching simulation system, which lays a solid foundation for the later analysis of the experimental results.

**4.3. Data Analysis Method.** Data analysis refers to the use of appropriate statistical analysis methods to analyze large amounts of data collected, understood and aggregated to maximize the development of data services, and improve data performance. In other words, data analysis is the process of training and collecting detailed data to extract useful information and make decisions. In order to obtain the specific experimental analysis data to obtain the corresponding results, this paper analyzes the collected data in detail.

## 5. Experiment on the Connection between Teaching Simulation and Sports Dance Group Dance

**5.1. The Mastery of Dance Styles in the Entrance Examination of College Sports Dance Students.** According to Figure 6, it can be seen that the simulation education sports dance is also very important for the cultivation of college students. In addition, many majors may already be familiar with 3–5 dance styles before enrolling, which is ideal for the well-rounded physical development of athletic students, and has the advantage of the chosen training and coaching program.

From Figure 6, it can be seen that people are paying more and more attention to the cultivation of art, especially the students who are preparing to be admitted to art universities. Everyone can dance at least 3 kinds of dance. The simulation teaching discussed in this paper can greatly improve the efficiency of students' learning. It can be seen that simulation teaching is worth promoting and developing.

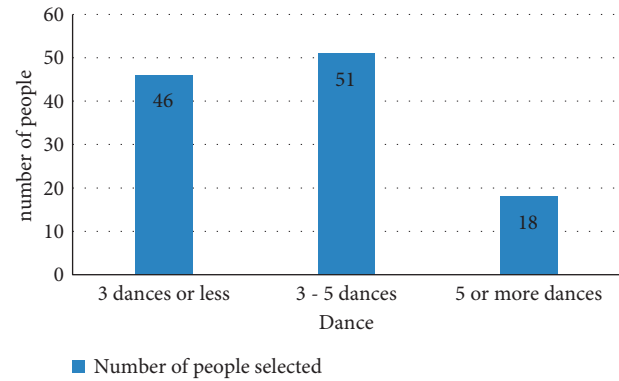


FIGURE 6: The mastery of dance styles in the entrance examination for students majoring in sports dance.

**5.2. Types of Schools Attended by Students Majoring in Dance Sports before Admission.** Figure 7 is a view of the age ratio of minors learning sports dance team dance. Sports dance schools include art secondary schools, sports secondary schools, ordinary secondary schools, and ordinary high schools. The statistics of these dance students have been carried out, and the conclusion is that the proportion of ordinary high school students learning dance is relatively high, as shown in the figure.

As shown in Figure 7, dance majors have a higher proportion of students who have received higher education before entering university. It can be concluded that physical education students are trained by the entire basic education policy of our higher education institutions in terms of basic knowledge, culture and ethics. If students achieve a unified basic education, and simultaneous teaching and professional development will contribute to the overall development of the individual.

**5.3. Students' Attitude towards Experimental Learning and Problems Encountered.** Figure 8 does some analysis on some problems encountered by simulation teaching in students' experimental learning. The general problems are as follows: some students like pure theory classes, some students are not interested in experiments, and some think that the experiments are too complicated and difficult to succeed. The specific survey results are shown in Figure 8.

Hands-on experiments also account for a large proportion of simulation teaching. As can be seen from the figure, most of the students prefer pure experimental courses, because pure experimental courses are mainly hands-on and interesting, accounting for 53.4%; 38.8% of students like theoretical knowledge teaching and experimental operation; 7.8% of students like pure theory classes. Some students are not very interested in the experiment, 53.4% of the students are very interested in the experiment, 39.8% of the students think that everyone is interested in the experiment, and a small number of 6.8% of the students are not interested in the experiment at all. As for the reasons why they do not like doing experiments, 23.2% of students are afraid of experiments, 43.9% of students think that experiments are complicated, and 26.8% of students feel that

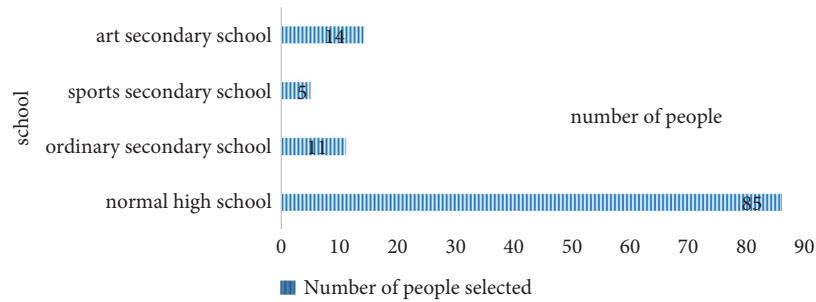


FIGURE 7: Types of schools attended by students majoring in dance sports before enrolling.

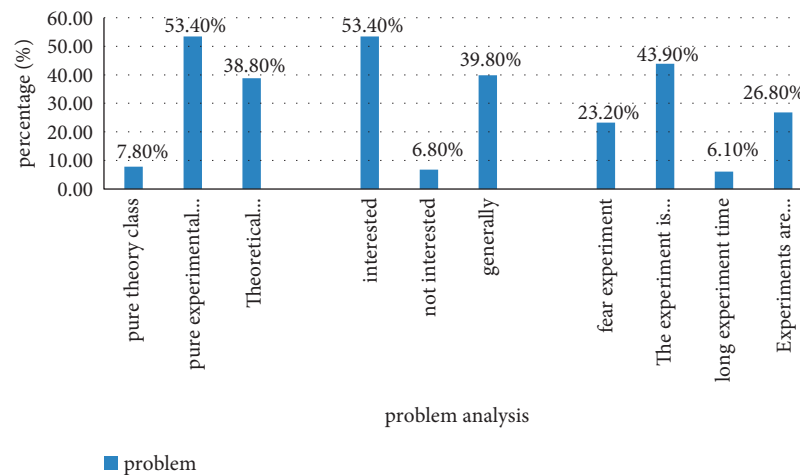


FIGURE 8: Attitudes of high school students towards experimentation.

experiments are not easy to succeed. It can be seen from Figure 8 that most students like and have the opportunity to participate in the hands-on experiment, and only a small number of students are afraid or have no chance to do the experiment by themselves. Students who are afraid of doing experiments should encourage them to do it by themselves and overcome their fears. For students who do not have the opportunity to do experiments, the simulation teaching described in this paper can be advocated. Simulation teaching can help solve the problem of not having the opportunity to do experiments.

**5.4. Attitudes of Students towards Simulation Education Experiments.** As shown in Figure 9, this is a student's attitude towards doing experiments. It can be seen from the figure that different students have different ways of doing the experiment after the teacher has taught them how to do the experiment, but the students do not understand. Very few students will go to the teacher and ask to do it again, and most of the students will not let it go.

Through this experiment, we can basically see that those students who are not able to go to the laboratory to do experiments may be afraid of communicating with teachers, and may be afraid of taking up the precious time of others. The educational simulation mentioned in this article can well solve the problem that students are afraid to ask teachers or take up other people's time.

**5.5. Opportunities and Time for Students to do Experiments.** Opportunities and times for students to experiment in schools vary. The following figure summarizes the requirements, time, and opportunities to do experiments, and finds that due to the shortage of venues and teachers, some students have no chance to do experiments by themselves. Or no more than twice a week even if there is an opportunity to experiment. The specific questions of the survey are shown in Figure 10.

As shown in Figure 10, more than half of the students have never entered the laboratory, and only a few students have the opportunity to enter the laboratory once or twice, indicating that the school's experimental venues and teachers are not enough. The simulation teaching mentioned in this article saves time, effort, and space. As long as students want to learn, they can learn at any time. At present, some domestic colleges and universities have opened virtual simulation-related majors and courses. Some colleges and universities have initially established their own simulation laboratories, using virtual simulation platforms to conduct teaching and experimental training, and achieved certain results. It is hoped that in the future, schools can learn from this and vigorously promote simulation teaching. On the whole, the use of simulation teaching to teach the students of sports dance group dance has the best effect, which can not only improve the subjective initiative of the students but also save teachers and venues. Virtual simulation teaching can be applied to safety trainings such as construction, electricity,



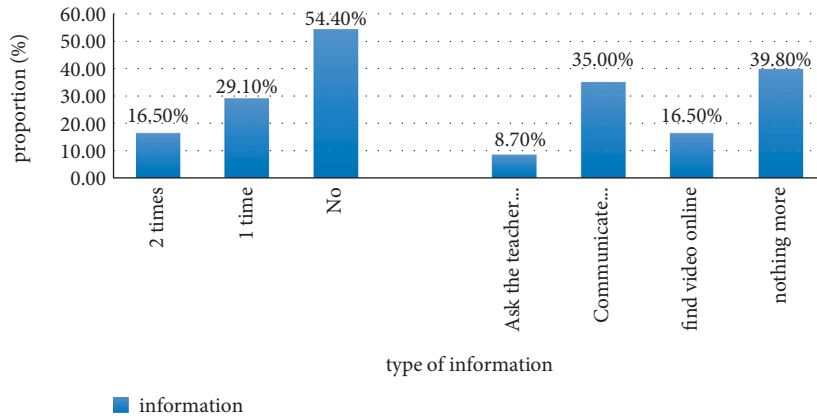


FIGURE 9: High school students' learning attitude towards experiment.

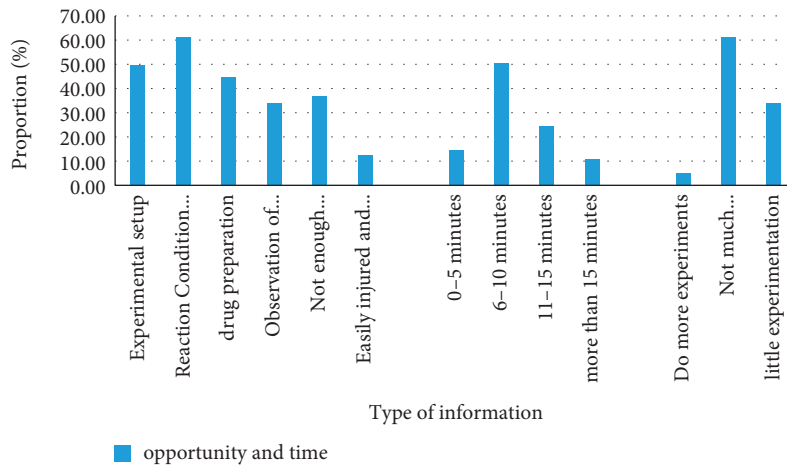


FIGURE 10: The efficiency of students doing experiments.

drowning prevention, earthquake prevention, and fire prevention. It can also provide all-round professional counseling and low-cost and efficient 3D scene experience learning in the fields of vocational skills training, military exercise training, and medical education and training. It has the characteristics of simulation, controllability, openness, and transcendence of time and space, which is convenient for human beings to swim in the ocean of knowledge without hindrance.

### 6. Teaching Simulation Experiment Results

Contemporary teaching is basically inseparable from the teaching simulation system. In the era of information modernization, people are more and more inseparable from electronic technology. Although the application of simulation education technology in teaching has just started, it has a great influence and far-reaching significance. It is believed that in the society with the rapid development of network technology in the future, simulation education will help people more and more.

Virtual simulation technology is used for training in school laboratory activities. The school encourages experimental subjects using a variety of virtual simulation

technologies, and solves common problems in customized teaching models, improves the whole process, improves teaching, and creates better education for students. On the one hand, in simulation teaching, students can understand their grades and the degree of change in grades in real time through data, which helps to correct grades in real time and improve grades. On the other hand, while practicing in groups, students help each other, actively discuss problems, make students think positively, improve students' interest in learning, and are more conducive to students' initiative in subjects than traditional learning methods.

In addition, knowledge of live sports and team dance is a key element in reforming our current national education system and one of the key areas of higher education. With the rapid development of the overall development of China's curriculum reform, the awareness of lifelong sports dance group dance has also received extensive attention.

After the use of simulation teaching, sports dance and group dance develop rapidly. This is a rare opportunity to advance by leaps and bounds for sports dance and group dance. It is believed that with the blessing of simulation teaching, sports dance will be lifelong, and the development

of group dance will make the students' unity and cooperation ability more perfect under the development of simulation teaching.

## 7. Conclusion

In today's rapid development, various high-techs are emerging in an endless stream in society, and simulation education is one of them. However, simulation education is in the growth stage. Although many experts have studied the topic of simulation education, it is still not perfect. However, it is undeniable that simulation teaching is not only of great help to scholars in sports dance group dance but also provides many benefits for educational simulation technology in other educational aspects. It allows learners to swim in the ocean of knowledge with low cost, openness, and controllability. Educational simulation is another major breakthrough in the education field. If there is hope for new gains in educational simulation, then experts need to further explore.

## Data Availability

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

## Conflicts of Interest

The author states that this article has no conflicts of interest.

## References

- [1] S. Mdletshe and M. Oliveira, "The development of a computer-based teaching simulation tool to aid medical imaging educators in teaching pattern recognition," *International Journal of Morphology*, vol. 38, no. 5, pp. 1258–1265, 2020.
- [2] J. Holman, "Teaching simulation methods with google sheets as a gentle introduction to statistical computing with Python," *Journal of Business Education*, vol. 11, no. 2, pp. 125–132, 2019.
- [3] B. To, B. V. Taylor, J. Beverley, G. Moore, and Y. Peng, "Wilderness medicine simulation-based teaching program for medical students in the UK," *Wilderness and Environmental Medicine*, vol. 31, no. 2, pp. 247–254, 2020.
- [4] B. L. Schrant, L. L. Archer, and R. Long, "Human patient simulation as a teaching tool," *Missouri Medicine*, vol. 115, no. 1, pp. 71–74, 2018.
- [5] M. Kumar and B. R. Tiwari, "Physics teaching with simulation techniques," *Advanced Journal of Social Science*, vol. 4, no. 1, pp. 8–10, 2018.
- [6] T. Koparan, "Teaching game and simulation based probability," *International Journal of Assessment Tools in Education*, vol. 6, no. 2, pp. 235–258, 2019.
- [7] Y. Zhang, Y. Liu, and D. Pu, "Application of isim to optimize medical simulation teaching," *Chinese Journal of Evidence-Based Medicine*, vol. 17, no. 6, pp. 726–729, 2017.
- [8] K. Suresh, S. Karthik, and M. Hanumanthappa, "Design an efficient disease monitoring system for paddy leaves based on big data mining," *Inteligencia Artificial*, vol. 23, no. 65, pp. 86–99, 2020.
- [9] F. A. Batarseh, L. Freeman, and C. H. Huang, "A survey on artificial intelligence assurance," *Journal of Big Data*, vol. 8, no. 1, pp. 1–30, 2021.
- [10] N. An and X. Wang, "Legal protection of artificial intelligence data and algorithms from the perspective of internet of things resource sharing," *Wireless Communications and Mobile Computing*, vol. 2021, no. 2, pp. 1–10, 2021.
- [11] R. R. v d Leur, M. J. Boonstra, A. Bagheri et al., "Big data and artificial intelligence: opportunities and threats in electrophysiology," *Arrhythmia & Electrophysiology Review*, vol. 9, no. 3, pp. 146–154, 2020.
- [12] A. Todoli-Signes, "Algorithms, artificial intelligence and automated decisions concerning workers and the risks of discrimination: the necessary collective governance of data protection," *Transfer: European Review of Labour and Research*, vol. 25, no. 4, pp. 465–481, 2019.
- [13] B. Abdualgalil and S. Abraham, "Efficient machine learning algorithms for knowledge discovery in big data: a literature review," *Journal of Advanced Science*, vol. 29, no. 5, pp. 3880–3889, 2020.
- [14] K. V. Ramesh, V. Rakesh, and E. Rao, "Application of big data analytics and artificial intelligence in agronomic research," *Indian Journal of Agronomy*, vol. 65, no. 4, pp. 383–395, 2020.
- [15] Y. Zhou, J. Wu, and C. Long, "Evaluation of peer-to-peer energy sharing mechanisms based on a multiagent simulation framework," *Applied Energy*, vol. 222, pp. 993–1022, 2018.
- [16] Y. N. Hrhkha, "Ceprennob," *Advantages of Simulation Training in the Preparation of a Medical Intern Scientific Research and Development Socio-Humanitarian Research and Technology*, vol. 8, no. 3, pp. 75–79, 2019.
- [17] L. Arieska, A. Permanasari, N. Winarno, and J. Nur, "Enhancing students' scientific literacy using virtual lab activity with inquiry-based learning," *Journal of Science Learning*, vol. 4, no. 2, pp. 173–184, 2021.
- [18] Y. Li, D. Zhang, H. Guo, and J. Shen, "A novel virtual simulation teaching system for numerically controlled machining," *International Journal of Mechanical Engineering Education*, vol. 46, no. 1, pp. 64–82, 2018.
- [19] C. E. Lovegrove, T. Abe, A. Aydin et al., "Simulation training in upper tract endourology: myth or reality? Critical analysis of the literature," *Minerva urologica e nefrologica = The Italian journal of urology and nephrology*, vol. 69, no. 6, pp. 579–588, 2017.
- [20] S. Alabady, "Saturation throughput and delay performance evaluation of the IEEE 802.11g/n for a wireless lossy channel," *Iraqi Journal for Electrical And Electronic Engineering*, vol. 14, no. 1, pp. 51–64, 2018.