Retraction

Retracted: The Teaching Mode of Martial Arts in Colleges and Universities Based on Artificial Intelligence Assistance

Mobile Information Systems

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] M. Xu, H. Li, and Y. Zhu, "The Teaching Mode of Martial Arts in Colleges and Universities Based on Artificial Intelligence Assistance," *Mobile Information Systems*, vol. 2022, Article ID 6162784, 11 pages, 2022.

Research Article

The Teaching Mode of Martial Arts in Colleges and Universities Based on Artificial Intelligence Assistance

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Artificial intelligence, as one of the important representatives of information technology development, gradually penetrates into all fields of education and teaching, and the forms of education and teaching become diversified. Teaching with the core of students' core literacy cultivation and digital transformation as the background has produced incompatibility with the current development in terms of teaching purpose, teaching value, teaching methods, and teaching ability, which has become an obstacle to the development and reform of education and teaching. In the current era, we should do a good job of integrating information technology and education teaching, transforming traditional teaching habits, focusing on the core value of teaching, and realizing the transformation from teaching to learning in the context of digitalization. The development of artificial intelligence way education refers to the use of new technology to promote talent training, so that the traditional education and teaching methods are changed to form a new education form of intelligent learning, interactive learning, and deep learning.

1. Introduction

The deepening of globalization makes western culture infiltrate and impacts our traditional national culture, and the fierce competition between eastern and western cultures has a profound impact on college students. Wushu not only can strengthen the body and exercise the will, but also is the crystallization of China's cultural wisdom, which has been continuously precipitated and developed in the long history and culture, and has a strong cultural flavor [1]. It is the responsibility of our time to inherit and promote traditional martial art culture. Therefore, carrying out martial art education and teaching in colleges and universities can make college students practice martial arts while receiving the infection and inculcation of martial art culture, and enhance college students' identification and pride in Chinese traditional culture, so that they can better inherit and promote national culture [2].

Good physical fitness is the basis and prerequisite for other activities of college students. However, the overall physical quality of college students has been declining, and common diseases such as obesity and myopia are affecting students' physical and mental health [3, 4]. Most of the new-age college students are post-95 s and post-00 s, most of them are only children, the core of the overall family structure, and they receive more care and attention from their parents [5]. Therefore, there is no shortage of people who are afraid of hardship, weak in character, and have poor independence and psychological quality among them. Carrying out martial art education and teaching can not only inherit and promote traditional martial art culture, and improve students' physical quality, but also cultivate students' spirit and quality of self-improvement and hard work, and help college students enhance their self-confidence and develop good habits of independence and autonomy [6].

However, at the present stage, there are many problems. First is the lack of demonstration ability. Wushu is a very technical teaching program, which requires teachers to demonstrate in the teaching process to give students the most profound and direct first impression [7, 8]. However,

the reality is that there are many problems with the movement demonstration of some college martial art teachers. For example, many teachers do not have professional training or do not study for a long time leading to a lower level of martial art skills, or some martial art teachers simplify martial art movements due to laziness and are not able to demonstrate them in a standardized and accurate way [9]. Second is the lack of ability to explain. Although some college martial art teachers have the high skill level and theory level themselves, they lack the ability to explain and are not able to express their understanding of martial arts clearly and thoroughly for students to accept. Third, they lack the ability to deal with teacher-student relationship. There is a close interactive relationship between teachers and students [10, 11].

The teaching mode cannot fully demonstrate the connotation and charm of martial arts and cannot start teaching activities according to students' learning ability, and students' subjective initiative cannot be effectively played out, which seriously affects the effect of students' learning and hinders the stimulation of students' inner potential [13].

Some of them are rather backward and old, so that students gradually lose their enthusiasm and creativity in learning wushu. At the same time, this is also not conducive to the smooth development of the teaching contents of college wushu and the reform of the teaching contents of college wushu [14]. The old and single teaching content does not enable students to apply the theoretical knowledge and martial art skills they have learned to real life.

2. Related Work

Martial art is a kind of technique in ancient military warfare; we need to have a certain understanding of martial art-related contents, such as the characteristics and roles of martial arts [15].

There are various forms of martial arts, each with its own style, but no matter which form they are, their common feature is that they are mainly composed of offensive and defensive actions such as hitting, kicking, falling, and stabbing [16]. As an important way of military training, the offensive nature of martial arts is obvious. In the real application process, the main purpose of martial arts is to subdue, kill, and injure the opponent, forcing the opponent to lose the ability to resist.

Martial art emphasizes the standardization of the form and the overall concept of unity between inside and outside. The so-called internal and external unity refers to the activities of the mind, spirit, and intention, while the external refers to other body movements such as hands, eyes, body, and steps, and the internal and external, form, and spirit are all interrelated unities [17]. By observing the techniques of martial arts, it is obvious that martial arts have the characteristics of "internal and external unity, form, and spirit."

Different kinds of martial art routines can be adapted to the exercise needs of people of different ages, genders, and professions, and practitioners can also choose their favorite martial art routines for exercise according to their own athletic ability, interests, and other conditions [18]. At the same time, wushu has relatively low requirements for venues and equipment, and is also not restricted by time and weather conditions, so practitioners can choose the specific content and appropriate way of their practice according to the size of their practice location. Therefore, compared with other sports, wushu has a wider range of application [19].

The most important feature of martial art is that it is mainly based on technical combat movements. Through continuous systematic practice, people can not only enhance their physical fitness to a certain extent, improve their human body functions, and strengthen their bodies, but also learn some offensive and defensive fighting techniques and master some self-defense methods and knowledge in the process of learning, which can improve people's ability to judge and adapt to external matters to a certain extent [20].

Martial arts can cultivate people's sentiment and improve their cultivation and esthetic ability in the process of alternating fast and slow, motion and stillness, and attack and defense [21]. Moreover, the practice of martial arts is also a great test of people's will, character and quality. The practice of martial arts requires people to practice for a long period of time overcoming difficulties such as dullness and pain, which is conducive to cultivating the mental qualities of hard work and perseverance. In addition, in the process of martial art exercise, great emphasis is placed on such virtues as respecting teachers, loving friends, and being courteous and trustworthy, and the pursuit of virtue and martial arts not only exercises the will and cultivates virtue, but also contributes to the construction of social and spiritual civilization [22].

Wushu has a high appreciation value in our daily life, regardless of the form of the routines, which are enjoyed by the public [23]. Martial art also facilitates people to engage in martial art sparring, exchange skills and ideas, and to a certain extent help people to promote friendship between each other [24, 25].

3. Method

Based on the latest domestic and international research results, this project focuses on the introduction of "artificial intelligence assistance" into online training and education to provide a forward-looking solution to the problems that traditional education (including current online training and education) cannot solve. This solution is a forward-looking solution to the problem that traditional education, including current online training and education, cannot achieve student-led education and effective learning to meet personalized needs.

3.1. Implementation Ideas

3.1.1. Overall Realization Idea. Based on artificial intelligence-assisted college martial art teaching that is a system project with technology as the forerunner and system as the aid, we should achieve the following goals in system construction: first, to build a database of students' individual characteristics, to record and collect various information data of students, and to systematically mine and analyze all

training data of academics; second, to provide students with a networked independent learning; third, through the data collection, analysis, and mining of the online learning platform, we can really discover the learning direction and content that students are most concerned about deep inside, and make intelligent pushing to guide learning; fourth, through the analysis and mining of students' tendency to concern, we can provide teachers with a basis for lesson preparation; and fifth, we can build a comprehensive assessment system for students' effective learning. Finally, it constructs a comprehensive assessment system for students' effective learning and conducts a comprehensive quantitative assessment of students' learning outcomes.

The overall implementation steps can be divided into the following: (1) system research; (2) general design and program implementation stage; (3) data collection and modeling analysis; (4) data comparison and validation; (5) model correction; and (6) guidance practice.

3.1.2. Design and Implementation of Learning Behavior Information Data Collection.

Data collection and cloud training platform system is not only a platform for students to carry out independent learning, data inquiry, online consultation, business assessment, and other networked learning and communication, but also an important platform for data collection of students' learning behavior. The system design adopts a 5-layer development model.

3.1.3. Design and Realization of System Intelligent Analysis.

The data analysis system is the soul of artificial intelligence-aided training management and the key system of the intelligent embodiment. Based on the diverse needs of data analysis, different technical means are used to realize the system construction for different business needs. The system as a whole is still based on B/S (browser/server) model architecture, with PHP technology development for front end, SQL server for database, CentOS + Apache for application server, and a 4-layer system development model for system design, as shown in Figure 1.

3.1.4. Realize the Evaluation of Learning Effect Based on the Algorithm Model of Comprehensive Evaluation of Learning Effect.

There are always various causal links in everything in this world. For the examination of students' learning effect, its good or bad degree will be influenced by various factors and produce inevitable results, and students' learning effect will also be influenced by age, gender, profession, position, political outlook, online learning time, average time of staying on the page, number of data inquiries, etc., and will produce different results. Based on this, a mathematical model can be established with "pass or fail" as the function value and each influencing factor as the variable as follows:

$$Y = \beta_0 + f(x) = \beta_0 + \sum_{n=1}^{p} \beta n X n. \tag{1}$$

For all the obtained data collection information of individual learning behaviors of the participants, the model of the comprehensive assessment system of learning effectiveness can be expressed as follows:

$$\begin{cases} y_1 = \beta_0 + \beta_1 X_{11} + \beta_2 X_{12} + \cdots\cdots + \beta_p X_{1p}, \\ y_2 = \beta_0 + \beta_1 X_{21} + \beta_2 X_{22} + \cdots\cdots + \beta_p X_{2p}, \\ \cdots\cdots\cdots\cdots, \\ y_i = \beta_0 + \beta_1 X_{11} + \beta_2 X_{n2} + \cdots\cdots + \beta_p X_{np}. \end{cases} \tag{2}$$

It is written in matrix form: $y = \beta_0 + X\beta$, where

$$y = \begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{bmatrix},$$

$$X = \begin{bmatrix} 1 & x_1 & x_1 & x_{1p} \\ 1 & x_2 & x_2 & x_{2p} \\ \vdots & \vdots & \vdots & \vdots \\ 1 & x_{n1} & x_{n2} & x_p \end{bmatrix}, \tag{3}$$

$$\beta = \begin{bmatrix} \beta_0 \\ \vdots \\ \beta_p \end{bmatrix}.$$

Since x is a deterministic variable, it is necessary to qualitatively analyze x, determine the variable selection, and then do quantitative expression. The key to this model is to obtain p, the weight coefficient, through the sample data, so that when the sample collection is larger, the more representative the measured mouth is, and on this basis, a set of training effectiveness evaluation systems with the same industry guidance is formed through the large sample collection assessment criteria.

For the quantitative expression of the training effect, on the basis of the above multiple regression equation, the probability of the training effect is measured if the probability is assumed to be P, the value of one to meet $0 \le P \le 1$; second, when P is close to 0 or 1, the small change in the value of P is difficult to find and handle well with ordinary methods; and as a means of qualitative research, the system borrows logistic regression for a probability estimation transformation, as shown in the following equation:

$$f(y) = \frac{e^y}{1 + e^y}$$

$$= \frac{1}{1 + e^{-y}}. \tag{4}$$

We substitute the aforementioned y value into the equation; you can achieve the required probability expression; when $f(y)$ value <0.5 is called a comprehensive evaluation of training failed, and vice versa for qualified; and its training effect is also based on $f(y)$ that is, P value from 0
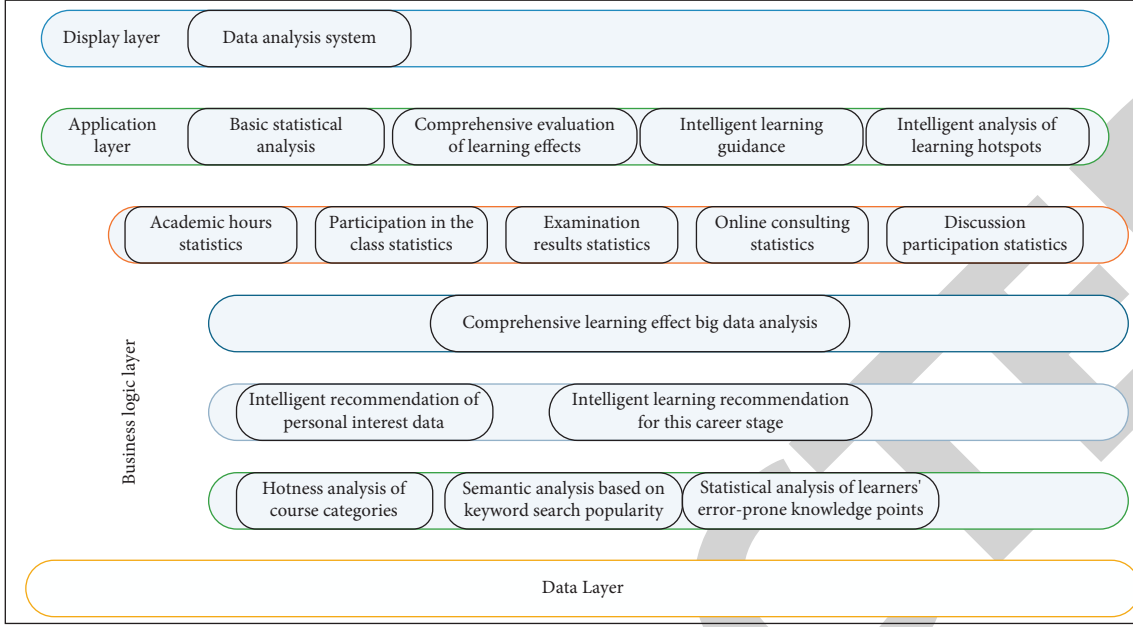
Figure 1: Data analysis system architecture.

to 0.99, that is, completely unsuitable to excellent rating ranging.

Based on the multivariate linear model of equation (5), the key to the comprehensive evaluation of training effectiveness lies in the solution of y-value, and the selection of X qualitative variables becomes the prerequisite for establishing the model.

For the selection of the influencing factors of the model, the system uses multiple linear regression methods for the screening analysis of relevant factors.

(1) The explanatory variables $X_1, X_2, \ldots, X_P$ are required $rk(X) = P + 1 < n$. $rk(X) = P + 1 < n$ here, indicating that the columns of the independent variables in the design matrix X are not correlated with each other, the sum of the number of sample sizes, i.e.,

$$\begin{cases} E(\varepsilon_i) = 0, i = 1, 2, \ldots, n, \\ \text{cov}(\varepsilon_i, \varepsilon_j) = \begin{cases} \sigma^2 & i = j \\ 0 & i \neq j \end{cases} & (i, j = 1, 2, \ldots, n). \end{cases} \quad (5)$$

$E(\varepsilon_i) = 0$, that is, the observations are assumed to have no systematic error. The covariance ε_i is assumed to indicate that the random error terms are uncorrelated across sample points, are not serially correlated, and have the same precision.

Based on the above analysis, the comprehensive evaluation of individual training effectiveness is based on three major aspects, namely, individual characteristics, job indicators, and learning behavior indicators, such as age, gender, existing education, and health status; job indicators such as department, major, grade, social position, and level; and learning behavior indicators include online learning time, average time spent on the page, depth of page access, number of data queries, and participation in online discussions. How to transform various descriptive indicators from qualitative to quantitative descriptions? In this project, the group has completed the quantitative expression through repeated comparison and digital environment modeling, and the quantitative expression of individual characteristics is shown in Table 1.

The quantitative expressions of job and learning behavior indicators are similar to the quantitative expressions of individual characteristics, with only individualized differences in the range of values taken. At this point, we can test the significance of the multiple linear regression equation to achieve the selection of relevant influence variables for model X and establish the model expression.

Determination of model correlation weight coefficients is as follows: for the determination of correlation weight coefficients $\beta_0, \beta_1, \ldots, \beta_n$ affecting the evaluation model of the comprehensive training effectiveness assessment system for trainees, the group used least squares estimation, and for the regression model $y = X\beta$, the study of the algorithmic model is the estimated value of parameter $\beta_0, \beta_1, \ldots, \beta_n$, $\widehat{\beta}_0, \widehat{\beta}_1, \ldots, \widehat{\beta}_n$, so that the sum of squared deviations is minimal, i.e., the search $\widehat{\beta}_0, \widehat{\beta}_1, \ldots, \widehat{\beta}_n$ satisfies.

$$Q(\widehat{\beta}_0, \widehat{\beta}_1 \cdots, \widehat{\beta}_n) = \sum_{i=1}^{n} (y_t - \widehat{\beta}_0 - \widehat{\beta}_1 x_{i1} - \cdots - \widehat{\beta}_n x_{in})^2$$

$$= \min_{\widehat{\beta}_0, \widehat{\beta}_1, \beta_2, \cdots \beta_s} \sum_{i=1}^{n} (y_i - \beta_0 - \beta_1 x_{n1} - \cdots - \beta_n x_{in})^2. \quad (6)$$

The least squares estimation of the regression parameter $\widehat{\beta}_0, \widehat{\beta}_1, \ldots, \widehat{\beta}_n$ of the comprehensive learning effectiveness assessment model, which is the correlation weight coefficient to be determined by the model, is derived from the above equation $\beta_0, \beta_1, \ldots, \beta_n$.

TABLE 1: Quantitative expression of individual characteristics.

Score	Age	Gender	Physical health status	Current education
5	‹21			College graduation
4	19~20		Poor	High school graduation
6	18~19		Moderate	Graduated from senior high school
2	16~17	Male	Good	Junior high school graduation
1	12~15	Female	Excellent	Junior high school and below
0	0~12			

On the basis of the above model analysis, the project team initially derived the weight coefficients of the quantitative expression model for the comprehensive assessment of learning effectiveness by cleaning and correlation analysis of the data of the last year, and completed the quantitative assessment of the comprehensive learning effectiveness of the system by substituting the mathematical model with these weight coefficients.

3.1.5. Combining the Whole Life Cycle Intelligent Guidance Algorithm Model to Realize Intelligent Training Assistance. The intelligent training guidance data analysis model is a data mining algorithm model construction combining individual student characteristics and professional characteristics of different career stages and learning behavior habit characteristics. For the sake of simplifying the mathematical derivation, only the completion steps are briefly introduced in this report.

The smart training guidance data analysis model focuses on solving the key problems of natural categorization of students' basic characteristics, document categorization, and customized push algorithm combined with professional characteristics, for which the project team constructs a two-dimensional analysis matrix X with learning materials as the row rank and students as the column rank for the needs of data analysis, namely,

$$X = \begin{bmatrix} X_{11} & X_{12} & X_{1J} \\ X_{21} & X_{22} & X_{2J} \\ \vdots & \vdots & \vdots \\ X_{J1} & X_{J2} & X_{JJ} \end{bmatrix}. \tag{7}$$

Cell X_{ij} takes the value of discrete (0 or l for whether there is interest; l–10 score represents the degree of benefit), indicating whether the i th student is interested in the j th document. In this matrix, generally a single user will not be interested in or generate browsing behavior for all documents, and most cells belong to the missing state. The interpolation or prediction of these missing data is completed, and the recommendation work is also completed. The specific processing steps are as follows: first, the matrix is further refined based on individual student information in conjunction with the full life cycle analysis, and the identification of similar features for people in the same growth stage is the intelligent analysis algorithm and the difficult point to be addressed in this stage. To this end, the system uses a neural network algorithm to train the system to learn the learning habits of different categories of groups and further classify the characteristics of learning groups at different career stages through a decision tree algorithm oriented to student needs, i.e., processing dimension n. Second, according to the classification requirements of the documents to be recommended, if the keyword index is summarized for each document in the system and classified based on this, it will not only produce a tedious workload but also the documents to be analyzed will be inevitably affected by the individual summarizer. The analyzed documents are inevitably subject to the personal preference of the summarizer and will lose accuracy. How to accurately mine the real learning direction sought by the user through each relevant document, i.e., intelligently analyze the tendency of learning content under personal preference, in terms of model design, the group further categorizes documents based on the LDA semantic analysis, which involves document fragmentation and collation algorithm design, and establishes a word packet model through hidden Markov chains to finally achieve the purpose of text mining by categorizing documents, i.e., processing dimension P. Finally, the collaborative filtering algorithm model is used to give active learning-oriented recommendations to the same category of people while combining different stages of the whole life cycle of the participants with the logistic algorithm to achieve customized guided push.

3.2. Expected Implementation Effect

3.2.1. Realization of Artificial Intelligence-Assisted University Martial Art Teaching Management System by means of Information Technology. Artificial intelligence-assisted college martial art teaching is the first time to put "people" in a dynamic development of space vision to examine and guide the independent learning of the students; with each person in different career stages, their learning goals, content, direction, and learning behavior habits will gradually change; and ignoring individual development of training that ignores individual development will be difficult to achieve the desired training purpose.

3.2.2. Establishing Comprehensive Evaluation Criteria Based on Large Sample Analysis. Based on the data collection and analysis of students' learning behaviors, combined with the individual characteristics of different career stages, a prediction model is established on the basis of a large sample analysis on the relevant factors affecting learning effectiveness, and through a comprehensive evaluation of stage learning results, the same career stage can be used to further

guide the practice of effective learning. This approach is still a bold attempt in the training industry.

Due to the size of the data volume and data collection channels, the accuracy, perfection, and timeliness of each data analysis model need to be further verified and improved. We expect that through the accumulation of data collection volume on the basis of continuous correction and improvement, we can eventually form a guiding standard in the industry and promote and apply it.

3.2.3. Laying the Foundation for Personalized Demand Training. For a long time, the contradiction between teaching and learning has often been the focus of vocational education, and the disconnection between teaching and learning is often due to the lack of specificity in teaching, resulting in "learning" being a formality. It will change the previous passive teaching and truly realize the comprehensive development of interprofessional, interdisciplinary, comprehensive, and composite talents within the whole school system, oriented to the training needs of students; also point out clear development direction for teachers' teaching direction and content; and build a bridge and foundation. It brings a qualitative leap to the effectiveness and relevance of training.

4. Case Study

Under the concept of "internet + sports field," a school's martial art curriculum has been developed into a hybrid online and offline teaching model after 10 years of information-based teaching experience. Students use the microlessons, series of diagrams, demonstrations, PPTs, and other teaching resources of the high-quality online course "Fundamentals of Chinese Wushu" created by us for prestudy and review, and use the practical and interesting AR for practice, which greatly meets the needs of students learning wushu in the internet + era.

This teaching case is an excerpt of the first two hours of the sword art program: basic sword technique. It is described from four aspects: learning situation analysis, teaching strategy, teaching process, and teaching effect.

4.1. Analysis of Academic Situation. Students currently have a certain foundation in martial arts, but there are deficiencies in basic skills and physical fitness. Swordplay looks easy but is difficult. Within the limited school hours, the traditional teaching effect is not ideal, and often the form is similar but not similar. However, modern students like to use cell phones to complete their work and study, and have some interest in online teaching resources. In response to students' characteristics, we take advantage of the situation. According to the syllabus and students' learning situation, we determine the knowledge, skills, and emotional value objectives of this lesson.

4.2. Teaching Strategy. This smart classroom adopts task-driven program, using cloud classroom discussion, brainstorming, homework, uploading action pictures (or videos), mutual evaluation and review, combining teaching resources of online courses such as videos, animations, pictures, microfilms, and virtual simulation resources for prestudy and review, participating in club and martial art team training, submitting theoretical and cultural test questions and drill videos in the final examination, and truly practicing and teaching.

4.3. Teaching Process. It is divided into three parts, before the class: students are notified in the WeChat group to log on to Wushu Mucuos, prestudy the microlesson on sword teaching, and complete the brainstorming in the cloud class: what are the cultural connotations of the sword embodied in? What are the characteristics of the style of sword drills? We promote students' interest in learning and quickly grasping the theoretical knowledge.

During the lesson: it is divided into two teaching sessions.

(1) Sword culture theory. After a quick sign-in in the cloud class, the teacher demonstrates the sword set. Subsequently, the teacher and students open the cell phone cloud class, review the students' submitted brainstorming for the prestudy homework, discuss and exchange, sort out the cultural connotation of the sword and the "style characteristics of sword fighting," and praise each other, effectively enhancing the students' comprehensive understanding of the sword. Then, the original animation "Panda learns sword" was played to prepare a full safety warning for the next sword learning.

(2) Practical skills. We use our own "five-step" teaching method to teach intelligently.

> Step 1: Listen to what I say. We demonstrate first, and then explain the meaning of each sword attack and defense, focusing on the analysis of the more difficult cloud sword.
> Step 2: Practice with the machine. The big screen repeatedly plays the back demonstration of the teacher's sword combination, leading everyone to practice, and students who learn the combination find another place to practice on their own, forgetting the action can check the cell phone Muzi App. The big screen replaces the teacher to lead, freeing the teacher to correct the students' actions. Students can open their cell phone's view + AR augmented reality browser, scan the designated action pictures, and then practice by imitating the 3D virtual character actions that appear on the screen. Multipronged large-class teaching can significantly improve learning efficiency.
> In between practice sessions, a video of famous martial artist instructing swordplay is shown, and then, students are organized to discuss: how to practice swordplay to improve the rhythm? Subsequently, the teacher summarizes Yunnan class, in the form of theoretical sublimation, to deepen students' understanding of the difficult points,

while leading to the next step: the offensive and defensive practical application of swordplay.

Step 3: Offensive and defensive battles. We take the cloud sword demolition as an example.

Students practiced repeatedly in pairs, experiencing the use and rhythm of swordplay in attack and defense. When most of the students have mastered the dismantling of the cloud sword, they use the situational teaching method to demonstrate how to use the sword slashing and sword lifting to counterattack when the enemy comes with a sword or a stick, which expands the practical use of swordplay and allows students to further understand the offensive and defensive meaning of swordplay.

The instructor also provided education on martial art virtues on the Cloud Class App, emphasizing the martial art ideology of "martial art virtues are heavier than mountains, fame and fortune are lighter than mustard" and "to the point, convince people with virtues," guiding students to respect their opponents and love their classmates, so that they can fully understand the proper use and further improve students' understanding of traditional culture.

Step 4: Consolidation practice. Using the group teaching method, students refer to the evaluation criteria displayed on the big screen of the all-in-one machine and repeatedly imitate the drill with the virtual simulation demonstration and standard action pictures. Subsequently, the students use the random roll call of the cloud class to check the drill and correct the wrong actions. Students can use their cell phones to take pictures (or small videos) of each other's actions and upload them to the cloud class, and comment and praise each other.

Step 5: Mutual competition. Each group recommends representatives to show sword combinations and cloud sword demolition moves, the best works will be evaluated, and the teacher will upload them to the martial art teaching website after class as teaching resources for the course.

Finally, classroom mini-quiz. The main purpose is to conduct classroom quizzes to infuse martial art culture into the teaching and deepen the mastery of technical points.

After the class: students use the mugshot resources to review, participate in martial art club training (high level promoted to martial art varsity), submit the basic sword combination practical work online within a week after the movements are proficient, and evaluate each other. We improve rehearsal skills in demonstration and exchange.

4.4. Teaching Effect.

(1) The multidimensional information-based teaching resources and means effectively stimulate students' interest in martial art practice.

(2) The teaching effect was greatly improved. Through assessment and comparison, the proportion of students achieving good grades or above increased by 20%; after follow-up training, students won the championship of women's self-selected fencing in the provincial university students' wushu championship; many students obtained the Duan of Chinese wushu; they often participated in various evening performances in school, which greatly enlivened the cultural life on campus, and the wushu club won the prize of excellent achievements in campus culture construction in provincial universities and was approved as the excellent Chinese traditional cultural heritage base of Guangdong Province.

4.5. Analysis.
When conceptualizing the combination of martial art practical offensive and defensive techniques, it must be clear that the combination of techniques is not blind, the rationality and coherence of technical movements should be fully considered, and attention should also be paid to the combination of straight and arcing, up and down, and orderly offensive and defensive techniques. The teacher will group the students according to the objectives of the task, combined with the results of the learning analysis, homogeneous between groups, and heterogeneous within groups (6 students in a group). The group conceived how to complete this martial art teaching task in a reasonable, orderly, and nonhazardous way, and made a reasonable division of labor, each in its own way.

The first period of the CDIO teaching model is shown in Figure 2.

4.5.1. Student Design and Teacher Guidance.
The second period of the CDIO teaching model is shown in Figure 3.

During this period, the teacher organizes an active internal group discussion and guides the students to prepare a martial art task plan, which describes in detail the technical movements of the attack and defense combinations designed by the group. For example, in group 1, student A (hereinafter referred to as A) and student B (hereinafter referred to as B) are both in a real combat stance; A attacks B with a left punch; B leans back slightly, blocks the incoming punch with his left hand, and counterattacks A's abdomen with a left stomp; A blocks B's incoming leg with his left hand downward and outward, and counterattacks the outside of B's left leg with a right whip; B wraps A's incoming leg with his left hand outward and inward and lifts it upward; B shifts his body weight forward, advances with his left foot, steps forward with his right foot, and reaches A's neck with his right hand; and B throws A to the ground with a leg hold and neck drop. Teacher, according to the martial art task plan developed by students, makes comments, organizes students to discuss the feasibility of attack and defense combinations, and at the same time gives modifications; students modify and, so on repeatedly, finally, determine the martial art task completion plan and implementation plan.
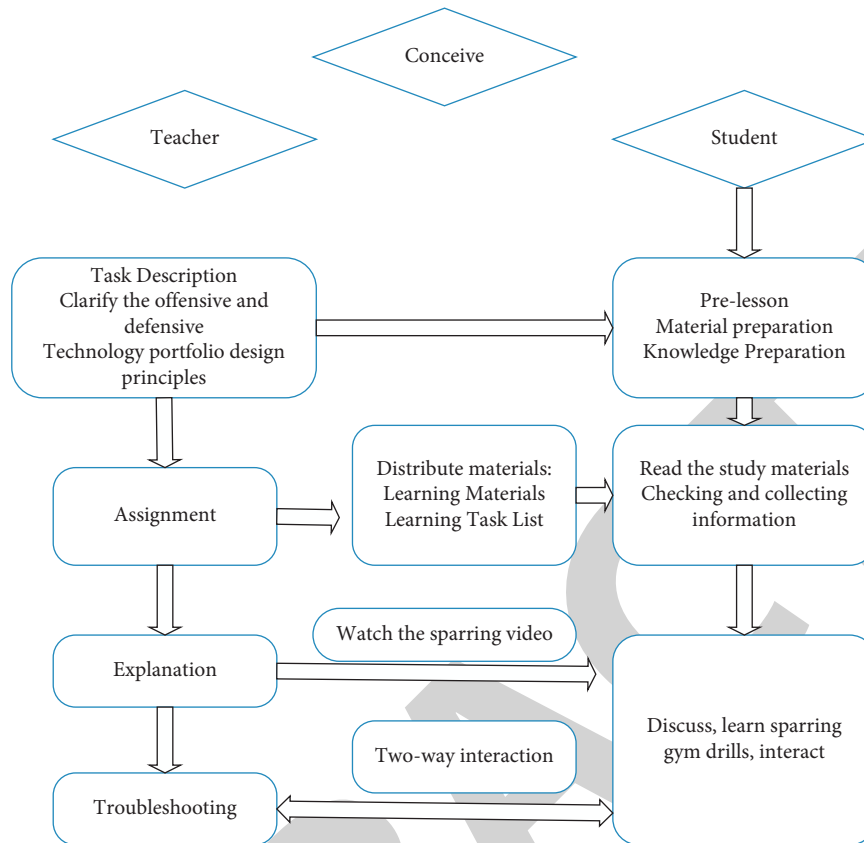
Figure 2: The first period of the CDIO teaching model—conception C.

4.5.2. Student Realization and Teacher Moderation. The student realization process, i.e., the process of independent learning and teamwork by students, is mainly carried out in a combination of in-class and out-of-class sessions. In class, after students perform basic warm-up activities and special exercises, the group starts to practice the designed offensive and defensive combinations, while the teacher observes, guides, and regulates the course progress. During the class, students can also practice on their own and share their problems with the teacher through social networking platforms such as WeChat and QQ, while the teacher gives some guidance to help students complete their learning tasks as soon as possible, thus realizing integrated teaching in and out of class. At this stage, through students' active practice and teachers' supervision, students' use of martial art attack and defense techniques becomes more accurate and proficient, which helps to improve students' automatic mastery of martial art techniques and movements.

The third period of the CDIO teaching model is shown in Figure 4.

4.5.3. Students Run and Teachers Give Feedback. The fourth period of the CDIO teaching model is shown in Figure 5.

In this period, it can be divided into two steps: student explanation and field exercise. During the student explanation, one student is chosen as the representative of the group and another group member is chosen to cooperate and explain the group's attack and defense combination to the students in the class, so as to improve the students' verbal skills and mastery of martial art techniques. During the field exercise, the group members divided themselves into 3 groups and combined in pairs to perform the technical movements of attack and defense combinations. The teacher encouraged each student to make a self-evaluation and gave feedback to the groups for improvement. After all the groups have finished their drills, the teacher organizes all students to conduct a group mutual evaluation. Based on the content of the group self-assessment, group interassessment, and the students' performance, the teacher gives the students' overall grades.
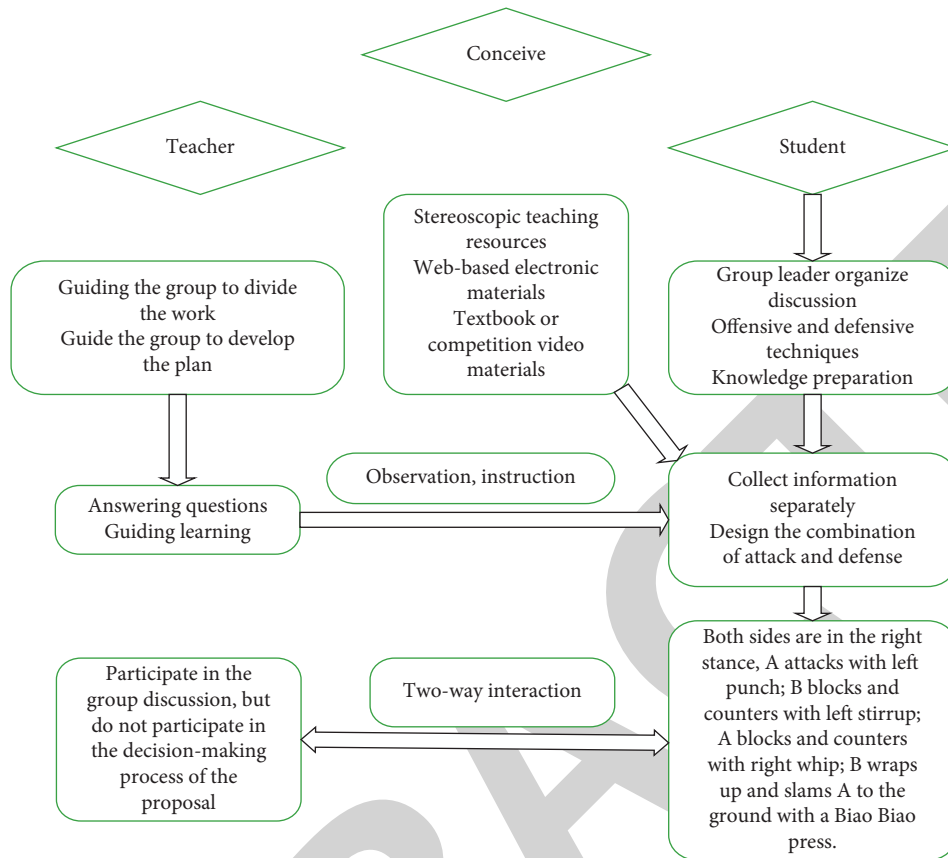
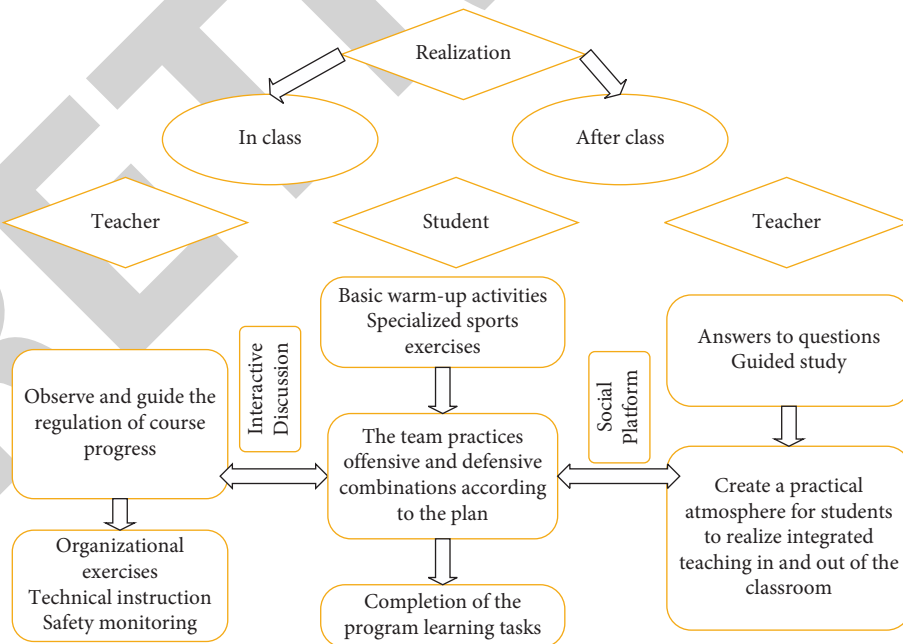Figure 3: CDIO teaching model period 2—design D.

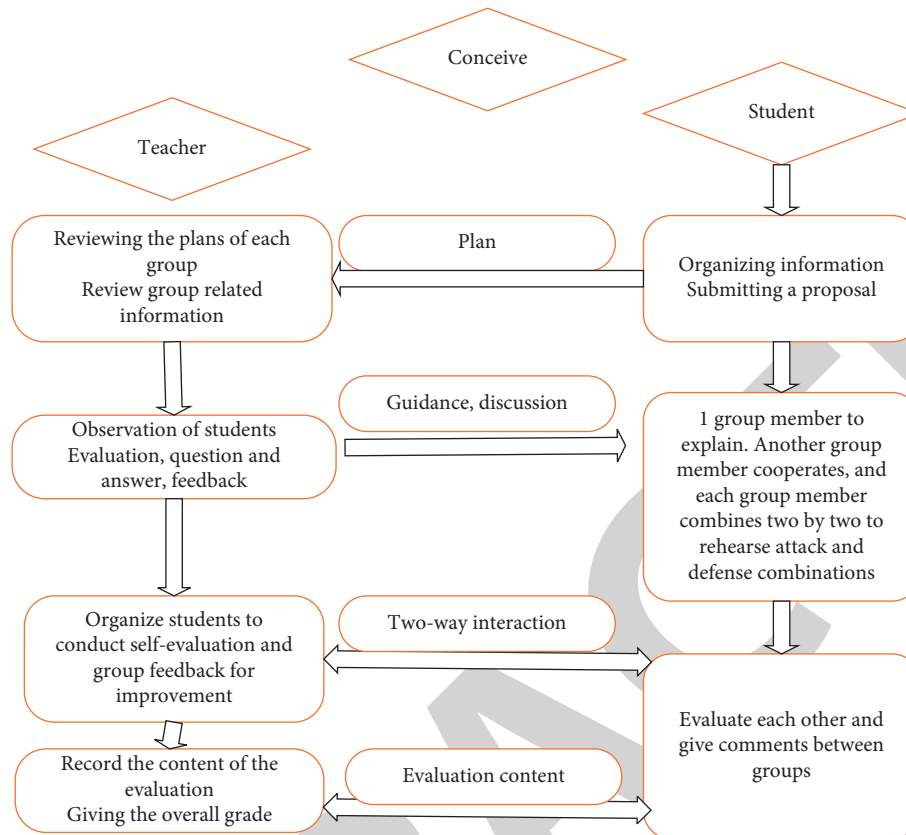Figure 4: CDIO teaching model third period—run I.

Figure 5: CDIO teaching model period 4—run O.

5. Conclusions

The successful application of the educational concept of artificial intelligence assistance in the field of engineering education at home and abroad provides good reference significance in China. It should be led by the modern guiding ideology of physical education and face up to the main problems that exist at present. This paper aims to improve the quality of Wushu teaching and training from three dimensions: clarifying the teaching objectives, innovating the operating procedures, and optimizing the evaluation system. Therefore, this can give play to the role of students as the main body, improve students' basic knowledge and personal ability, and improve the quality of Wushu teaching. Furthermore, it can effectively train students to become talents required by social development.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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