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Retraction

Retracted: Effectiveness of VR Technology Based on Artificial Intelligence and Big Data in Overcoming Psychological Barriers in Taekwondo Practical Learning

Security and Communication Networks

Security and Communication Networks has retracted the article titled "Effectiveness of VR Technology Based on Artificial Intelligence and Big Data in Overcoming Psychological Barriers in Taekwondo Practical Learning" [1] due to concerns that the peer review process has been compromised.

Following an investigation conducted by the Hindawi Research Integrity team [2], significant concerns were identified with the peer reviewers assigned to this article; the investigation has concluded that the peer review process was compromised. We therefore can no longer trust the peer review process, and the article is being retracted with the agreement of the Chief Editor.

References

[1] P. Guo, "Effectiveness of VR Technology Based on Artificial Intelligence and Big Data in Overcoming Psychological Barriers in Taekwondo Practical Learning," *Security and Communication Networks*, vol. 2022, Article ID 3750213, 10 pages, 2022.

[2] L. Ferguson, "Advancing Research Integrity Collaboratively and with Vigour," *Research integrity*, 2022, https://www.hindawi.com/post/advancing-research-integrity-collaboratively-and-vigour/.

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Research Article

Effectiveness of VR Technology Based on Artificial Intelligence and Big Data in Overcoming Psychological Barriers in Taekwondo Practical Learning

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With the rapid development of modern society, a series of emerging technologies such as big data technology, artificial intelligence technology, and cloud computing have also developed rapidly. Among them, artificial intelligence is an important part of computer bionics. It is widely used in the research and analysis of virtual reality. These technologies have effectively assisted modern classroom teaching. In Taekwondo learning, students are easy to encounter some difficult problems, including fear of competition and other psychological obstacles. This study developed a new idea to study these psychological disorders by using the combination of artificial intelligence, big data analysis, and VR technology. The experimental results show that when learners are in the virtual situation created by VR technology, their learning and interactive experiences have been greatly optimized and their learning skills have been greatly improved. They are no longer so afraid of this sport, but they also eliminate their fear of this sports competition, to achieve the ultimate goal of overcoming psychological obstacles. Experiments show that the VR teaching mode based on artificial intelligence and big data technology has its own uniqueness, which can effectively help Taekwondo players overcome the psychological obstacles they encounter in the process of actual combat, and the anxiety and fear indexes of the players decreased by 12.5% and 11.5%, respectively.

1. Introduction

In 2016, VR was developed, so this year is also known as the first year of VR. With the vigorous development of network technology, VR technology is becoming increasingly common in people's daily production and lives. There is no doubt that VR technology can help people solve various problems in daily life and greatly improve work quality and efficiency. In recent years, VR technology has been applied in the field of education, such as the link of wireless networks, the development of distance education, the construction of virtual space, and so on.

Through the investigation of Taekwondo teachers, it was found that students needed to participate in the competition in the later stages of learning. However, they lack passion and enthusiasm for these games, and they cannot treat these games with a positive and serious attitude. It even has the psychology of resistance and evasion. Therefore, this study tries to use VR and other technologies to resolve the psychological obstacles of customer service learners to restore normal Taekwondo teaching.

After a series of experimental analyses, we can know that under the VR teaching mode based on artificial intelligence and big data, players can face their innermost vulnerable points. It has achieved self-breakthrough in virtual battles, again and again, in which the comprehensive performance of the players is 76 points, its variance is basically about 1.5, and the performance is relatively stable. At the same time, the teaching mode can effectively alleviate the anxiety and fear of players in the face of actual combat, in which the index of anxiety and fear decreased by 12.5% and 11.5%, respectively. Moreover, this mode has also played a certain role in promoting the adaptability of players, with a comprehensive increase of 10%. This fully shows that the VR

teaching mode based on artificial intelligence and big data technology has its uniqueness. It can effectively help Taekwondo players overcome the psychological obstacles they encounter in the process of actual combat and help them rebuild their self-confidence.

2. Related Work

Some scholars have conducted relevant research on the theme of psychological barriers in Taekwondo learning.

Valsiner discussed the boundaries of immigration, that is, the contradictory relationship between the social background of immigration and the immigration behavior of immigrants and their counterparts ("anti-immigration"). He proposed a theory of symbolic dynamics, cultural psychology, which is helpful to study the emerging prejudices of non-immigrant local recipients and the ways to overcome them, as well as the contradictory psychology of people who migrate to the social role of "immigrants" and overcome the relevant social role [1].

Khudov et al. outlined a psychological description of personality that may create obstacles in interpersonal communication and proposes ways to overcome the psychological barriers of teachers and students during the 2019 coronavirus disease. His research and analysis showed that psychological and teaching obstacles are produced by teachers in the process of their professional activities, which will reduce their effectiveness. Through in-depth analysis of the typical obstacles that may appear between teachers and students, we can determine the methods to overcome these obstacles [2].

Zubot et al. introduced mood-focused therapy for breast cancer patients with anxiety and depression. This approach outlines how chronic problem emotional patterns are triggered by cancer and its medical experience, and how these patterns are transformed through a series of steps. He discussed the significance of cancer practice from the perspective of case conceptualization and treatment strategies and pointed out that further investment in the clinical development and research of emotion-focused therapy in psychological oncology. It may provide information and support for broadening the evidence base and clinical treatment options for cancer patients and comorbid patients with anxiety and depression [3].

Zaretsky et al. reconsidered the legacy of F.Ye Vasily and briefly introduced the history of the first social institution in Russia to train qualified psychologists. In addition, he analyzed how understanding psychotherapy enriched Russia's tradition of exploring thinking by solving creative tasks. He also reviewed the background of empathy research in cultural and historical psychology and its impact on the development of understanding of psychotherapy and the educational process [4].

These articles mentioned some psychological problems of immigrants, breast cancer patients, and teachers and students during the epidemic period, and studied some therapies in psychology to provide some references for effectively breaking down the psychological barriers of people. However, the disadvantage is that they do not use case calculation for analysis, while artificial intelligence and big data analysis technology can accurately identify and extract people's psychological characteristics. Therefore, we also refer to some research results of artificial intelligence and big data analysis technology.

Connor explained the basic meaning of artificial intelligence and machine learning for licensed anesthesiologists and described how decision-making behavior is generated from simple formulas. He introduced relevant clinical problems to illustrate how machine learning can help solve these problems, which may bring anesthesiology into an era of machine-assisted discovery [5].

Wagner proposed an artificial intelligence-based patient check-in process, which improves the efficiency of patient recording, disease monitoring, diagnosis, and treatment. In addition, it helps to create and optimize the radiation quality, image interpretation, imaging, and other fields and helps to reduce the patient's radiation quality by using artificial intelligence. He believed that artificial intelligence is not terrible because it will not replace human beings. On the contrary, it should be welcomed for its ability to improve and prolong life [6].

Mazurowski believed that AI will support radiologists in interpreting less challenging cases and give radiologists more time to focus on challenging tasks and interactions with patients and other clinicians. He analyzed some arguments in radiology in detail and found that some of them were correct to a certain extent. However, he concluded that none of these arguments fully supported the claim that artificial intelligence would not cause significant interference to radiation workers [7].

The purpose of Kapiński research was to quantitatively evaluate the tendon and ligament healing process by using solutions, verify the improved set-based inference strategy, and show the possible application of this method. He used statistical analysis to compare different training methods of the selected quantitative evaluation method of tendon tissue healing. By using big data analysis VR technology, he has made improvements in inference and achieved 99% comparable accuracy [8].

The above scholars have conducted very in-depth research on artificial intelligence and big data, but in the process of research, they did not expand the relevant technologies to the fields related to Taekwondo. Moreover, in the process of research, the above scholars did not carefully consider the experimental data and conclusions, and the results need to be further verified.

3. VR Taekwondo Teaching Method Based on Artificial Intelligence and Big Data Technology

3.1. Artificial Intelligence. Artificial intelligence is also called AI, and its full English name is artificial intelligence. With the advent of the era of big data and the rapid development of computer technology, this technology is also widely used in various fields and has made a great breakthrough [9]. Its main active areas are some conventional tasks, such as face

or image object recognition, stock trend prediction, medical diagnosis, and so on. The development of this technology is mainly based on the rise of neural network technology. It is having a significant impact on all aspects of our daily production and life [10].

In the 1950s, people began to explore this field. After more than 30 years, it was successfully used in commercial systems and then gradually extended to the fields of intelligent logistics, image processing, data mining, and medical treatment. In recent years, the most important research achievement of artificial intelligence technology is the alpha dog. It is an intelligent go system developed by Google, and its game with human beings has ended successfully in many go games. There are two different ways to realize artificial intelligence on computers: engineering methods and simulation methods.

With the development of artificial intelligence, there are all kinds of different algorithm programs. Specifically, it mainly includes artificial neural networks, deep learning, machine learning, statistical learning, and so on [11]. Their main principle is to make the final decision through the perception of the external environment and then output the optimal value. These algorithms are constantly studied and trained in data collection and sorting to optimize and improve their system performance. The main process of artificial intelligence algorithms is to simulate human behavior and thinking habits and make choices according to the various needs of different people. They can be used to solve all kinds of problems that will appear in our daily life and greatly improve our quality of life. Figure 1 shows the main application scenarios of artificial intelligence.

Artificial intelligence is a new technical science that studies and develops theories, methods, technologies, and application systems used to simulate, extend, and expand human intelligence. It is a process of cognition, decision-making, and feedback. Artificial intelligence has a wide range of applications, including medicine, diagnosis, finance and trade, robot control, and scientific discovery.

3.2. Big Data.
In its literal sense, big data refer to data with extremely large quantity and scale, even to the extent that neither humans nor computers can calculate it [12]. They are combined into various data types and structures in different forms in a specific period of time, which is conducive to enterprises making scientific and accurate decisions. McKinsey's definition of big data is a series of data sets that use emerging data analysis algorithms to complete the task of data sorting within a specific range [13]. Wikipedia also explains its definition: the combination that cannot achieve the purpose of data processing through common analysis tools is called big data. Even if it can be analyzed, its time is far longer than the normal data integration time.

The research and discussion of big data are to understand the essence of information. With the advent of the era of big data, data standards that cannot be quantified in the past can be presented to people in a certain form and used as a reference. Big data includes structured, semistructured, and unstructured data. Unstructured data have increasingly
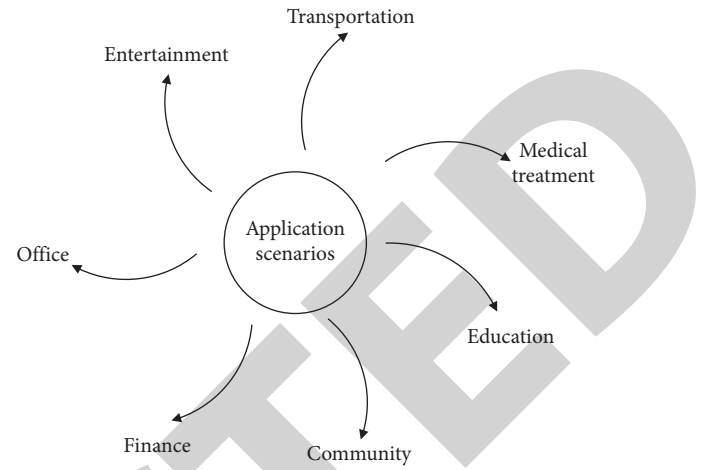

FIGURE 1: The distribution of artificial intelligence application scenarios.

become the main part of data. Most importantly, big data are obtained by reprocessing and summarizing the existing data. If enterprises can make proper use of them, they can better grasp the current situation and future development direction. It can also produce very considerable income and reduce operating costs. There are six basic aspects of big data analyses, including visual analysis, data mining algorithm, predictive analysis ability, semantic engine, data quality and data management, data storage, and data warehouse.

In terms of its own nature, big data have four important characteristics, namely, large scale, diversity, fast speed, and value. Specifically, as long as the space of the calculated hard disk is large enough, it contains enough data [14]. However, the storage capacity of traditional data systems is seriously insufficient, which limits the operation and development of enterprise data resources. Big data need to go through a series of stages such as creation, collection, acquisition, movement, and management. Equipped with high-performance computer processors and servers, big data can be transmitted quickly and sent the data required by users in a very short time. It can be seen that big data play an essential role in promoting the development of all walks of life. Figure 2 shows the basic structure of the big data system.

3.3. VR Technology.
VR is the abbreviation of virtual reality, which was translated as "spiritual realm technology" in the early stages. Virtual reality technology, also known as VR technology, is a new modeling technology, which can realize the unity of the virtual world and real space [15]. At the same time, virtual reality is also a new computer technology. It can use the computer to generate a simulation environment and then make users fully immersed in the virtual environment. Based on this, virtual reality technology has been closely combined with the education industry as soon as it develops. Now it has become a new educational means to promote the healthy development of students. In the traditional education model, teachers often just blindly instill knowledge into students, and with virtual reality technology, teachers can create a vivid and realistic virtual learning environment for
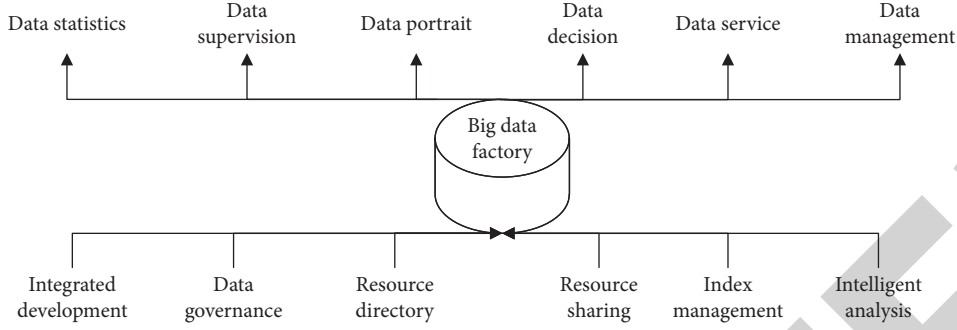
Figure 2: Basic structure of a big data system.

students on this basis. In this environment, students can enhance their memory of knowledge through real feelings, stimulate students' interest in learning [16]. VR technology can make people devote themselves to virtual space and meet all people's imagination of a better life. The basic characteristics of VR technology are shown in Figure 3.

Interactive, immersive, and imaginative are the three characteristics of VR technology. Based on these features, VR technology continues to develop and derive the characteristics of perception and autonomy. With the development of society, the standard to measure whether a door is good or bad is whether it has good friendliness [17]. Nowadays, computer has become an indispensable part of social life, so friendly man-machine interface technology has long become an important topic of concern. In addition, colleges and universities have also established subject-related virtual laboratories using virtual reality technology to help students learn better. VR technology is a new technology developed on the basis of many technologies. Its relationship with other disciplines is shown in Figure 4.

VR technology is closely combined with the field of education. On this basis, we can use VR technology to conduct virtual online guidance for teaching and other links but it is by no means easy to establish a complete VR teaching system. First of all, we need to recreate a virtual teaching environment based on the real environment. Next, after the environment is built, we also need to ensure that what is presented in people's eyes is a dynamic scene that can interact in real-time. Among the many factors that affect scene construction, vision is the first element directly related to the user experience, so the visual design of the scene is the first step to realizing it.

The organization method of scene visualization is as follows:

$$X = x' + a * \text{Size}(b),$$
$$Y = y' + (T_{\max} - R_{\max}) * \text{Size}(b). \tag{1}$$

Here, x' and y' represent the coordinates of any point in the scene, and its position will be jointly affected by scene size $\text{Size}(b)$ and scene elevation T. The organization method of scene visualization is shown in Figure 5.

To make the scene clear enough in a small field of view, we need to maximize the subdivision of the scene elevation to meet the needs of human observation. The subdivided scene is represented as
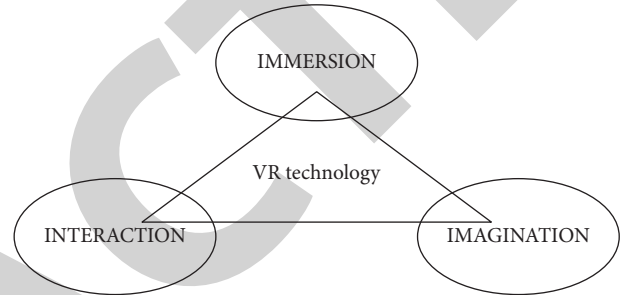

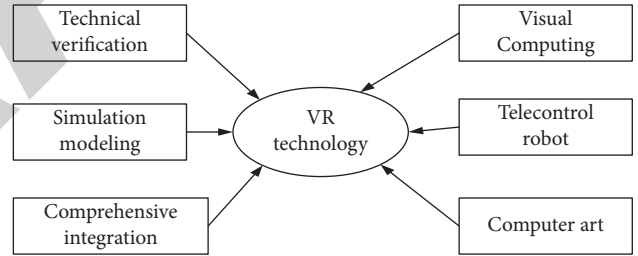Figure 3: Basic characteristics of VR technology.

Figure 4: The main application fields of VR technology.
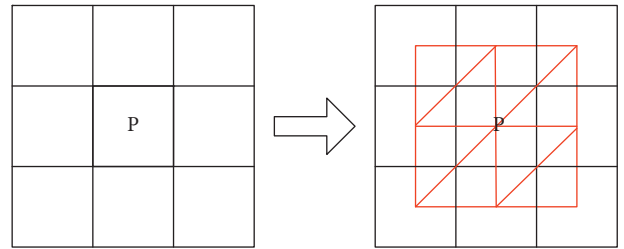
Figure 5: Scene visualization organization method.

$$D_m = \lim_{x,y \longrightarrow \infty} [\text{Size}(\Delta b) * \Delta a],$$
$$\Delta b = \frac{\text{Size}_{\max}(b) - \text{Size}_{ave}(b)}{\text{Size}_{ave}(b) - \text{Size}_{\min}(b)}. \tag{2}$$

D represents the subdivided virtual scene, and Δb represents the incremental value of scene size. In this process, we can initially obtain a linear virtual space by limiting the increment of the scene. However, in the process of building

space, we did not consider the inertia brought by motion, so it is very easy to bring vertigo to users.

For this purpose, we use acceleration to obtain the solution:

$$
\lambda\{u_{t+\Delta t}\} = [K]^{-1}\{F^{\partial}_{t+\Delta t}\},
$$

$$
a = \sum_{t=1}^{m}(F_{t+\Delta t} * \lambda K),
$$

$$
F^{\partial} = \sqrt{\frac{K^{\partial}}{K_{t+\Delta t}}}^{1/3}. \tag{3}
$$

Here, K represents the linear coefficient, and its value range is between $[0, 1]$, F represents the external offset velocity, and $t + \Delta t$ represents the time increment. For linear virtual space construction, we can use linear approximation to obtain the solution space, but for nonlinear space problems, using this method will lead to spatial instability. The nonlinear space is constructed as follows:

$$
\{a_t\} = [M]^{-1}\left(\left[F^{exe}_{t+\Delta t} - F^{int}_{\Delta t}\right]\right),
$$

$$
F^{int} = \sum\left(\int \Omega B^T d\Omega\right),
$$

$$
F^{exe} = \sum(F_t hg) + F^{content}_{\Delta t}. \tag{4}
$$

F^{exe} represents the external force on the space, F^{int} represents the internal force, and M represents the non-linearity index.

The realization of visual simulation is based on the construction of virtual space, so next, we can preliminarily realize the simulation of VR teaching. In different environments, the requirements of simulation modeling will vary slightly, and the demand function is as follows:

$$
P = \sigma^1_{max} \cdot b,
$$

$$
b = k \cdot L \cdot F(P). \tag{5}
$$

Here, P represents the simulation requirements under the influence of several factors, and b represents the boundary of the system. In the process of multiple modeling and adjustment, with the help of big data technology, we can fully mine the characteristics of data and make the best use of its characteristics to improve the virtual space. In this process, the characteristics of the data are described as follows:

$$
P_{\theta} = \frac{k \cdot L(F_L, \sum_{\sigma,b})}{\sum_{k=1}^{L} bm(F_k \sum_{\sigma,x,y})},
$$

$$
L = \sum_{k=1}^{n}(F^a_{t+\Delta t}) \cdot F_L. \tag{6}
$$

Here, the description of data features is mainly realized by depicting the modeling node, P_{θ} represents any node in the virtual space, L represents the initial displacement of the

node, and its geometric displacement increment can be expressed as

$$
\Delta L = \frac{1}{N}\sum_{t=1}^{M} P_{L|\theta}. \tag{7}
$$

After getting the geometry of the node, we can build the scene tree according to the node to realize the final simulation modeling. At the same time, the branch nodes in the built scene tree can manage all leaf nodes on the branch, render, and derive them.

$$
\mu_{\theta} = \sum_{t=1}^{n}(p_f - p_{\Delta t})^2. \tag{8}
$$

3.4. Taekwondo and Psychological Barriers. Taekwondo has a very long history, with a history of more than 300 years [18]. Nowadays, Taekwondo has become one of the official events of the Olympic Games. The spirit of Taekwondo is etiquette, integrity, patience, self-restraint, and unyielding. Taekwondo can be subdivided into various types and levels of competition, but in the process of competition, boxing and feet are mainly used as the main weapons of attack, in which the footwork alone accounts for 70% of the footwork of Taekwondo competition. In addition, there are 24 ways of practicing taekwondo, including weapons, wrestling, throwing locks, and self-defense techniques, as well as more than 10 kinds of basic Kung Fu.

In Taekwondo, breathing and momentum are the most important in combat, so players often make loud voices, which not only improve the speed of action but also focus on making more powerful actions. It is famous for its fast speed and strength. Although Taekwondo is a competitive event, its spirit exists at the beginning and end of the ceremony. On every occasion, Taekwondo practitioners are always kind to themselves and their opponents, which also enables them to develop a style of humility, respect, and tolerance, and continuously improve their comprehensive cultivation. The schematic diagram of Taekwondo competition is shown in Figure 6.

However, in the actual process of Taekwondo teaching, students often face many problems. These problems usually directly affect students' Taekwondo performance and may threaten students' physical and mental health. Psychological disorder is one of the most likely diseases for players in the actual combat of Taekwondo. It is usually manifested in excessive anxiety and fear of the actual combat scene. The main reasons for students' psychological obstacles in the learning process of Taekwondo are as follows:

First of all, students do not know much about Taekwondo competitions and there are some misunderstandings. Taekwondo is a large-scale fighting sport and the actual combat learning of Taekwondo is generally determined as the key element of teaching, and even as the key assessment content at the end of Taekwondo learning [19]. Many students' first impression of Taekwondo is boxing and kicking, but when they choose a good class, they find that Taekwondo needs close contact, and then they begin to regret but have to

(a)   (b)

FIGURE 6: Schematic diagram of Taekwondo competition.

take it again. Therefore, they are even more afraid of regular games with high technical and physical requirements.

Then, learners' parents are also worried that their children will have accidents in the process of practical learning. Based on the sports characteristics of Taekwondo, learners are very vulnerable to injury in actual combat. Although the coach will warn them to wear protective equipment before actual combat, accidents are inevitable. Because the athletes are like newborn calves, the training time for Taekwondo is not very long, so the angle and strength of boxing and kicking are not very clear. This will easily make the opponent injured and affect his normal life and study. Therefore, everyone takes part in the competition with a mentality of not wanting to get hurt, which naturally leads to disgust and avoidance of Taekwondo competition.

In addition, this is also related to the gender of learners [20]. In general, girls are not very interested in violent behavior, and if they are people who have lacked exercise since childhood or have low physical quality, they simply cannot bear this kind of high-intensity sport. And when they are in actual combat, they will immediately choose to give up after the opponent's attack. In this context, if the coach still forces these people to play and participate in the game, students will often complain.

To solve these problems, this paper selects VR technology to overcome students' psychological obstacles. The specific process of this operation is: VR digitizes and informationizes the situation in real life through the computer, to convert it into a virtual space, which is three-dimensional. Under the guidance of professionals, the experimenter will wear an electronic helmet equipped with VR technology on his head, and then he can enter the virtual space [21]. After all, trainers enter this space, they can communicate and interact. In addition, the experimenter needs to hold a handle connector to better complete the interaction of various senses, namely, vision, hearing, touch, and smell, so as to achieve the purpose of design and research.

Next, digital conversion technology is used to create a virtual Taekwondo venue for the experimenter. This place integrates training and competition, and gathers opponents, referees, coaches, and spectators together, making it closer to reality and reaching an ideal state. From the perspective of science, Taekwondo can achieve everything in the most real life.

Taekwondo is a sport that requires learners to master basic technical movements. VR technology can also simulate some mechanical instruments in the process of Taekwondo training, such as hand and foot targets, square targets, speed targets, sandbags, and so on. If these instruments are fully prepared, learners' experience, satisfaction, and quality of skill training will be improved, and they will not be so afraid of practice and competition. Through VR technology, students get great support in both spiritual and technical aspects. They become braver to use the skills learned in the training process to participate in the competition. With the guidance and support of the coach, students will participate in the competition and compete with their opponents more happily and without burden. At the same time, it shows its skills in front of the audience. With the teaching environment of technical blessing, students are no longer afraid of Taekwondo competition but dare to move forward and face all difficulties.

Most importantly, the experimenter no longer needs to worry about injury. Because in this virtual scene, anything or thing is fictitious, and there is no problem of injury at all. Therefore, the process of taekwondo practice is absolutely safe and reliable. The experimenter can safely and boldly participate in any fight or duel without worrying that he or his opponent will be injured. In addition, the coaches in the virtual classroom will also calculate and analyze a series of key factors of the experimenter through artificial intelligence and big data analysis technology. It includes physical function, technical level, and so on. It combines the big data of the whole platform to customize a highly personalized Taekwondo learning plan for learners. This kind of planning is helpful for learners to master and improve Taekwondo skills and overcome their fears indirectly.

4. Effectiveness of the VR Teaching Mode in Overcoming Psychological Obstacles

To verify the effectiveness of VR technology in Taekwondo combat learning, we first conduct virtual modeling of Taekwondo combat scenes. However, an immersive VR

TABLE 1: Importance of Taekwondo routine training elements.

	Technology	Tactics	Physical fitness	Psychology
Number	43	26	9	20
Frequency (%)	51.5	31.9	10.66	23.17
Average value (%)	31.5	22.1	7.19	17.26

TABLE 2: Psychological training period under VR teaching.

Period	Frequency	Percentage	Recognition
Transition period	17	12.19	1.2
Preparation period	34	48.23	2.2
Game period	35	49.23	2.5

TABLE 3: Importance of Taekwondo training elements after VR teaching.

	Technology	Tactics	Physical fitness	Psychology
Number	8	14	21	57
Frequency (%)	9.5	21.4	23.77	68.11
Average value (%)	6.5	12.5	18.28	57.29

system often needs high-precision calculation and a large amount of data support. Therefore, this experimental process adopts a high-performance computing platform and big data technology based on artificial intelligence.

Among them, the main control in the immersive VR system is the DELL T7810 graphics processor, and the projection part is the Oculus Rift Dk2 wearing helmet. At the same time, to ensure the accuracy and scientificity of the experimental results, we randomly selected 85 Taekwondo players in each experiment and tracked their training. Table 1 shows the emphasis on the elements of Taekwondo routine training.

Table 1 shows that in the process of conventional Taekwondo training, coaches and students pay more attention to Taekwondo techniques and skills, of which the frequency reaches 51.5% and 31.9%, respectively. However, for psychological training, the Taekwondo team carries out less daily, and its frequency is 23.17%, which is far lower than the average level.

However, in fact, at present, there are a few Taekwondo players who withdraw from the competition because of psychological obstacles. Therefore, it is necessary to strengthen the psychological training in Taekwondo routine training to get rid of the psychological obstacles of the players. VR technology can comprehensively simulate the situation on the field and help players adapt to the field environment in advance. The psychological training based on VR teaching is shown in Tables 2 and 3.

The experiment shows that Taekwondo players generally prefer psychological training in the process of competition, accounting for 49.23% of the total, the number basically reaches half of the total, and people's recognition basically

reaches 2.5. At the same time, after a period of VR teaching, Taekwondo coaches and students pay more attention to psychological training, with the frequency reaching 68.11%, which is significantly higher than the average level.

After three months of VR teaching training, we collected and sorted out the data on the performance and psychological status of Taekwondo players. Among them, the performance of Taekwondo players in different ways is shown in Figure 7.

Figure 7 shows that under the traditional Taekwondo teaching method, the players' comprehensive performance can basically reach 66 points, but the variance value is relatively large, which shows that the training under this mode often ignores the training of the players' psychological level, so the players' performance is not stable enough. In the VR teaching mode, players can face the most vulnerable points in their hearts and achieve self-breakthrough in virtual battles again and again. The comprehensive performance of players is 76 points, the variance is basically about 1.5, and the performance is relatively stable.

There are often many manifestations of psychological disorders, so we need to make different training plans according to the different performances of players in the process of training. Therefore, we studied the performance of psychological obstacles of players in different ways to analyze specific problems. The performance of psychological disorders in different ways is shown in Figure 8.

Figure 8 shows that the teaching mode based on VR technology and big data can effectively alleviate the anxiety and fear of players facing actual combat, in which the indexes of anxiety and fear decreased by 12.5% and 11.5%, respectively. At the same time, this mode has also played a
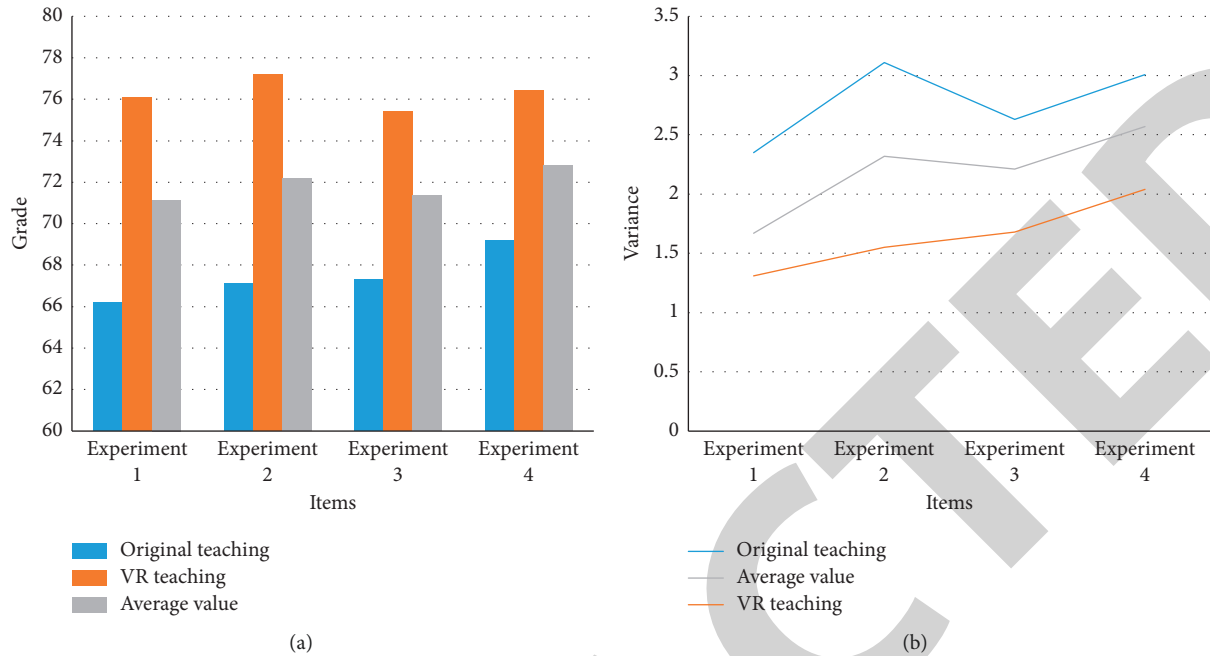
(a)

(b)

FIGURE 7: Performance of Taekwondo players in different ways.
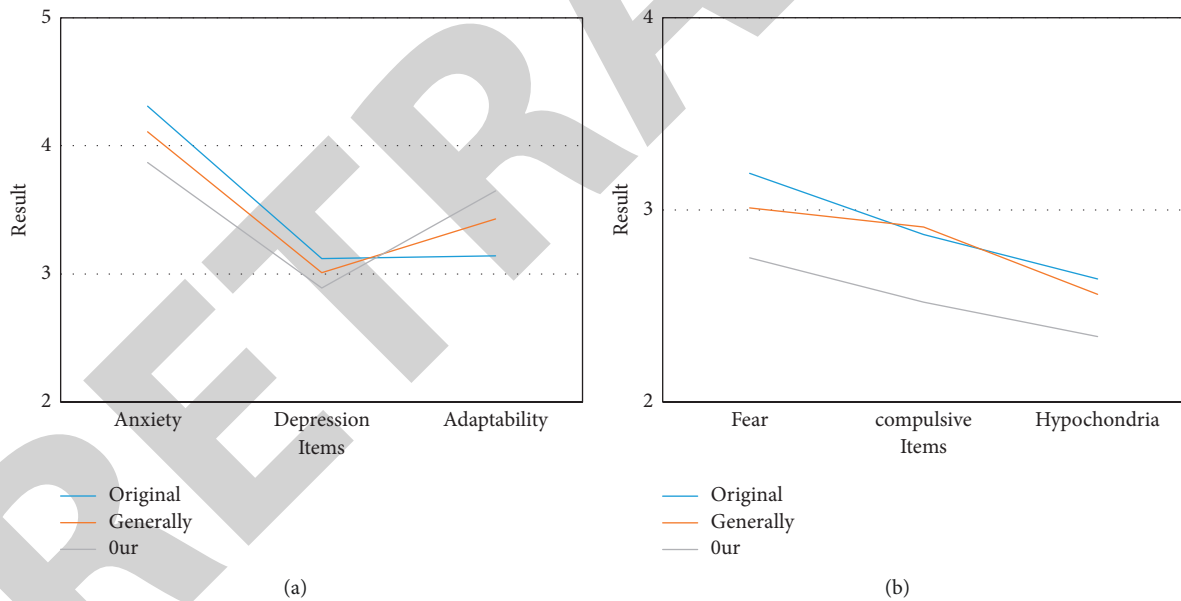

(a)

(b)

FIGURE 8: Performance of psychological disorders in different ways.

certain role in promoting the adaptability of players, with a comprehensive increase of 10%.

After slowly getting rid of the psychological shadow of the actual combat, the player can gradually establish their confidence in the actual combat of Taekwondo and finally overcome their psychological obstacles. The performance of confidence of players in different modes is shown in Figure 9.

Figure 9 shows that players have different psychological performances in Taekwondo and actual combat in different

periods. In the early stage, the players' confidence in the actual combat of Taekwondo has not been fully established, so their confidence is relatively low, with an average of only 60%. However, in the later stage of the experiment, the players have fully adapted to the scene and rhythm of Taekwondo practice, and their self-confidence has been as high as 80%. This fully shows that the VR teaching mode based on artificial intelligence and big data technology has its own uniqueness. It can effectively help Taekwondo players overcome the psychological obstacles they encounter in the
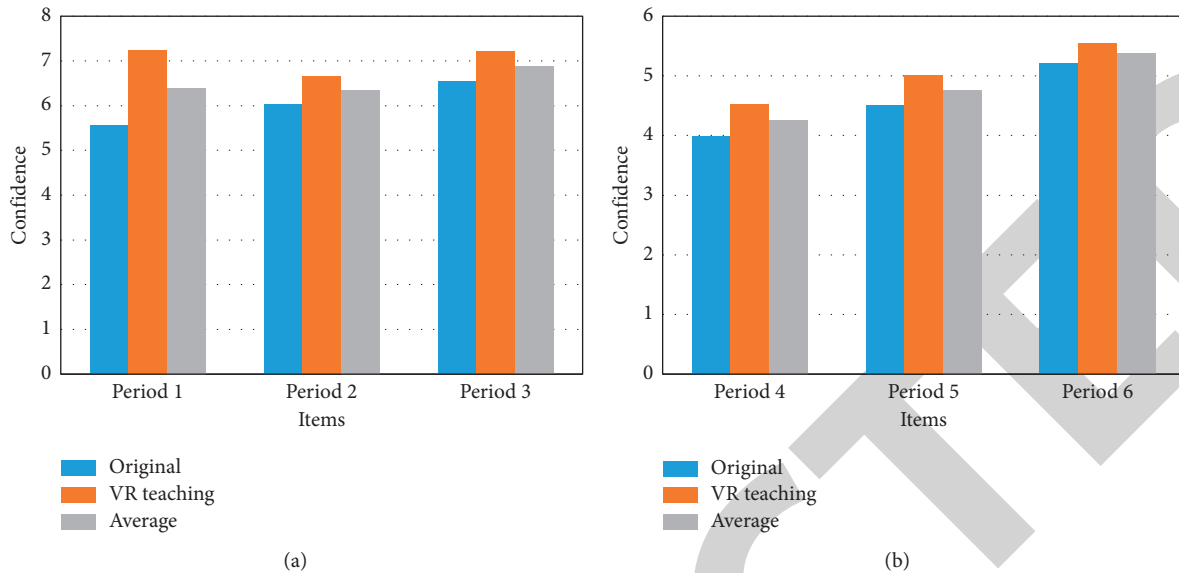
(a)

(b)

Figure 9: Confidence of players in different modes.

process of actual combat and help them rebuild their self-confidence.

5. Conclusion

VR technology has an overwhelming advantage, which provides some support for the practical learning of Taekwondo, to help learners form their practical abilities more quickly. This study starts with the concepts of artificial intelligence and big data technology, and on this basis, preliminarily explores the construction of Taekwondo virtual space and practical training based on VR technology. This paper focuses on the application and conception of VR technology in helping Taekwondo players overcome the psychological obstacles encountered in the process of actual combat. The experimental results show that the virtual space based on VR technology can effectively help learners master the skills of Taekwondo and overcome their psychological obstacles. More importantly, it makes them fall in love with Taekwondo training and forms a good habit of self-study. However, due to time reasons, the professional skills of Taekwondo players are not included in the research process. Next, we will comprehensively consider other factors that affect the performance of Taekwondo players, and strive to further combine VR, artificial intelligence, and other technologies. This study also applies them to other learning fields.

Data Availability

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

Conflicts of Interest

The author declares no conflicts of interest.

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