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Retraction

Retracted: The Impact of Artificial Intelligence and Blockchain Technology on the Development of Modern Educational Technology

Mobile Information Systems

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] Y. Chen, "The Impact of Artificial Intelligence and Blockchain Technology on the Development of Modern Educational Technology," *Mobile Information Systems*, vol. 2022, Article ID 3231698, 12 pages, 2022.

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Research Article

The Impact of Artificial Intelligence and Blockchain Technology on the Development of Modern Educational Technology

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In order to solve the problem of adding artificial intelligence and blockchain technology to education, the purpose of meeting the needs of combining artificial intelligence and blockchain technology with modern education is to make up for the lack of artificial intelligence in modern education, improve students' interest in learning, and cultivate high-quality students. Through practice and analysis in a chemistry class in an experimental school, samples were taken from 821 students in the third grade parallel class, and 39 teachers taught students in accordance with their aptitude; finally, from the average score statistics of the first and second inspections, it can be seen that the intelligent classroom teaching of chemistry has a certain effect on improving the average score of students in parallel classes in grade three.

1. Introduction

Blockchain is a new type of computer application, such as point-to-point transmission, data storage, authentication mechanism, and encryption algorithm [1]. During the 18th study of the Security Council of the People's Republic of China, Xi Jinping further proposed that the blockchain should be regarded as the most important factor in technological new democracy, and the development of blockchain technology and innovation is required quickly. In China, blockchain research was still in a blank period from 2008 to 2012. Since 2015, it has begun to show explosive growth, and the growth rate has continued to accelerate. In 2015, Chinese scholars' research on blockchain mainly focused on the concept and principle of blockchain. The first exploration of blockchain applications began in 2016, but the application areas are mainly concentrated in financial applications such as digital welfare and Internet finance; as of 2017 and 2018, the application of blockchain has not been expanded to a certain extent [2]. At present, the application of blockchain technology in China has expanded to many fields such as finance and medical care. At present, it mainly studies and discusses the application status and development of blockchain technology in China's education field.

Melanie Swan defines three levels of blockchain technology development: Blockchain 1.0 (currency interconnection), mainly Bitcoin and other virtual currencies; Blockchain 2.0 (Asset Interconnection), which takes smart contracts as the basic feature and can develop decentralized applications DAPP as needed; Blockchain 3.0 (Internet of Everything) which is still in its infancy. In addition to currency, economy, and transaction fields, in the fields of government management, health services, culture, art, education, etc., blockchain technology has been effectively applied [3]. Decentralized self-organizing DAO, decentralized autonomous company DAC, decentralized autonomous society DAS, and fully automated market will affect the development of the world in the future. The development path of blockchain technology is shown in Figure 1.

With the continuous development of Chinese culture and technology, China has also adopted the important idea that technology is the first manufacturing power, various strategies to strengthen the country with science and technology have also been continuously proposed, in this

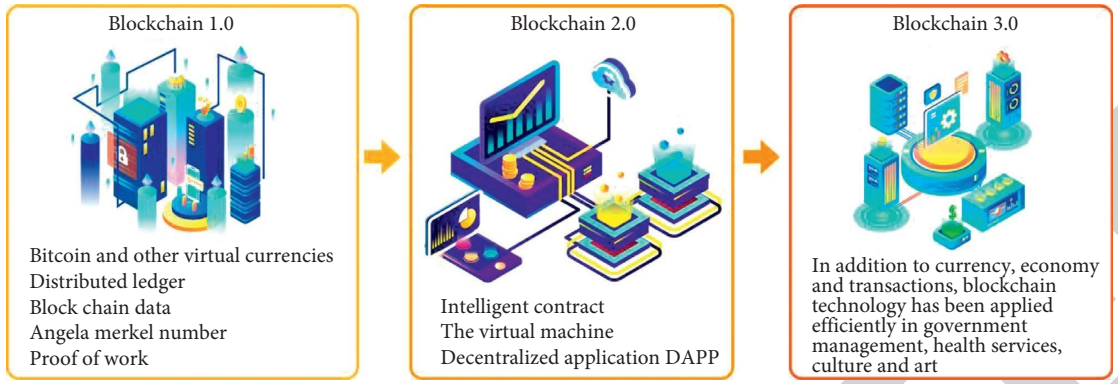

Figure 1: The development road map of blockchain technology.

situation, the effectiveness of education and teaching has gradually been paid attention to, at the same time, China also proposed to integrate science and technology into modern education, for example, artificial intelligence technology born with the development of science and technology, and with the emergence of related technologies such as blockchain technology, it can be well used in modern education, improve the level of education and teaching through science and technology, and stimulate students' interest in learning. At the end of the nineteenth century, technologies such as photography and slide projectors contributed to visual education, while phonographs and tapes contributed to audiovisual education; in the current era, the invention of computers and networks has contributed to modern education; it is not difficult to see that, with the development of science and technology, education is slowly undergoing innovation and optimization (see Figure 2) [4].

Blockchain technology can prevent many criminals from stealing teaching data by other means, avoid the information insecurity problems highlighted by the centralized data market, and greatly improve the security of personal privacy information in the extensive data market and make a reasonable calculation [5]. It can also help teachers identify the teaching focus through microlectures and cooperate with network experts to conduct teaching, do a good job of data integration and preservation of small courseware data, protect the security of teachers' courseware or related intellectual property rights through virtual transaction systems, improve the privacy in the payment process, and promote teachers' innovation in teaching work.

Modern society pays more attention to efficiency and convenience, and all walks of life should put efficiency first, and especially in today's technological development, education should also pay attention to its own high-efficiency research, make full use of various new technological means, and strengthen the effectiveness and convenience of education [6]. In the twenty-first century, schools and colleges should recognize the advantages that intelligent equipment provides for life and education, and the positive significance of introducing new technologies to the development and innovation of education, but in the current modern education, there are still many problems that need to be improved, as shown in Figure 3.

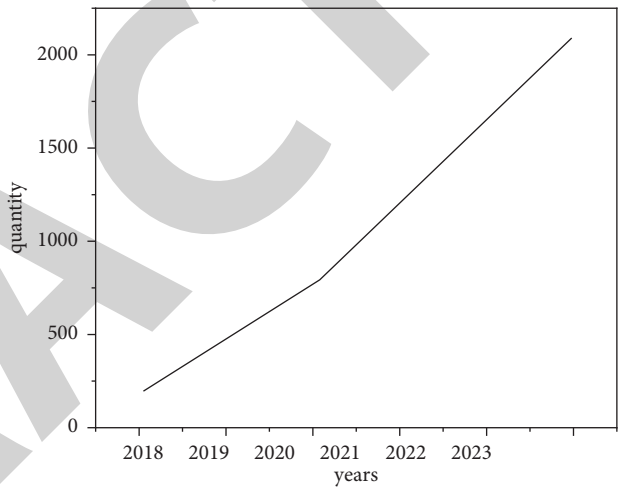

Figure 2: Market size of China's artificial intelligence technology.

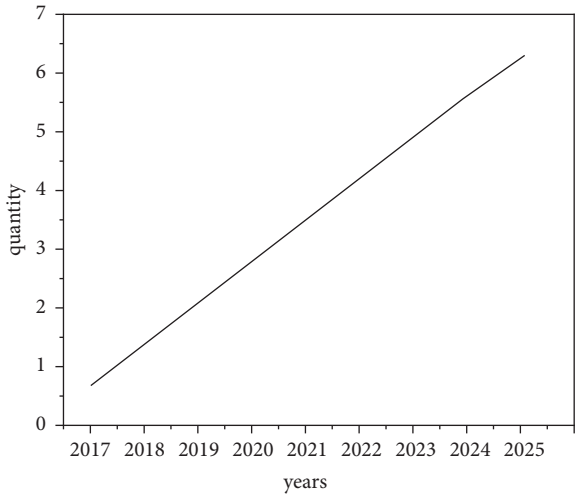

Figure 3: The economic investment of the United States in intelligent education.

Blockchain technology is a distributed database system supported by a new type of decentralized protocol, various technologies come into play to keep data securely stored in it, it has a very high protection effect on the data information

stored on the blockchain, data stored in this way can only be modified by updating the block, and the risk of being tampered with is greatly reduced [7, 8]. This technical feature effectively avoids the traditional centralized management mode and adopts distributed storage technology, which greatly reduces economic and social costs. By applying the blockchain to the management of digital educational resources, it will further explore the research of blockchain in the field of education and provide new ideas and methods for the management of digital educational resources.

2. Literature Review

In the new educational environment, Krylova N. P. [9] and others conducted a heated discussion on the strategies adopted by the new teaching model. Tian W. [10] believed that, in the new era, the various technologies and means used in education should meet the changes brought about by the development of the times and pursue the exchange activities and learning activities between people. Mohammad M. [11] is also actively exploring the significant impact of new technologies on education. Through the reading comprehension of foreign literature, it is found that foreign research on smart classrooms is earlier; the research mainly includes four aspects: theoretical research, design research, applied research, and evaluation research, among which design research and applied research are more. Lee J. [12] and Chettaoui N. [13] believe that the application of artificial intelligence in education is gradually maturing; it participates in student learning in a new way and helps teachers improve teaching efficiency. They believe that, in the next 25 years, educational cobots will assist teachers to appear in the classroom of the future and provide corresponding cases. At the same time, imagine smart classroom learning with the blessing of smart technology. Taub M. [14] conducted research and analysis on the teaching effectiveness of smarter classrooms, with the purpose of investigating primary school students' cognition of smarter classroom teaching. The researchers analyzed learners' cognitive scores by randomly selecting a sample of 100 students from two schools in India. The results of the study found that traditional teaching strategies, teachers' knowledge, presentation skills, use of blackboards, explanation of examples, questioning, consolidation, and feedback were much better than smarter classroom teaching. Saxena A. [15] et al. believe that, with the improvement of human-computer interaction, which can be interacted with a computer or smartphone through body movements, the integration of somatosensory-based applications and classrooms makes learning more enjoyable and enjoyable for students. Kularajasingam J. [16] envisaged that the evaluation system in the smart classroom environment takes teachers and students as the object, makes technological improvements in the current era, and provides a large amount of introduction of science and technology for education, but with it comes more investment in funding, coupled with all aspects of the school's work, Padmanegara O. H. [17] and others believe that many schools are not well prepared to introduce advanced technology, and many schools are still relatively blind in technology and capital investment; it has contributed to the comparison atmosphere of many schools, which is not conducive to the improvement of the school's educational level. For example, many schools still have major deficiencies in the electronic books, the electronic construction of student information, the coverage of online teaching, and the construction of communication and exchanges; at the same time, the school does not know which subject should put a lot of technology and investment, resulting in a waste of technology. For example, in the process of distance education, although it has many advantages, it is difficult to adapt to all schools and disciplines, especially in terms of cultivating emotion and focusing on practice, it is even more difficult to play a role, and the intelligence level, cognitive level, and cultural foundation of different students should also be considered; therefore, schools should clearly recognize the disciplines suitable for each technology and should also be based on their own conditions and development conditions, to appropriately control the introduction of new technologies to contribute and help to improve their own education level. Therefore, a research idea map was designed, as shown in Figure 4.

3. Methods

3.1. Requirements for Modern Intelligent Education. In the modern intelligent education, each school should do a good job of transferring the educational environment from teachers to the network; it also includes the transfer of textbooks to multimedia education; schools should strengthen network construction under the current situation, recognizing that network awareness is the most basic awareness [18, 19]. Since the network has spread all over the world, China's information network is still far behind other developed countries in terms of hardware facilities and basic awareness; therefore, it is necessary to strengthen the construction, invest heavily, strengthen the awareness of the whole people's network, focus on the development of the students' association and the establishment of the network, and adapt to the arrival of the network environment. At the same time, in the network environment, the information education of teachers and students should also be strengthened, and the transformation of teachers' identities and roles should be strengthened [20]. Actively change students' learning methods, improve the information quality of teachers and students, and vigorously teach teachers and students that they should start from basic network use common sense; at the same time, the development and production of teachers' courseware should be strengthened, and the teaching process should be the center of courseware, and the production level of courseware should be vigorously improved, develop the ability to use software classrooms, microclassrooms, etc., and improve communication and construction quality around the world.

3.2. The Importance of Artificial Intelligence to Education. With the continuous progress of science and technology, the rapid progress of science and technology has brought many

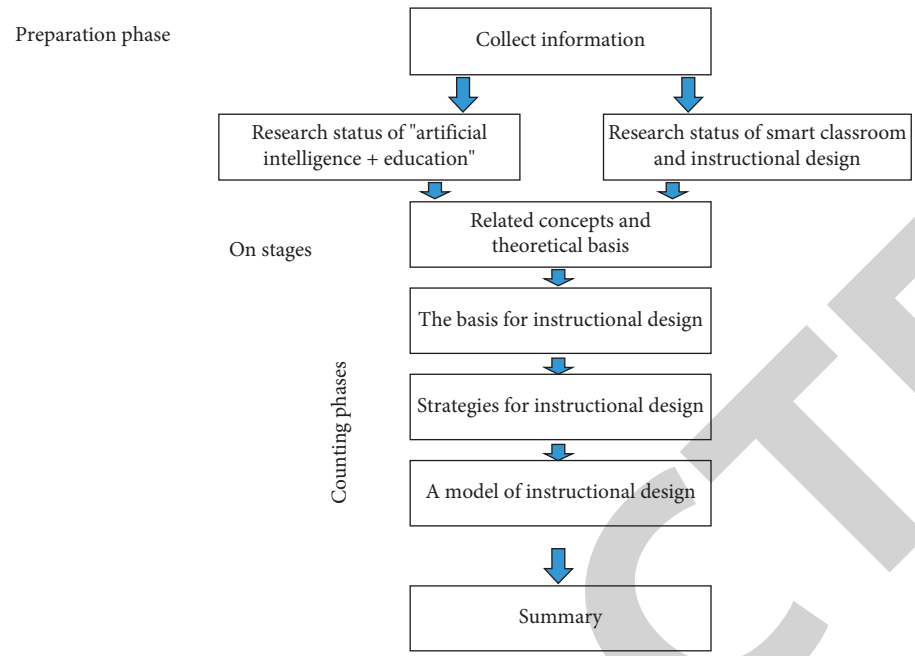

Figure 4: Research idea map.

changes to human life [21]. Whether it is education, parents, teachers, or students, they should recognize the transformation of the environment with the arrival of artificial intelligence; therefore, in the twenty-first century, education informatization is also an irreversible trend, and schools should actively establish new ideas and new models for teaching and strengthen the cooperation between labor and education [22]. For education itself, artificial intelligence is of great significance, artificial intelligence has a strong ability to adapt to all aspects of work, and facing different types of students, artificial intelligence can also analyze the individual differences of students from multiple aspects, formulate different teaching goals for students, and also promote individual development from a deep level; diversifying education from multiple perspectives is conducive to the inheritance of culture. Artificial intelligence goes deep into the field of teaching; it can also promote the reform of education informatization, through its own informatization characteristics; it can also provide teachers with more superior teaching resources. Promoting the birth of personalized teaching, it is easier for teachers to discover the deficiencies of education and hidden dangers in the teaching process through artificial intelligence technology and respond to them (see Figure 5) [23].

For students, artificial intelligence education can also find out the problems of students in the learning process in time and provide answers and corrections for students; it can also formulate learning goals for students that are suitable for their own development; artificial intelligence technology can rely on its own high-intensity computing ability; it can formulate reasonable learning methods and learning plans for students, mobilize all educational resources and information in an instant, and also optimize the teaching process for teachers. In order to prevent teachers from using

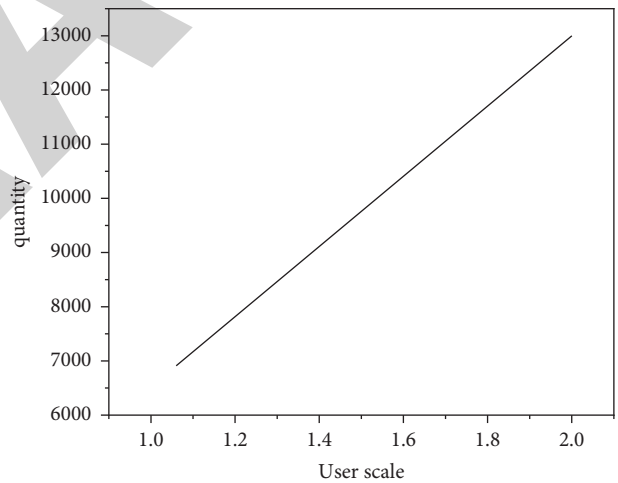

Figure 5: Scale of school education users in China.

traditional teaching concepts when formulating courseware, being bound by tradition makes teaching more rational and targeted. In addition, the addition of artificial intelligence can also create a good learning environment for students, integrate classroom education with entertainment, and find more small games suitable for students on the Internet.

AI + education is the product of deep intelligence and learning. To improve teaching, people use smart devices in education, improve learning and teaching, create a new teaching environment, provide schools with self-paced learning resources, and ultimately achieve the purpose of educating people [24]. "Artificial intelligence + education" mainly relies on intelligent technology, evolved on the basis of the previous Internet, and at the same time has the characteristics of technological update and intelligent

promotion. Intelligent education can also help teachers reduce the burden of teaching, and students can facilitate independent learning and individual review; the school education system is easy to manage, and the core of the device is artificial intelligence, which is also more convenient for schools and other educational institutions. "Artificial intelligence + education" should not only focus on the improvement of students' academic performance, but also pay more attention to your own growth and development. The research believes that artificial intelligence + learning is a deep learning tool in intelligence, and its intelligent test can track comments in real time, and various online and offline tests can rely on intelligence. Technology and smart tools are used to measure all abilities of students, complete most teachers, and ultimately measure results.

Learn from the smart classroom teaching model constructed by Chen Weidong, Liu Bangqi, and others and the strategies proposed by the author, and then go deep into the actual characteristics of the teaching environment of smart cloud chemistry classrooms in practice schools, promote the needs of learners' development, and focus on starting from the perspective of psychology. The design of smart classroom teaching activities is determined, including assignment of tasks, situational introduction of lessons, cooperative sharing, timely feedback, and individual review. The teaching activity design model is shown in Figure 6.

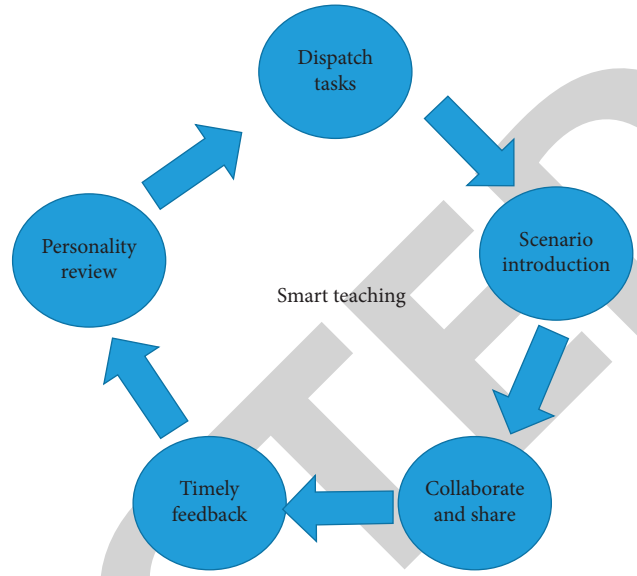

Figure 6: Teaching activity design model.

3.3. The Role of Blockchain Technology in Education. With the continuous transformation of society, technologies such as big data, cloud storage, and the Internet of Things continue to emerge; as a disruptive technology, blockchain can be integrated into education and realize the functions of transferring, recording, exchanging, and analyzing the effect of big data on learning and education, and from the technical level and the level of education it needs to carry out in-depth strengthening, intensify the process of education informatization and intelligence, let each school rebuild the education ecology, change the wool of the school, innovate the means of education, and improve the level of education [25]. The concept of blockchain is also constantly updated in development; as a multiparty joint maintenance, the security and privacy of transmission and access are guaranteed by passwords and can make data difficult to be tampered with and denied in the storage process; it has a strong security principle and has a strong diversity in functions and expressions; there are different operation and maintenance methods and management modules for basic components, accounts, contracts, interfaces, and applications. Blockchain technology is the integrated embodiment of technology, including consensus mechanism, cryptography principle, and distributed storage mechanism, which can complete the common benchmark of each node, reach an agreement on various data, emphasizing the use of asymmetric encryption technology to ensure information security, and also make all participating nodes independent, so that the data can be better preserved (see Table 1).

In the teaching process, the use of blockchain technology can fully change the connotation, goal, form, and structure of education, making modern education more intelligent and diversified; it has the advantages of being transparent and trustworthy, safe and intelligent, difficult to tamper with, and traceable, allowing students to inquire and access educational results such as learning certificates, evaluation results, award status, and practical experience at different educational stages; it can also manage various information in a unified way, strengthen its standardization, and ensure that students' information is true and effective; in addition, it is more difficult to cover up the records of disciplinary violations to enhance social fairness; when students transfer schools, they can also transfer relevant materials collectively; in the face of employment, education, and other stages, you can also transfer records without pressure, reducing the impact of system loopholes and human interference, realize an effective record of the whole process of students' learning, and form a distributed and permanent learning record that is difficult to be tampered with; it saves the time and cost of reviewing and verifying materials by education departments and human resources departments and can also maximize the authenticity and effectiveness of students' learning materials and improve the level of education certification and promote the rational allocation of global educational resources and the overall development of educational undertakings (see Figure 7).

The application of blockchain technology can also ensure the reasonable combination of Internet, big data, and other technologies, build a perfect educational environment, realize the popularization and promotion of intelligent education, promote the reform of the education system, reconstruct the value of education, and better meet the needs of society [26]. Blockchain technology also emphasizes the safety and reliability of education, which can integrate a large number of online and offline teaching, academic or non-academic certification, etc., and according to the students' personality, hobbies, and potential quality differences it can make reasonable deployment, make any way of learning be

Table 1: Differences between blockchain and traditional technology.

Taxonomy	Traditional technical features	Traditional technical description	Blockchain features	Blockchain description
Recording method	Single center control	Single node full authority record and maintenance	Multicenter control	Multicenter consensus confirmation record, common maintenance
Transfer method	Single center control	Single central node full supervision and operation	Multicenter control	Multicenter collective supervision, mutual supervision and checks and balances
Data consistency	External presentation of a single data channel	Single data inventory, no consistency risk	Data consistency through multicenter consensus	Will face certain systemic attacks
Data security	Single center is solely responsible, single point of risk	A single center is responsible for the security endorsement of the entire system; as long as a single node is breached, there will be systemic risks	Multicenter coordination, multiparty secure computing	Multiple centers back up their data, verify data with each other, and check and balance each other, so there is no need to worry about data loss caused by a single center

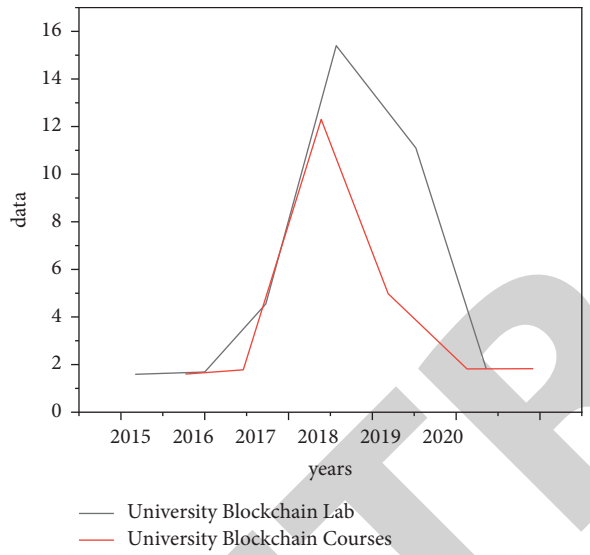

Figure 7: China's blockchain education structure.

recognized, and promote the integration and collaboration of social practice, vocational education, and higher education, realize the record of students from internship employment to entrepreneurial innovation, and promote the fairness and principle of education certification records [27].

3.4. Adaptive Learning in Intelligent Education. In the design of the intelligent education system, we should focus on the educational adaptive learning technology and focus on personalized learning, such as intelligent tutoring systems, through intelligent methods to achieve personalized learning of students, detecting students' gaps and deficiencies in knowledge and cognition, diagnosing qualified steps for students, and fully analyzing data which can be designed through artificial intelligence Bayesian formulas (1) and (2).

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}, \tag{1}$$

$$OP(B) = P(B|A)P(A) + P(B|A)P(A), \tag{2}$$

where $P(A|B)$ is the probability of taking a for the case of b, and $P(B|A)$ is the probability of taking b for the case of a, $P(A)$ is the probability of a, and similarly $P(B)$ is the probability of b; according to probability theory and mathematical statistics, the posterior probability is the product of the prior probability and the adjustment factor. Therefore, in the design, the difference a of the learner and the behavior b of the curriculum education can be formulated and designed; for example, students' physical responses such as heart rate, pulse, and skin temperature can detect students' learning behavior, or students' attention distribution can be detected through mouse and keyboard input, eye movements, etc., judging students' learning and interaction data based on eye tracking such as blinking and pupil dilation; after the data of the learner is collected, the state of the learner can be diagnosed and the future development can be predicted, which can be imported through the following formulas:

$$L = \frac{1}{2}\sum_{i=1}^{mk}\left(Y^{(K)} - T_I\right)2, \tag{3}$$

$$\left(Y^{(K)} - TI\right)^2 = \frac{1}{2}\sum_{i=1}^{MK}(\partial i)^2, \tag{4}$$

where $\partial i = Y^{(K)} - T_I$ represents the difference between the i th element in any vector and the i th element of the vector, the one-half is to make the subsequent derivation calculation more convenient, and in the design process, the students' responses can be incorporated into the regression equation to solve the various loss functions. In addition, in the design, the weights W and W of the network can also be incorporated into it, so that the reciprocal of L and W is 0, as shown in equations (5) and (6).

$$\frac{\partial L}{\partial W} = 0, \tag{5}$$

$$W - \partial\frac{\partial \mathrm{l}}{\partial \mathrm{w}} = 1. \tag{6}$$

∂ is the student learning rate and the step size of the weight, $(\partial \mathrm{l}/\partial \mathrm{w})$ is the gradient; when expressing in it, you can also

use functions to express abstractly, it should be noted that, in many cases, the physical characteristics of students need to be estimated, and it is difficult to accurately collect them, so the estimate can be compared with the likelihood and brought into the regression equation; for example, it can analyze the pronunciation of letters during reading and support personalized learning. For students with writing difficulties, students' writing skills can also be measured through a tablet, allowing students to translate into more appropriate learning activities. Artificial intelligence can distinguish learning steps and methods that are more suitable for students and classify tasks through feedback, pay more attention to the individual needs of students, and analyze students' learning trends, so that students' talents can be strengthened, and a corresponding feedback mechanism can be obtained, raising the level of personalization in education.

3.5. Build an Analysis Model of Digital Education Resource Sharing. The construction of an analysis model for sharing digital educational resources requires the collection of data related to digital resource information; to analyze the basic factors of resource allocation information, the specific calculation steps are as follows.

3.5.1. Collect Shared Resource Information. In the digital education resource sharing system, there are many users who provide shared information; in order to ensure the reasonable distribution of shared digital resource information, first, it is necessary to collect and classify shared information resources according to different providers; the information resource sharing process that defines the information provider is shown in formulas (7) and (8).

$$\frac{dnA}{dt} = vAnA\left(1 - \frac{nA}{Na} - \frac{aAB - bAB}{NB}nB\right), \tag{7}$$

$$\frac{dnB}{dt} = vBnB\left(1 - \frac{nB}{Nb} - \frac{aBA - bBA}{NB}nA\right). \tag{8}$$

Among them, vA and vB represent the sharing speed of the information uploaded by the provider, aAB and aBA, respectively, represent the inhibitory effect coefficients between different information providers due to information resource sharing, and ba and bs represent the facilitation coefficients between information providers, respectively. Due to the different overlapping methods of digital resource information, the overlapping situation of digital resource information is shown in Figure 8; among them, A and B, respectively, represent the digital resource information uploaded by the provider to the sharing platform. As can be seen from Figure 8, there are three situations in the information resources shared by different providers: (1) The information provided by different providers does not overlap, as shown in Figure 8 (1). (2) Different providers provide some of the same or overlapping information, as shown in Figure 8 (2) (3) (4). (3) Different providers provide the same or similar information, as shown in Figure 8(5).

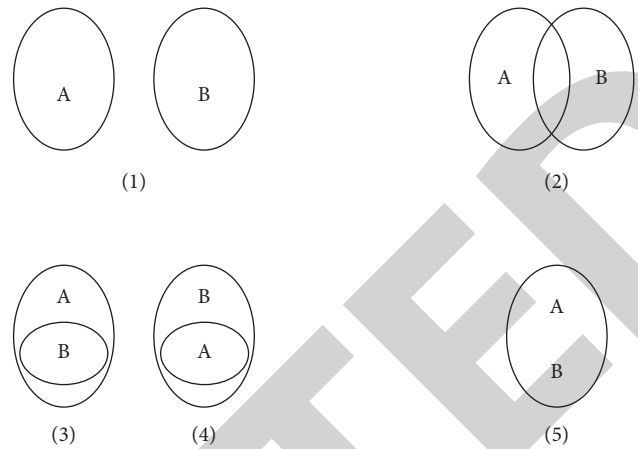

Figure 8: Schematic diagram of the overlapping situation of shared information resources.

According to the representation of Figure 8, SAB is defined as the information overlap degree of the provided information A and B; therefore, if the value of SAB is 0, the configuration factor can be defined directly; if the value of SAB is not 0, weight reduction processing needs to be performed on the collected shared digital resource information, and duplicate digital resource information is eliminated.

3.5.2. Evolutionary Configuration of Shared Information Resources. When the information overlapping degree of the shared information uploaded by different information providers is 0, it means that the sharing of information resources has reached a balance; when the information demanders tend to be saturated with information resources, the equilibrium conditions shown in equations (9) and (10) are established.

$$\frac{nA}{Na} = vAB\frac{nB}{NB} + 1, \tag{9}$$

$$\frac{nB}{NB} = vBA\frac{nA}{NA} + 1. \tag{10}$$

Therefore, the equilibrium condition of information resource sharing is converted into a variable representation, as shown in equations (11) and (12).

$$\mathrm{p}(\mathrm{nA}, \mathrm{nB}) = 1 + \mathrm{vAB}\frac{\mathrm{nB}}{\mathrm{NB}} - \frac{\mathrm{nA}}{\mathrm{NA}}, \tag{11}$$

$$\mathrm{q}(\mathrm{nA}, \mathrm{nB}) = 1 + \mathrm{vBA}\frac{\mathrm{nA}}{\mathrm{NA}} - \frac{\mathrm{nB}}{\mathrm{NB}}. \tag{12}$$

3.5.3. Analyze the Allocation Factor of Shared Digital Resources. Assume that the number of samples of shared digital resource information completed by the equilibrium evolution configuration is m, and the configured factor index is n; at the same time, define the j th configuration factor of the i th sample in the configuration information as siy, the

value range of i is [1, m], and the value range of j is [1, n]; then the initial matrix composed of all sample values of shared digital resource information can be expressed as formula (13).

$$S = |Sij|mxn. \tag{13}$$

Before calculating the initial matrix of samples, the data in the matrix needs to be standardized, and the average value of the data in the j th column is calculated by formula (14).

$$\overline{sj} = \frac{sij}{\overline{si}}. \tag{14}$$

The construction matrix obtained after a series of processing can be expressed as shown in

$$W - |Wij|mxn. \tag{15}$$

Substitute the collected relevant data of the shared digital resource information into the matrix, and calculate the relevant matrix and the eigenvalues and eigenvectors of the matrix; thereby, a unitized eigenvector corresponding to the eigenvalues of the matrix configuration is obtained, and the eigen polynomials that make up the eigenvector are marked as Aj. Finally, the number of configuration factors can be further determined by the cumulative contribution rate of the configuration factors of the shared digital resource information, and the cumulative factor contribution rate of the first k factors can be expressed by formula (16).

$$qk = \sum_{i=1}^{k} \left(\frac{\gamma j}{\sum_{i=1}^{n} \gamma j} \right). \tag{16}$$

When the eigenvalue of the eigenvector is not less than 1, the number of configuration factors can be determined [28].

3.6. Automatic Digital Measurement. In the process of learning, the degree of participation of students can often greatly affect the effect of learning. Students should have a high degree of enthusiasm and initiative, only then can we ensure knowledge absorption in the learning process, and in intelligent education, through artificial intelligence and digital technology, students can be measured in various ways to help students establish a high degree of enthusiasm and participation [29]. With the development of smart devices and the Internet, a lot of learning requires the development of digital media, so in the process of students' learning, usually, digital interaction is isolated and difficult to participate in; for example, although traditional MOOC videos have many advantages, it is difficult to ensure students' participation and completion; there is also a lot of uncertainties in its ratings. In this case, it is necessary to motivate and improve the avoidance of boredom when in trouble and focus on people-oriented participation through analytical automation, pay attention to the temporary emotional and cognitive states of students in the learning process, such as boredom and love, and analyze the reasons why students appear in a state in a specific step and analyze it and then reduce the situation that causes the student's related state, improve students' participation, or analyze the number of mouse clicks of students and analyze students' psychological state; this automated method can be used on a large scale, promote the consistency of intelligent learning, reduce the influence of other factors, and ensure the participation of students (Figure 9).

3.7. Specific Development of CAI Courseware. The specific development of CAI courseware should meet the following basic requirements: (1) courseware development should fully reflect the characteristics of distance education, which can improve learners' interest and consciousness in learning; (2) courseware must meet the basic conditions for running on the Internet and should also have the characteristics of safety, stability, and small capacity; (3) courseware should have complete text and production scripts; (4) the relevant nouns, concepts, symbols, names, theorems, laws, and important knowledge points in the text description of the courseware should be linked with the relevant background information; (5) for important parts of the courseware, pictures, dubbing, or animations can be appropriately used to strengthen the learning effect, but pure expressive pictures or animations unrelated to the teaching content should be avoided [30]. The basic process of CAI courseware development is shown in Figure 10.

4. Results and Analysis

Under the planning of intelligent education, technologies such as artificial intelligence and blockchain under the digital background have brought new development and growth space for education [31]. For the application of artificial intelligence and blockchain technology, it is one of the directions of extensive discussion and research in various countries in the world; artificial intelligence will show the advantages that traditional technology cannot reach, and it has strong capabilities in data collection, information processing, analysis, etc.; if artificial intelligence is applied to modern education, it can also simulate the teaching work of teachers, collect students' learning situation in an all-round way, and list various methods suitable for students' learning according to their individual differences, pay attention to students' overall learning life, quickly improve students' ability to build knowledge, and automatically generate courseware, and the courseware is processed according to the materials collected in the teacher's work; it can also collect new knowledge independently, automatically make scientific discoveries, and even replace the teacher's teaching work (as shown in Figure 11).

Since the beginning of 2020, the outbreak of the epidemic has brought shocks and changes to all sectors of society; on the one hand, it has had a large impact on traditional education; on the other hand, it has also accelerated the generation of digital learning, and the whole year of 2021 will make digital education almost everywhere in the society; under the influence of this trend, people have seen the advantages of digital teaching, and all sectors of society have turned their attention to various new technologies; in an attempt to integrate new technologies into

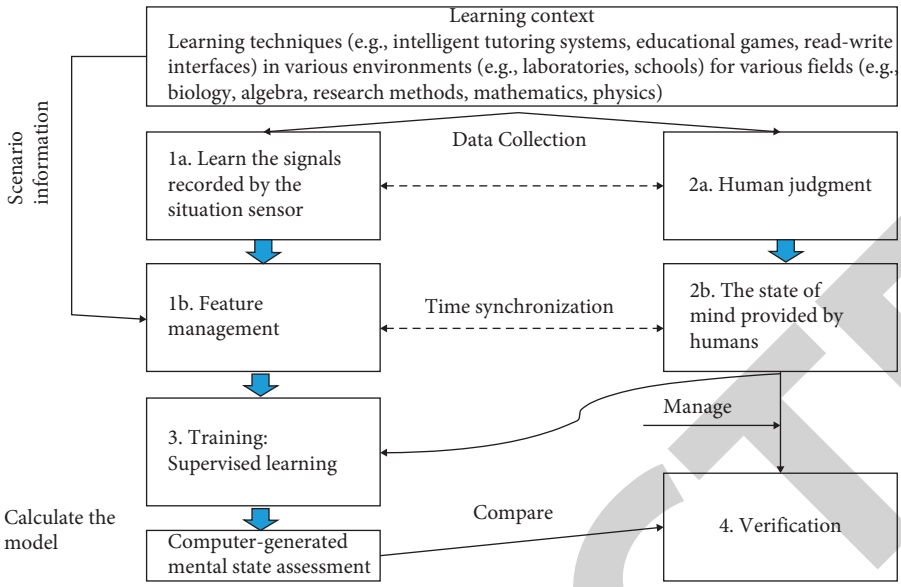

Figure 9: Digital measurement method.

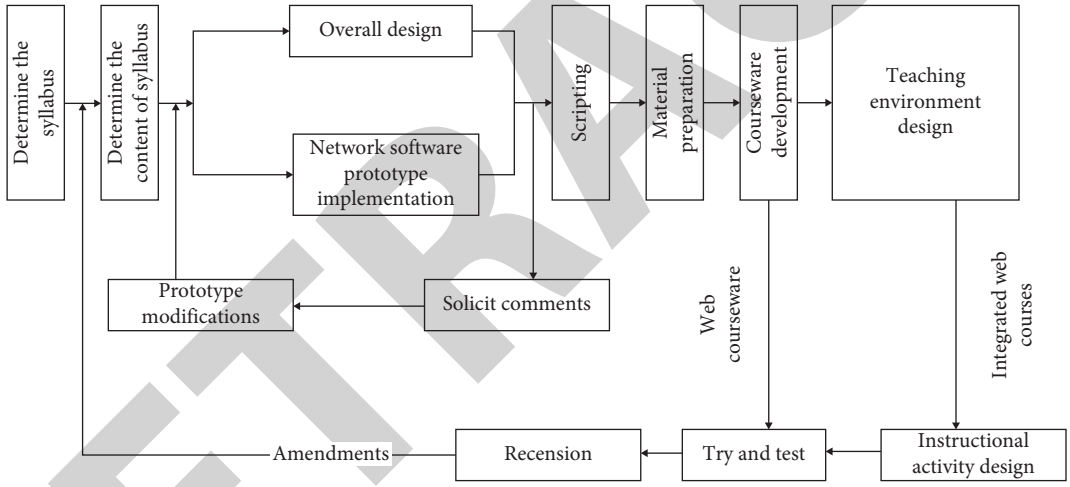

Figure 10: The basic process of CAI courseware development.

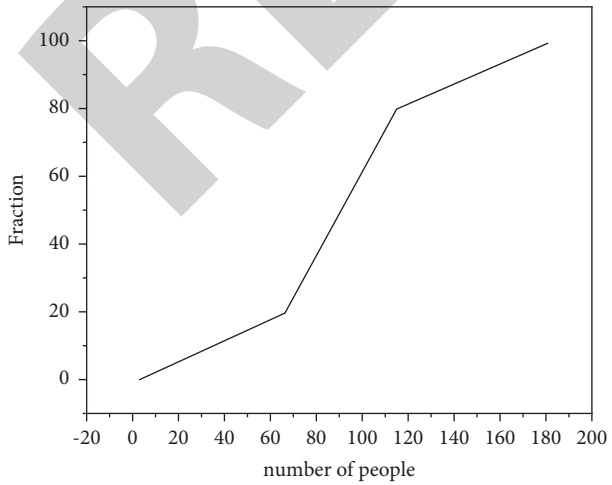

Figure 11: The score growth curve of the students who received the intelligent education test.

teaching, the OECD also released the integration methods for artificial intelligence, blockchain technology, etc.; the application of intelligent technologies and the construction of personalized learning are explored [32].

In the process of this combination, schools should clearly recognize what can be taught through multimedia network; in the information system constructed by multimedia network teaching, schools should teach students in the right way, make changes for the development of society, and reset teaching goals for students, cultivate students' ability to acquire, process, learn, and create, and pay attention to the diversity and sharing of teaching, through the advantages of the massive resources of the network, to allow students to access and learn various resources through various programs, software, data, etc., strengthen the shortcomings of traditional multimedia teaching in some aspects, and, through the guidance of experts, allow students to obtain better education, no longer limited by the level of teachers and teaching materials.

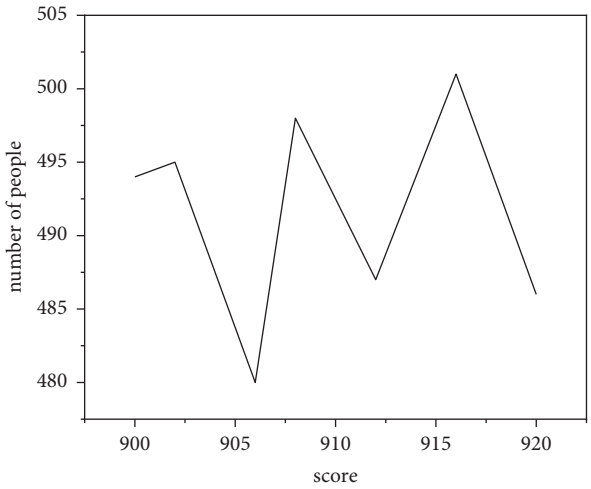

Figure 12: Statistics of the average grades of the first inspection in parallel classes in the third year of junior high school.

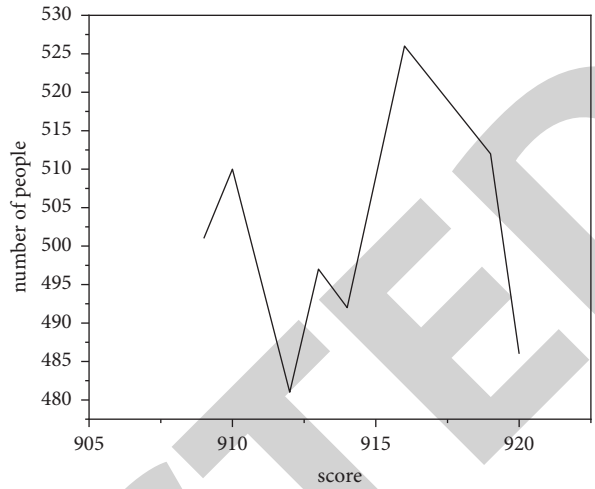

Figure 13: Statistics of average grades in the second inspection of the third grade parallel classes.

Through a one-semester experiment in an experimental school, the students of the school started classroom teaching in the smart classroom VR room from the first day of junior high; for students who have just entered the third year of junior high school, it is the first systematic study of chemistry, and it is also the first time to enter the smart chemistry laboratory for classroom learning; in response to this feature, the Smart Cloud Lab, a smart classroom, was specially selected for public classroom presentation; through a semester-long experiment, from the analysis of the students' first and second chemistry grades, as well as the results of questionnaires and interviews before and after the teaching implementation, the teaching activity design model designed in this study has achieved good results.

Classes 909 to 919 are classes at the same level; statistical analysis is made on the average scores of the first and second tests of these 11 classes, as shown in Figures 12 and 13; it can be found that, during the first inspection, the average grades of the total grades of each class were different; the highest average grade was class 917; the average grades of the experimental classes 915 and 916 belong to the middle level among the 11 parallel classes; the average grades of each class in the second inspection were higher than those in the first inspection; it can be seen from the score statistics chart that 915, 916, 918, and 919 are the classes that have improved a lot compared to the first examination, especially the 916 class that has made the greatest progress; from the statistics of the average scores of the first and second inspections, it can be seen that the implementation of smart classroom teaching of chemistry in the third grade of an experimental school has a certain teaching effect on the average grades of students in the third grade parallel classes.

By analyzing the average scores of the secondary tests in parallel classes, it can be seen that it is proved that, under the implementation of teaching, the problem of students' academic performance can be effectively solved and students' interest in learning can be improved, but there are certain limitations in comparing secondary average scores; it also lacks a certain degree of scientificity; it is possible to further analyze the effect of the implementation of smart classroom teaching of chemistry in junior high schools.

5. Conclusion

By strengthening the focus of intelligence and blockchain technology in education, it is proved that adding intelligence and blockchain technology to education can make learning better; it meets the learning needs of the new era and makes learning less desirable. Good students improve the academic satisfaction of most students. And in the continuous research, intelligent education will also analyze the learning methods suitable for different students by observing students' different psychological characteristics, emotional changes, attention, etc., build personalized learning goals for students, increase student engagement through automated digital measurements, and more; it can also promote the fairness and credibility of education, reduce the probability of various adverse problems, and provide maximum guarantee for the development of the education industry.

Data Availability

No data were used to support this study.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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