

Retraction

Retracted: Computer Teaching System Based on Internet of Things and Machine Learning

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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.

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] L. Chen and L. Zhang, "Computer Teaching System Based on Internet of Things and Machine Learning," *Journal of Control Science and Engineering*, vol. 2022, Article ID 3974794, 6 pages, 2022.

Research Article

Computer Teaching System Based on Internet of Things and Machine Learning

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In order to solve the problem that the traditional computer-aided teaching system is affected by communication technology, which leads to the inability to interact between teachers and students, the author proposes a research on a computer teaching system based on the Internet of Things and machine learning. The hardware structure is designed according to the functions of each module of the system, in which the student learning module is composed of a teaching coordination agent and a number of other agents, responsible for the presentation of specific teaching materials, problem solving, knowledge sharing through a collaborative mechanism, and providing personalized teaching basis for the system. The teacher's teaching module mainly provides students with corresponding teaching strategies according to the learning requirements and uses its own reasoning mechanism to provide intelligent guidance to the problems encountered in the teaching process; the assessment module uses assessment rules to analyze student responses, comprehensive assessment of students' learning behaviors, attitudes, effects, and abilities. The software function is designed with SQL Server 2000 as the database server, in the case of determining the data attributes, the data online evaluation is carried out, and the distance teaching is completed by combining the network technology. The experimental results show that when the time is 20s, the teaching efficiency of the traditional system is 61%, and the teaching efficiency of the artificial intelligence system is 91%. As a result, the teaching efficiency of the system based on the Internet of Things and machine learning is high, and it can provide equipment support for students' learning.

1. Introduction

Nowadays, the Internet of Things plays an increasingly important role in people's lives, and the application of smart home is one of the prominent application scenarios, but many smart home products in the market are still in their infancy. For example, a certain type of smart socket is composed of a WIFI chip responsible for networking, a microcontroller responsible for control, and a relay responsible for execution. The WIFI chip is connected to the cloud server and is responsible for remotely accepting the instructions sent by the mobile phone, and then the microcontroller receives the instructions from the WIFI chip to control the relay, so as to realize the remote control of the socket by the mobile phone. The more advanced smart home can also realize the linkage between networked products. For

example, a company's smart home suite has a gateway responsible for networking, communicating with cloud servers, and communicating with wireless switches, door magnetic sensors, human infrared sensors, sockets, etc., through the ZigBee protocol, thereby realizing the linkage of networked products [1]. However, a real smart home must have the function of self-learning in order to achieve real intelligence. This requires the combination of machine learning and network construction. At the same time, as shown in Figure 1, the meaning network has expanded its business application through the use of technology such as technology, knowledge technology, and general computing, which is called the third wave of growth of the global information industry after computers and information Internet. It is a continuation and extension of the application on the Internet [2]. The amount of data collected by network

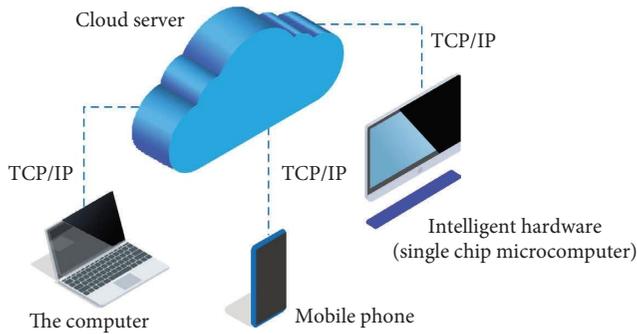


FIGURE 1: Internet of Things.

devices on the intranet will naturally increase over time. In order to better process this information to complete tasks such as selection, analysis, and data extraction, machine learning is another solution to reduce people's labor intensity and improve efficiency. Existing data is not specifically used for machine learning. The use of computing methods and software limits the ability of data filtering. The purpose of intellectualization is to provide people with the ability to process information and improve the efficiency of information collection and use. As the basis of artificial intelligence, machine learning makes computing possible, and its application is widely used in all fields of intelligence. It adopts generalization synthesis rather than deduction. Computer-aided instruction (CAI) mainly uses the web as a teaching medium to transmit teaching content, and the computer organically combines images, animation, text, sound, graphics, etc., and each network system establishes logical connections according to specific structures to form an information system with interactive capabilities [3]. Existing data is not specifically used for machine learning. The use of computing methods and software limits the ability of data filtering. The purpose of intellectualization is to provide people with the ability to process information and improve the efficiency of information collection and use. As the basis of artificial intelligence, machine learning makes computing possible, and its application is widely used in all fields of intelligence.

2. Literature Review

Machine learning is a branch of computer science. Liu and others define machine learning as "acquiring facts before computer learning, not mathematics" [4]. As the reform of the educational system deepens, the implementation of a computer-assisted learning system is progressing, which is of great importance for optimising the learning structure and improving learning content and methods [5]. The ultimate goal is to help teachers cultivate more research and development talents for the country and society. With the development of information technology and the increase of network use, the demand for education can no longer meet the needs of the development of information society. Most teachers focus on multimedia education. As a representative of modern educational technology, teaching through computer network is an important part of education [6]. In

order to reform the education policy and improve the education system, the goal is to create a distance education that uses computer technology, to make the use of computers, and to help teachers and students learn. Web technology is a widely used tool for exchanging information between clients and servers, including programs, scripts, and templates [7]. With the rapid development of network technology, it is widely used in the field of education. The methods of publishing educational materials have also changed, and the structure, methods, and methods of teaching have also changed a lot. The application of network technologies in education not only provides students with a wide range of learning opportunities but also provides them with a large number of learning resources, promotes the expansion of autonomous learning, breaks the temporal and spatial boundaries of traditional learning, and accelerates the process of renewing learning content and system [6]. Currently, online training is mostly done through virtual classrooms and wireless networks. In the virtual classroom, the network can provide students with graphics, text, audio, and video interfaces, as well as large information sources and hypertext structures that are more relevant to the construction of the ideas of students [8]. Therefore, it is easy to stimulate students' interest in learning. Online learning is not limited by time and space. As long as there is a connection anywhere, online learning can be carried out independently of the network. The traditional CAI method is usually programmed on the computer installed in the system in advance. Although computer-aided instruction system can use intelligent characteristics for online teaching, the lack of necessary communication means leads to the lack of interaction between teachers and students [9]. In this regard, the author puts forward a design scheme of distance education system based on artificial intelligence network.

3. Methods

3.1. System Hardware Structure Design. Artificial intelligence in distance education networks is the key to monitoring student success. The key of the distance teaching system of artificial intelligence network is to examine the learning effect of students and give learning suggestions in time, so as to realize the intelligence between learning and teaching [10]. The system mainly includes knowledge base, student learning module, teacher training module, evaluation module, and computer interface, as well as medical equipment as shown in Figure 2.

All materials are written with the support of knowledge base, which stores the knowledge and questions expressed by students and gives correct answers to questions [11].

3.1.1. Student Learning Module. The student learning module can reflect students' abilities and skills and establish an autonomous learning framework for the system [12]. This module includes the learning coordination center and several other agents. They have the knowledge needed to solve problems independently. As independent individual knowledge workers, they are responsible for designing

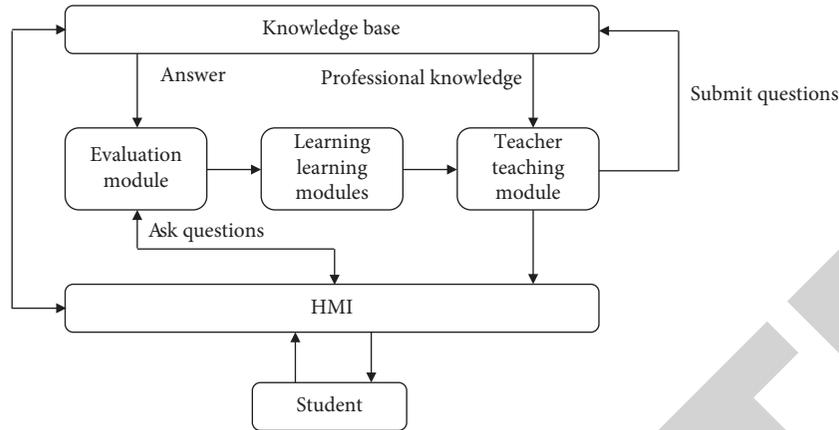


FIGURE 2: System hardware structure.

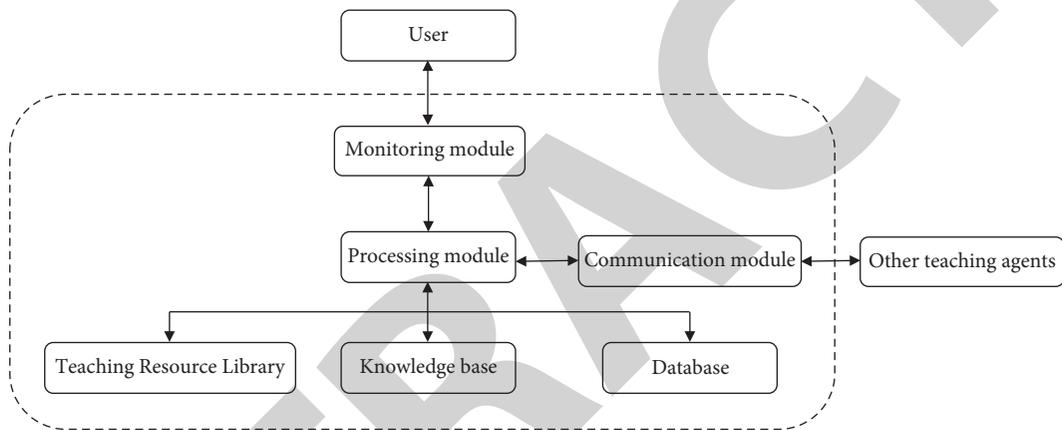


FIGURE 3: Student learning module.

specific learning materials, solving problems, and providing suggestions to students. Knowledge sharing is carried out through a joint mechanism. In the whole learning process, the coordinator can adjust the whole course according to the supervision data and teaching strategies, which are conveyed by the learning manager. The student learning module is shown in Figure 3.

3.1.2. Teacher Teaching Module. By combining the knowledge of the process model, the model gives the answers to students' choice questions and defines students' behavior, which is a special measure of understanding interaction [13]. This module only provides students with learning strategies that meet their learning needs. In the whole teaching process, teachers can collect students' feedback through the Internet, so as to improve the basic process. At the same time, he can use his own thinking to intelligently guide the problems in the study [14]. The teacher teaching mode database in the system contains teacher records, records teacher behavior, and provides data support for module evaluation.

3.1.3. Evaluation Module. Student responses will be evaluated using a set of rules to measure students' understanding

and communication of the learning model. According to the students' learning standards and teaching standards, together with their own writing standards, the use of effort is used to evaluate the students' behavior, attitude, performance, and education [15].

3.1.4. Human-Machine Interface. As a communication medium between students, teachers, and the system, the human-machine interface provides the expression knowledge that the students are familiar with. According to students' learning ability and learning history, the system can choose the books they have not learned, or put forward the most suitable teaching methods for their students' love history.

3.2. Functional Design of Distance Teaching System Based on Artificial Intelligence Network. The whole process is based on wisdom. The system uses SQL Server 2000 as the database server, Internet information server 5.1 as the data server, and c/354a as the language. The browser used by the system is not limited by hardware and can be used on many platforms. At the same time, it also provides a number of online learning services for students, which plays an important role in the

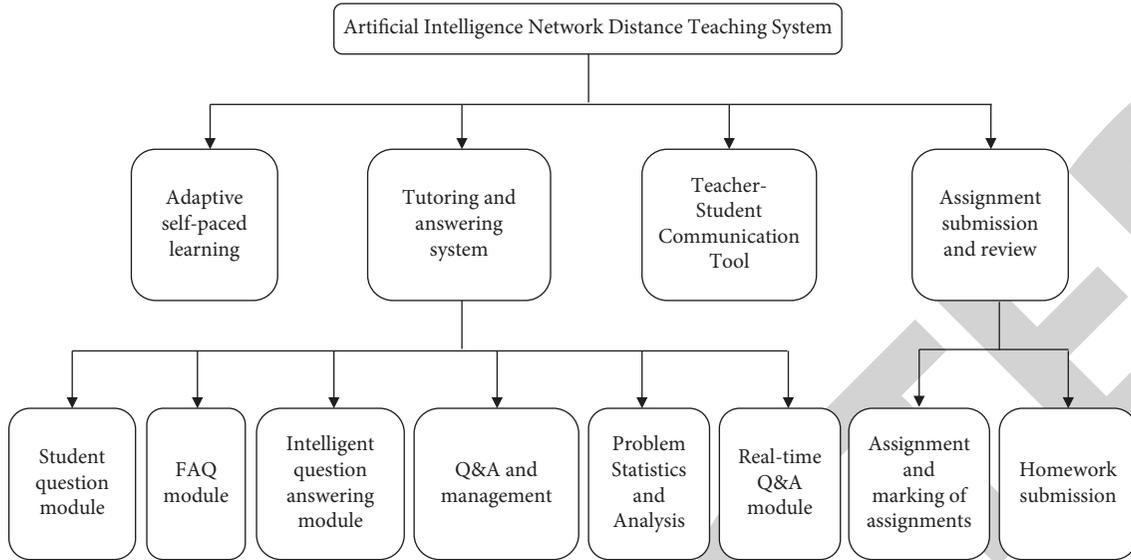


FIGURE 4: Software function design.

development of education [16]. The software developer is shown in Figure 4.

As shown in Figure 5, a specific process is designed to realize the evaluation module software.

Suppose that the data collected by the student and the teacher is m , the data stored is V , and the student's value is v'_1, v'_2, \dots, v'_n . The data obtained has the characteristics below.

$$\frac{m}{v} = \{v'_1, v'_2, \dots, v'_n\}, \{v'_2, v'_3, \dots, v'_n\}, \{v'_n\}. \quad (1)$$

Based on the academic performance of different students, online evaluation can be done only after registration in the system. The memory system stores and extracts the characteristics of the above data; after collecting and analyzing the extracted data, it receives the initial value of the online evaluation; thus, completing the process online assessment of information [17]. Achieve self-directed learning in a networked environment, create students' independent learning, have the ability to clearly teach students, change the content of the course, and have thinking and diagnosis. Throughout the assessment process, we need to improve our curriculum by collecting data so that different students can develop teaching strategies and teaching and learning interventions that are appropriate for their level of knowledge to improve student autonomy. Distance learning with artificial intelligence can create a personal relationship with network technology, promote students' perspectives, and increase interest in learning in the learning process [18]. The use of a modular structure improves communication between information exchanges in the system, thereby improving the reliability of the system.

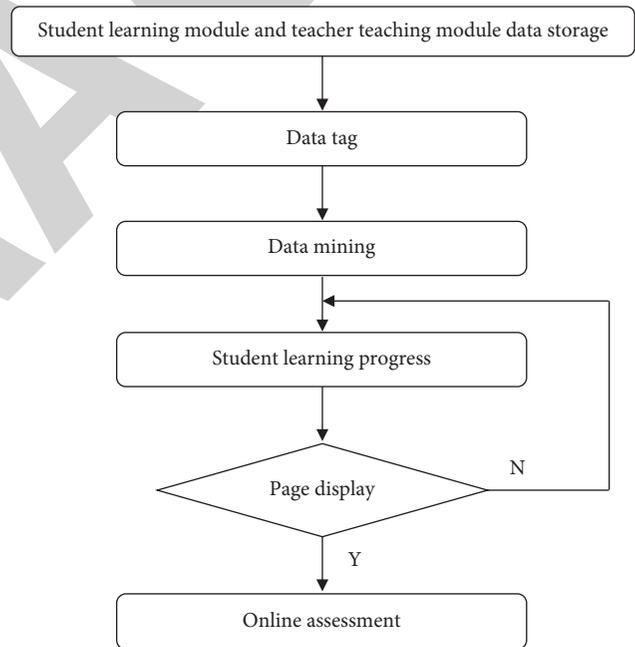


FIGURE 5: Evaluation process.

3.3. Simulation Experiment. Experimental simulation analysis identifies the optimal design of distance learning based on the knowledge network.

3.3.1. Experimental Parameters and Environmental Parameters. The test results are shown in Table 1.

If the thieves want to attack the system, they must enter the system before they can access it, but because of the firewall restrictions, the criminals cannot access the server.

TABLE 1: Experimental parameters.

Project	Numerical value
Host server	IPC-610L
CPU	I5 9400F
Microserver	AMD Opteron X3216
RAM/GB	8

TABLE 2: Comparative analysis of the scores obtained in distance teaching by two methods.

Number of students (person)	Traditional system (min)	Based on artificial intelligence network distance teaching system (min)
200	300	450
400	280	480
600	285	485
800	270	475
1000	265	475

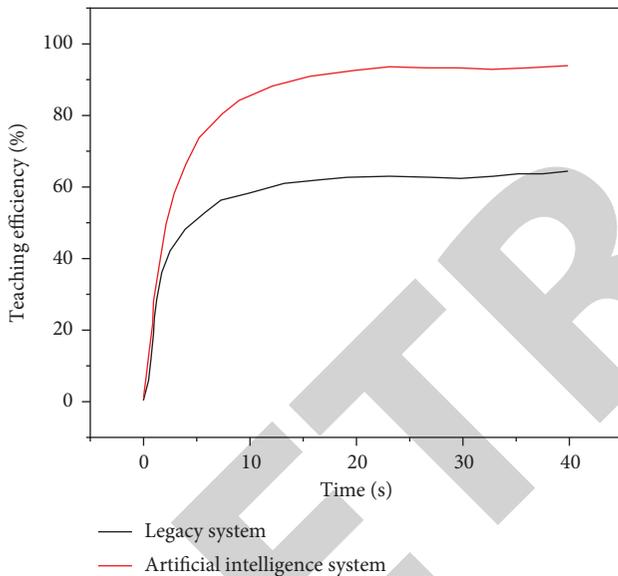


FIGURE 6: Comparative analysis of the teaching efficiency of the two systems.

4. Results and Discussion

It compares and analyzes the learning performance of AI network-based systems and distance learning with the support of big data. Table 2 shows scores for two distance courses based on 500 student scores.

As shown in Table 2, for 200 students, the maximum score of the traditional system is 300 points, and for 1000 students, the maximum score of the traditional system is 265 points; when the number of students is 600, the maximum number of distance learning based on vocational skills is 485, and the maximum number of distance courses based on vocational skills is 450 points, which are distributed to 200 students [19]. In conclusion, AI-based distance learning network system is used to promote students' interest in learning. Figure 6 shows the two systems for comparison and

analysis of the effectiveness of teaching in the above conditions.

As shown in Figure 6, in 10 countries, the training efficiency of traditional systems is 59.9% and that of artificial intelligence is 88%. In the 20th century, the effectiveness of traditional teaching methods was 61%, and the technical skills were 91%. In the 1930s, the learning efficiency of the traditional system was 92%, and the intellectual skills were 61%. In 40 seconds, the learning ability of the conventional system is 93%, and the skill level is 62%. In the beginning, both systems have a slow reaction, resulting in less training, but then the AI-based system recovers faster. In general, the distance learning based on artificial intelligence network has been developed appropriately.

5. Conclusion

The author introduces the study of computer-based intranet and machine learning. In this process, the age of multimedia information has been created as a strong support for the evolution of educational transformation, and the advantages of distance learning as a natural intelligence have become obvious. The complexity, consistency, and individuality of distance learning programs make them ideal for solving intellectual problems. Therefore, educational technology has many applications in distance learning. Because the system has some learning skills, the extra education provides a suitable learning experience for the students.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

Project level: Chongqing Municipal Level, Fund Project: Research on decision-making optimization of manufacturing enterprises based on frequent pattern mining, Project Number: JCD202001.

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