Retraction

Retraction: Design of Network Teaching Platform Based on Artificial Intelligence Technology (J. Phys.: Conf. Ser. 1852 042044)

Published 9 September 2022

This article has been retracted by IOP Publishing following an allegation that raises concerns this article may have been created, manipulated, and/or sold by a commercial entity. In addition, IOP Publishing has seen no evidence that reliable peer review was conducted on this article, despite the clear standards expected of and communicated to conference organisers.

The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

Retraction published: 9 September 2022
Design of Network Teaching Platform Based on Artificial Intelligence Technology

Jingyu Xing*
School of Computer and Software, Nanyang Institute of Technology, Nanyang Henan 473004 China
*Corresponding author e-mail: xingjingyu@nyist.edu.cn

Abstract. In recent years, the rapid development of network teaching has played an important role in the popularization of distance education in China. With the development of network technology, compared with the traditional teaching mode, network teaching platform has more and more obvious advantages, and has become one of the important tools of teaching and learning. However, the traditional network teaching platform is lack of intelligence and interactivity, which can be compensated by artificial intelligence technology. Therefore, this paper puts forward the design and research of network teaching platform based on artificial intelligence technology. In this paper, the development of artificial intelligence platform, as well as the application of artificial intelligence platform, can greatly promote the development of artificial intelligence teaching platform. In this paper, according to the shortcomings of the existing network teaching platform, combined with artificial intelligence technology for optimization and improvement, through the optimization algorithm, simplified steps and other operations, further enhance the intelligence of the teaching platform. In order to further understand the application of network teaching platform in the actual teaching process in our country, this paper has carried out relevant investigation and research. The results show that 3.5% of the students who use the network teaching platform have a good use of the network teaching platform, and the results show that 3.5% of the college students use the network teaching platform in a week.

Keywords: Artificial Intelligence Technology, Network Teaching, Distance Education, Multimedia Teaching

1. Introduction
Its outstanding advantage is that it extends to all corners of the society through computer network, and learners can freely choose the time and place for autonomous learning [1-3]. However, the teaching process is different from the general data processing process, which makes the existing network teaching system have some shortcomings, such as lack of sufficient interactive means, not intelligent enough and other defects [4-5].
Artificial intelligence can realize a series of predetermined goals by perceiving the information of itself and the environment, and taking its own actions [6-8]. Network teaching system involves the technical problems of Multi-Agent Coordination in heterogeneous environment [9-10].

However, there are still some problems in the traditional network teaching platform, such as lack of intelligence, demonstration teaching, and lack of interactive means and so on. The teaching platform is low, so it cannot really play the role of auxiliary teaching. Therefore, it is important to improve the intelligent degree and comprehensive performance of the existing network teaching platform. This paper gives specific optimization and improvement scheme, including optimization algorithm, simplifying calculation steps, designing main function modules, establishing knowledge management and systematic evaluation rules, which plays a perfect role in the traditional network teaching platform. In this paper, the relevant research shows that the network teaching platform in our country has played an important role in the actual teaching work of colleges and universities, and has become a common and indispensable important auxiliary tool.

2. Artificial Intelligence Technology and Network Teaching Platform

2.1. Definition of Network Teaching Platform

(1) Network teaching platform

It takes the network teaching resources as the center, under the support of the education management system, reasonably uses the teaching resources, and provides services for the comprehensive promotion of modern distance education.

(2) Composition and basic functions

Network teaching platform usually includes support module, management module, curriculum development module and resource management module. The support module should have the functions of independent course selection, online examination, tutoring and answering, discussion and communication, etc. The management module should have the functions of student status management, teacher file management, administrative document management and statistical analysis. Course tool development template module we provide course tool development template for online training course development. The module of teaching resources integrated management system mainly includes teaching question bank, coursesware database and teaching material warehouse.

2.2. Artificial Intelligence Technology and its Main Characteristics

Artificial intelligence technology can realize the transformation from human intelligence to machine intelligence. On the contrary, machine intelligence can also transform human intelligence through teaching. It mainly includes the following characteristics. (1) It has powerful search function, and uses search technology to achieve rapid retrieval of massive information to meet the needs of personalized information. (2) With a strong ability to express knowledge, the behavior of artificial intelligence on information, just like human intelligence, can display fuzzy information.

2.3. Combination of Artificial Intelligence Technology and Traditional Network Teaching System

ICAI system is an intelligent teaching assistant system. Compared with traditional CAI system, ICAI system should have the following functions:

(1) Understand each student's previous learning knowledge and their existing professional knowledge and ability level, according to the students' vocational education knowledge level in different stages, make the best vocational education teaching decision according to their needs, and automatically adjust the content they are learning according to their potential development in the whole learning process.

(2) Be able to diagnose students' errors in the learning process, analyze the causes of errors and give solutions.

(3) With the rapid development of CAI teaching mode, virtual teaching mode, intelligent tutoring system and teaching mode have been established, which are more innovative.
2.4. Knowledge Reasoning
In this paper, an arbitrary relation path is set, a seed node $S \in \text{domain}(P)$ is specified, and a path constraint random walk is set as $h,p$. If $p$ is an empty path, the definition is as shown in equation (1):

$$h_s, p(e) = \begin{cases} 1, & \text{if } e = s \\ 0, & \text{otherwise} \end{cases} \quad P = R_1 \cdots R_n$$
(1)

If $P = R_1 \cdots R_n$ is non null, let $p' = R_1 \cdots R_n$ be defined as shown in equation (2):

$$h_s, p(e) = \sum_{\theta_i} h_{\theta_i} p(\theta_i) p(n, p; e_i)$$
(2)

Given a group of paths $P_i, \cdots, P_n$, and the nodes are sorted by a linear model. The formula is shown in equation (3):

$$\theta_1 h_{\theta_1} p_{\theta_1}(e) + \theta_2 h_{\theta_2} p_{\theta_2}(e) + \cdots + \theta_n h_{\theta_n} p_{\theta_n}(e)$$
(3)

3. Survey Methods
(1) Purpose of investigation
We can find out some hot issues that affect, and put forward some specific improvement measures and countermeasures.

(2) Questionnaire design
Teaching includes the learning resources and learning environment of teachers and learners. This paper puts forward the network learning mode. The influencing factors are divided into four parts: learners, teachers, online courses and learning environment. According to these four elements, the questionnaire content is designed.

(3) Respondents
These paper students from five universities from September to October 2019. The subjects of this questionnaire survey are students of all grades in the selected schools, involving biology, literature, mathematics, law, etc.

(4) Investigation implementation
A total of 958 questionnaires were issued and 927 answers were recovered, with a recovery rate of 96.8%. 918 questions were answered effectively, and the effective rate was 99%. The data in the survey are mainly processed by the new SPSS software.

4. Discussion
4.1. Analysis of Questionnaire Survey Results
(1) Frequency of using network teaching platform
According to the survey data, Table 1 and Figure 1 are sorted out. 13.5% of college students only use the online 2-3 times a month, and the frequency of using the network teaching platform is relatively low. 24.3% of the college students can use the online teaching platform every day, 48.5% of the students can 2-3 times a week, and 13.7% of the students 2-3 times per semester.

**Table 1.** Survey and statistics of the use frequency of network teaching platform

| Frequency                  | Number of people | Proportion (%) |
|----------------------------|------------------|----------------|
| Daily (A)                  | 223              | 24.3           |
| 2-3 times a week (B)        | 445              | 48.5           |
| 2-3 times in January (C)    | 124              | 13.5           |
| 2-3 times in 1 semester (D) | 126              | 13.7           |
| Total                      | 918              | 100            |
The purpose of applying network teaching platform

The results of Figure 2 show that 91.3% of the surveyed schools use the online teaching platform to browse the learning resources uploaded by the teachers (E), 75.4% of the students complete the assignments arranged by the teachers (F), 66.8% of the college students aim to improve their learning efficiency (G), 54.9% of the students participate in the discussion (K), and 43.1% of the students take the examination requirement (L) as the purpose, 18.7% of College Students’ goal is to communicate with teachers (M).

4.2. Function Modules of the Platform

(1) Course introduction: provide courses and materials for users.

(2) Teaching team: brief introduction of teaching staff, so that users have a certain understanding of teachers.

(3) Teaching achievements: teachers display and share teaching achievements, such as teachers' papers, certificates, projects, etc.
(4) Teaching resources: including course content, course cases and syllabus. Users are free to choose the materials they need to browse and learn.

(5) Data download: the function of uploading and downloading electronic resources. Courseware includes related videos, question bank and courseware.

4.3. Knowledge Management

Because of the importance of knowledge base in network teaching, the primary significance of applying artificial intelligence to network teaching is to realize the intelligent management of knowledge. When users need information, they can make decisions in time. In the information management era, one of the basic concepts of knowledge management is to upgrade passive management to active management. It can cross the boundary of useful and useless information and directly express the most efficient service concept to users. Therefore, knowledge management system is obviously a system that needs artificial intelligence technology to participate in the construction. Knowledge management system should have the following characteristics: (1) it can provide users with characteristic knowledge; (2) provide tools for acquiring knowledge; (3) maximize the value of knowledge acquired by users through information processing and filtering; (4) provide knowledge use methods.

For the teaching activities on the network, knowledge management realizes two tasks: one is to manage the information according to the knowledge free and hierarchical classification of human cognitive habits, and form a new order according to the subject knowledge system; the other is to design a system shell that runs through the concept of knowledge management. It can provide knowledge and information for teachers or learners according to their needs.

4.4. Development of Artificial Intelligence Multimedia Teaching

(1) Continuous integration with network

Network has the advantages of large amount of knowledge and fast update of information. The combination of network and network is the development direction of intelligent teaching.

(2) Application of Intelligent Agent Technology

Teaching is developing to the direction of machine guidance, and some teachers' guidance is gradually replaced by machines.

(3) Continuously develop new system software

System software features, update quickly, the old system cannot meet the requirements of the continuous development of the network, the continuous development of new software can better help students solve this problem, thus conducive to students' learning and teacher education.

5. Conclusions

It has been developed rapidly in recent years and has been successfully applied in various fields. Especially the optimization and improvement of traditional network teaching platform through artificial intelligence technology has achieved great success. As well as the network teaching platform through artificial intelligence technology experience upgrade. At the same time, it provides more interactive means, and further enriches the teaching form, which helps to enhance students' learning enthusiasm.

References

[1] Sun Tieyu. (2017). Research on blended teaching design based on moodle network teaching platform. Contemporary continuing education, 035 (006), 88-92.

[2] Baiyu Zhou. (2016). Smart classroom and multimedia network teaching platform application in college physical education teaching. International Journal of Smart Home, 10(10), 145-156.

[3] Zseby, Tanja|Iglesias Vázquez, Félix|King, Alistair|Claffy, K. C. (2016). Teaching network security with ip darkspace data. IEEE Transactions on Education, 59(1), 1-7.

[4] Wang Jing, Yang Yanyun, He Fan, & Ying Xixiang. (2016). Discussion on resources
construction of network teaching platform of pharmaceutical analysis%

[5] Xiao Chunmei. (2019). Analysis of learning effect of network teaching platform based on spss. Journal of Guiyang University (Natural Science Edition), 014 (002), 18-21.

[6] Cai Wang, & Song Bing. (2019). Application of the network teaching model of flipping classroom in clinical teaching. China Continuing Medical Education, 011 (008), 3-5.

[7] Papadakis, S., Kalogiannakis, M., & Zaranis, N. (2017). Improving mathematics teaching in kindergarten with realistic mathematical education. Early Childhood Education Journal, 45(3), 369-378.

[8] Yeh, C., & Santagata, R. (2015). Preservice teachers' learning to generate evidence-based hypotheses about the impact of mathematics teaching on learning. Journal of Teacher Education, 66(1), 1-14.

[9] Abrahamson, D., Nathan, M. J., Williams-Pierce, C., Walkington, C., & Alibali, M. W. (2020). The future of embodied design for mathematics teaching and learning. Frontiers in Education, 5(147), 1–29.

[10] Chen, T., Hou, Z. X., & Xiao, Y. (2019). Higher mathematics teaching resource scheduling system based on cloud computing. Web Intelligence, 17(2), 141-149.