

Retraction

Retracted: Artificial Intelligence for Education and Teaching

Wireless Communications and Mobile Computing

Received 10 November 2022; Accepted 10 November 2022; Published 24 January 2023

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Wireless Communications and Mobile Computing has retracted the article titled “Artificial Intelligence for Education and Teaching” [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] Y. Xue and Y. Wang, “Artificial Intelligence For Education and Teaching,” *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 4750018, 10 pages, 2022.
- [2] L. Ferguson, “Advancing Research Integrity Collaboratively and with Vigour,” 2022, <https://www.hindawi.com/post/advancing-research-integrity-collaboratively-and-vigour/>.

Research Article

Artificial Intelligence for Education and Teaching

Yajing Xue and Yijun Wang 

School of Education Science, Nanjing Normal University, Nanjing, 210097 Jiangsu, China

Correspondence should be addressed to Yijun Wang; 210601031@njnu.edu.cn

Received 9 February 2022; Accepted 11 March 2022; Published 28 March 2022

Academic Editor: Rashid A Saeed

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Artificial intelligence has entered an unprecedented period of rapid growth and is completely changing all aspects of life. The state needed a comprehensive curriculum, but how to get the way to artificial intelligence+curriculum is still not discussed in the curriculum. In view of this, this article combines artificial intelligence to promote research on teaching reform, which is aimed at encouraging the implementation of artificial intelligence education and promoting the development of cognitive and pedagogical skills. This object uses the query analysis method to collect the data and analyzes the data based on the distribution technology and the new technological process. It concludes that in life, teachers know more about common artificial intelligence products, such as sound aids, graphics, identity, fingerprint recognition, and smart home. Among teachers using artificial intelligence products, the most frequently used is mobile APP teaching, followed by teachers' online training platforms. Some teachers use automatic correction assignment systems in teaching, with the help of intelligent classrooms, robotic assistants, and other major future teaching intelligent products. The impact of artificial intelligence on teachers themselves is reducing the teaching workload and improving information literacy. Of course, there are very few teachers who think that artificial intelligence has little or no relationship with teacher professional development. Teachers recognize the role of artificial intelligence. 52.1% of teachers think that artificial intelligence is very helpful to the professional development of teachers. 32.3% of teachers think that artificial intelligence is more helpful to their professional development. 12.5% of teachers recognize artificial intelligence. In general, only 3.1% of teachers believe that artificial intelligence is not helpful to their professional development.

1. Introduction

In recent years, the development of artificial intelligence technology has been encouraging. Corresponding activities such as academic conferences, scientific research, and technical competitions in the field of artificial intelligence have spread all over the world. The technology and applications have been rapidly updated and expanded. What is more, the continuous innovation of intelligent products has brought substantial convenience and innovation to people's study, work, and life. The research of robotics has promoted the development of many artificial intelligence ideas, and there are some technologies that can be used in artificial intelligence research to build world state models and describe the process of world state changes [1, 2]. In view of the status and influence of robotics in artificial intelligence, practical content such as robot programming and

behavior development should be appropriately introduced in the teaching of artificial intelligence, which can bring more fun and satisfaction to the programming of professional students. At the same time, it can also better understand the ideas and technologies in artificial intelligence [3].

With the development of Internet technology, people's receiving methods, communication methods, and learning methods have undergone tremendous changes. Artificial intelligence has enriched people's lives and changed people's perception of the world [4]. In the new era, language is no longer the only carrier for conveying information. In addition to spoken language, the carriers that can convey thoughts and information include graphics, images, sounds, gestures, symbols, and formulas [5]. The development of artificial intelligence has opened up new paths for education and teaching and has helped students to acquire new skills [6]. The arrival of artificial intelligence has innovated the

tools used by many majors in universities. Many professional courses provide students with multisensory instructions to promote the learning and memory of knowledge and provide students with information on artificial intelligence resources such as digital text, videos, pictures, and sounds. Acquisition provides rich thinking, such as imagination, emotion, creativity. The innovation of education in the era of artificial intelligence has expanded students' digital skills [7, 8]. Artificial intelligence has brought a new form of media for education. The new media requires students to have higher drawing skills and learning abilities and also requires students to have certain photographic capabilities [9]. In short, the advent of artificial intelligence has brought a new development path for education, but at the same time, students are also required to strengthen the creative play of professional education. For example, in the subject of education courses, the content of "changing the old to the new" can be added to strengthen the exercise of thinking and improve professional skills [10].

Atiye Karimzadehfini's team proposed that based on the current situation of the application of artificial intelligence technology in education and the development of the classroom teaching behavior analysis method and based on the "data acquisition and storage," "behavior modeling and computing," and "intelligent services," three functional modules are the core intelligent analysis model of classroom teaching behaviors, and the effectiveness of the analysis model is verified by using classroom ST behavior analysis as an example. The application of experimental results in teaching practice has been recognized by teachers. The experimental results can provide support for teachers' teaching reflection, professional development of teachers, and teaching management. According to the feedback from teachers in the application process, a targeted behavior recognition model optimization strategy is also proposed [11, 12]. Cath et al. discussed the application of artificial intelligence in teaching needs analysis, learner characteristic analysis, teaching program design, and establishment of an evaluation system and summarized the benefits of artificial intelligence in the teaching design process [13]. Davis proposed that the combination of dot matrix recognition technology and educational artificial intelligence can perfectly protect the writing behaviors and habits of teachers and students, provide technical support and innovative ideas for the integration of information-based teaching in paper and pen classrooms, and promote intelligent educational information in education and teaching [14].

First of all, research relevant domestic and foreign literature, collect and investigate the current status and development trends of artificial intelligence, the application of artificial intelligence teaching, artificial intelligence to promote teaching, and other related Chinese and foreign literature to understand the latest developments and research results of artificial intelligence teaching [15]. Secondly, the practical case of artificial intelligence teaching application is analyzed through case analysis method [16]. Then, through interviews with experts and scholars in related fields, understand the aspects in which artificial intelligence will change teaching and extract which teaching elements

will be affected by artificial intelligence and how it will affect it [17]. Finally, on the basis of previous analysis and research, clarify the changes caused by artificial intelligence to teaching resources and teaching environment, teaching and learning methods, teaching evaluation, and teaching management and discuss some countermeasures of artificial intelligence application in teaching and how to better integrate artificial intelligence into the teaching process [18, 19].

2. Proposed Method

2.1. Research Methods

- (1) *Literature Research Method.* In the process of preliminary preparation and research, a large number of searches from Internet literature, library journals, books, and other materials collect research and artificial intelligence technology, artificial intelligence technology teaching applications, and artificial intelligence technology to promote teaching reform. And for other relevant Chinese and foreign literature, analyze and interpret these documents, grasp the current status of artificial intelligence technology, theory, and research, and make theoretical and technical learning reserves.
- (2) *Case Analysis Method.* This method specifically analyzes practical examples of artificial intelligence teaching applications, extracts which teaching elements have artificial intelligence and what impact, and analyzes how artificial intelligence technology is well integrated into the teaching process. It discusses how artificial intelligence technology exerts force in teaching, how to promote teaching reform, and provides case references for future artificial intelligence technology teaching applications.
- (3) *Interview Method.* At the beginning of the dissertation, through interviews with relevant experts and scholars, investigate the current situation of the use of artificial intelligence technology in teaching, students and teachers' attention, and recognition and use of educational artificial intelligence and understand what artificial intelligence will change in teaching. Effectively grasping the development direction of educational artificial intelligence through investigation will help to better promote the theoretical and practical improvement of the deep integration of artificial intelligence and education and teaching

2.2. *Distributed Cognitive Theory.* Distributed cognition refers to the distribution of cognition within individuals, among individuals, media, environment, culture, society and time. It proposes a new perspective that considers the whole picture of cognitive activities, focusing on the interaction between the environment, individuals, representation, media and artifacts and believes that distributed elements must depend on each other to complete tasks. Distributed cognitive theory has important guiding significance for the research of artificial intelligence to promote teaching reform:

- (1) “Artifacts” such as tools and technologies in distributed cognition can transfer cognitive tasks and reduce cognitive load. When the learning content of the learner is beyond the cognitive scope and cannot be solved, intelligent learning software can help reduce the cognitive load and guide the learner to develop deep cognition. At the same time, simple and repetitive cognitive tasks can be delegated to intelligent robots, so that individuals can perform more creative cognitive activities. The future must be an era of cooperation between humans and intelligent machines. What humans are good at and what intelligent machines are good at may be very different. The wisdom generated by the cooperation between humans and artificial intelligence will far exceed the individual or artificial intelligence. Human-machine collaboration has become the basic cognitive way for individuals to face complex problems, and human cognition is moving from individual cognition to distributed cognition
- (2) Distributed cognition emphasizes the interaction between cognition and cognitive environment. Cognitive individuals are conducive to constructing their own cognitive structure in the process of interaction. The interaction in teaching is not only the interaction between teachers and students, but also the interaction between students and students, the interaction between teachers and students, the interaction between humans and machines, etc. In the intelligent teaching environment supported by artificial intelligence, there are more interactive ways. The interaction can reconstruct the learning experience and even affect the individual’s cognition through touch, hearing, and vision

2.3. Technology Innovation Theory. Innovation is not only a simple technology or process invention, but a nonstop mechanism. Innovation is only introduced by the discovery and invention of production and the shock effect on the original production system. Technology innovation theory has important guiding significance for education and teaching innovation:

- (1) Innovative new technologies that are conducive to education and teaching will have an impact on education and teaching when the emergence of artificial intelligence technology will bring new intelligent teaching tools, form new teaching and learning models, and promote the innovation of teaching evaluation methods and teaching management methods. Educators should actively change their way of thinking, explore new forms of combining artificial intelligence and teaching, and promote the deep integration of technology and teaching and the innovative development of education and teaching
- (2) Give attention to the cultivation of students’ innovative ability in the era of artificial intelligence. Simple

and repetitive tasks will definitely be replaced by machines. Intelligent machines are surpassing the human left brain (engineering logical thinking). Human beings must maintain their advantages over machines. An important strategy is to let students spend time and energy to develop the right brain that the machine is not good at and cultivate the unique ability of human intelligence, such as innovation and creativity, imagination, problem solving, communication, and artistic aesthetic ability. Being invincible is the general direction of education reform

2.4. System Basic Information Input. For AI to be more comprehensive, scientific, and reasonable, it must be based on a wealth of information. For this reason, how to make the computer obtain information, especially in the teaching process, is very important. The following is a brief description of the types of information required by computers and how to obtain them in education and teaching.

- (1) *Attribute Information of Students, Teachers, Schools, etc.* Attribute information is the inherent, basic, and inseparable characteristics of a person or thing itself, and it is a qualitative expression of a certain aspect of things. This type of information is the identification information used by computers to distinguish people or things. It can correctly give feedback of the relevant information about people or things that users need; at the same time, computers can statistically analyze people and things with the same attributes to provide a global Sexual feedback to users.
- (2) *Teaching Resources Such As Test Questions, Papers, Lesson Plans, and Courseware.* The construction of teaching resources requires the joint efforts of teachers. In order to attract teachers as much as possible, a simple, practical, and efficient set of teaching resource management and editing system software was used. The system software can meet the characteristics of simple operation and teachers’ daily working habits and can expand the knowledge of teachers without increasing the burden of teachers.
- (3) *Information on Teaching Progress Such As Teaching Progress and Student Performance.* The characteristic of artificial intelligence is that it can timely and reasonably find problems, predict trends, and solve problems according to the development of things. To this end, it needs to continuously input the low-level information in the teaching process into the information system through various channels, so that the computer can provide teaching suggestions more comprehensively and scientifically. The most important process information in teaching is the students’ answers. We can use the online scoring system to achieve it. This system can not only relieve teachers from heavy examination papers and

statistical work but also quickly and accurately enter the answers to each test paper and record it into the database of relevant students and test questions, providing richness for the next statistical analysis information base.

2.5. Algorithm Processing. The core of artificial intelligence is algorithm. The same problem can be solved by different algorithms, and the quality of an algorithm will affect the efficiency of the algorithm and even the program. The purpose of algorithm analysis is to select appropriate algorithms and improve them. Our purpose is to provide an optimal solution for teaching through computer artificial intelligence and effectively improve teaching efficiency and teaching quality. The design characteristics and purpose of the algorithm are proposed according to the different objects in the teaching process:

- (1) *Algorithm Design for Students.* Students are the subject and central object of learning. Artificial intelligence must consider the following points when inferring calculus: students' learning abilities (such as IQ, memory, and learning speed), adolescents' psychological characteristics (such as emotional quotient and forgetfulness), teaching requirements (such as syllabus and teaching purpose), and teaching facts (such as the overall situation of the class and the difficulty of the test questions). Artificial intelligence can keep students informed of their learning situation at any time and can review and practice according to system prompts, making learning more purposeful, thereby greatly improving learning efficiency.
- (2) *Algorithm Design for Teachers.* Teachers are the guides of teaching. The level of teachers' ability will directly affect the efficiency and quality of teaching. Artificial intelligence should do a good job as a teacher's staff. AI will provide teachers with the following aspects of services based on a large amount of information resources: practical lesson plans and courseware suitable for teaching, practice test papers that are in line with the characteristics of students, and review of test papers statistics, expansion of teachers' knowledge, and so on. This can effectively reduce the workload of teachers and can also understand the learning situation of students at any time and adjust teaching steps according to system recommendations, so as to better teach and improve teaching quality.
- (3) *Algorithm Design of Teaching Management Workers.* As a school administrator, you need to keep up-to-date with the latest dynamic information of all links and elements of teaching in order to supervise, manage the teaching process, and prevent possible accidents. The computer's artificial intelligence is based on a large amount of information for summary and statistics and timely and scientific feedback to teaching managers.

2.6. Information Output. As an ordinary user, the effectiveness of information content and the intuitiveness of information presentation are required. Let us talk about the content and role of information output according to different users:

- (1) Students can obtain a teaching plan that is more suitable for them and can automatically summarize and analyze previous learning and fill in gaps in knowledge at regular intervals, so that they will be able to know their learning situation at any time and can review and practice according to tips, to make learning more purposeful, thereby greatly improving learning efficiency
- (2) *Parents and Students.* Parents can learn about the various situations of students at school at any time through the Internet or text messages, such as the quality of academic performance, changes in disciplinary thinking, and economic consumption, so that they can be informed in a timely and effective manner. Take responsive measures to ensure that children can devote their energy to their studies with peace of mind, peace of mind, and dedication.
- (3) *Teachers.* Teachers can obtain teaching information and resources in a timely manner and can provide excellent lesson plans, study plans, etc. At the same time, the computer can complete some mechanical and repetitive tasks such as test question statistics and test paper correction, freeing teachers to focus more on teaching and research and improve their teaching quality.
- (4) School leaders can keep abreast of all the conditions of the school, such as the archives of school personnel and various statistics. At the same time, the data are summarized and analyzed to provide a comprehensive and correct basis for the development of school leaders. For this reason, it can greatly improve the efficiency of administrative management and education and teaching and improve the status and social reputation of schools. Using computer artificial intelligence systems can completely change the current teaching mode and management status of schools and can fundamentally solve traditional management and teaching. The problems of information lag, resource waste, etc., achieve the purpose of improving teaching quality and management efficiency

3. Experiments

3.1. Construction of Intelligent Teaching Platform. The intelligent teaching platform is based on computational intelligence technology, learning analysis technology, data mining technology, and machine learning technology. It provides teachers and students with personalized teaching and learning teaching systems. Its main characteristics are the use of artificial intelligence technology to intelligently

analyze what learners have learned, build a knowledge map of learners, provide learners with personalized learning content and learning solutions, support adaptive learning, and implement intelligent recommendations for learning content.

With the help of artificial intelligence to build a learning environment in which virtual and reality are combined, learners can conduct more personalized, immersive, and interesting learning in a virtual fusion environment. By personalizing the image of the virtual student companion to assist the learner, let the learner concentrate, complete the learning task within the prescribed time, and optimize the learning process. The virtual companion gives praise when the learner completes the learning task and gives supervision and encouragement when it is not completed, so that the learner feels humane care and actively completes the learning task without the pressure and demand of teachers and parents.

- (1) Preclass teachers prepare lessons through intelligent teaching platforms, can share lesson plans with teachers across the country in real time, absorb their advanced teaching concepts, and learn their advanced teaching methods; push preclass preview materials to learners through the teaching platform, personal study space, timely interaction with students, and timely adjustment and improvement of teaching design. During the lesson, teachers can connect to the teaching platform through various mobile terminals to interact with the teacher in real time. Teachers can solve the problems of different students one-to-many, so that every student can participate in the classroom communication and truly return the classroom to the students. After class, students can complete homework on the platform, and they can also complete thinking collision with the learning community. The platform completes homework correction and gives students real-time feedback
- (2) The intelligent teaching platform provides different preview materials and assignments of different difficulties for each student based on the collected data and advanced algorithms, according to the students' learning ability, mastery of the learning content, and effort. The course content will be dynamically adjusted with the progress of students' learning, skipping the knowledge points that the students have mastered and strengthening the weak links of the students, so as to truly implement teaching according to their aptitude and achieve adaptive learning with personalized difficulty. Personalized teaching prepares different examination papers for different students, and different examination papers will not increase the teacher's work intensity. Through the intelligent teaching platform, according to each student's learning records, intelligent test papers can also be generated through machine corrections, and automatically generate teaching evaluation reports, personalize evaluation of student progress and deficiencies, and guide students' efforts

- (3) The intelligent teaching platform can also play a role of behavior monitoring for comparative analysis. From the perspective of teachers, it can analyze how teachers with different teaching ages and educational backgrounds have different control over the teaching process and teaching effects. For the teacher who scores higher in the teaching evaluation, he can analyze in detail what his teaching process is. For students with poor grades, you can use the study data to find out when he started to relax, whether he was unwilling to study from beginning to end or encountered difficulties in the learning process, which caused him to shrink back, and clearly understand when the learner's learning attitude has changed. And you can observe whether the learner changes after receiving the learning alert

3.2. Introduction of Function Modules of Intelligent Teaching Platform. The intelligent teaching platform can provide services such as personalized learning analysis and intelligent push learning content. In data collection, the student's learning archive data, learning behavior data, and other information data are stored in the data warehouse. On this basis, integrate artificial intelligence analysis and big data mining technologies such as adaptive technology, push technology, and semantic analysis to support learning computing. In learning services, it provides personalized learning path recommendation services. It can be seen that the intelligent teaching platform relies on three core elements, data, algorithms, and services, where data is the foundation, algorithms are the core, and services are the purpose. Therefore, research attempts to analyze the functions of the intelligent teaching platform from these three aspects.

The data layer is the input port of education data and the basic interface for upper-layer services. It is mainly responsible for collecting, cleaning, sorting, and storing various types of education data. On the one hand, it collects information such as learners' learning behaviors, learning results, and learning processes. On the other hand, it needs to collect teachers' teaching data, including resources for preparing lessons. The algorithm layer is mainly composed of various artificial intelligence algorithms integrated with education business. According to a systematic method, various calculations and analyses are performed on various types of teaching data in the data layer to realize intelligent processing of data. For example, by performing intelligent academic analysis on the behavioral data, basic information data, and academic data of all students in the class, it can obtain a portrait of the individual student and the class as a whole and provide different learning materials and different arrangements for the learners according to their learning interests. Difficult homework motivates learners' intrinsic motivation for learning. The service layer provides the required education services to users by receiving the data processing results from the algorithm layer. In terms of learning services, based on the results of personalized

analysis, it provides learners with recommended services covering learning content, learning interactions, and personalized learning paths to assist students in personalized learning. In teaching services, by analyzing the data of teachers' teaching process, it helps teachers sum up gains and losses, monitor teaching quality, and adjust teaching design, so as to realize the precision of teaching process.

3.3. Questionnaire Survey. In order to have a certain understanding of the use of artificial intelligence by teachers, this article has made a questionnaire on the topic of artificial intelligence and professional development of teachers and has prepared 23 single-choice and multiple-choice questions, to understand the use of artificial intelligence in teachers, and the problems can be statistically processed. According to the different content of the questions, the frequency statistics and descriptive statistics of the questions are, respectively, presented and the analysis results are presented in the form of text, tables, statistical charts, and so on. The random sampling method was used to select teachers from several schools in Qingdao City. The survey time was June 2020. A total of 96 questionnaires were issued, with 96 valid samples and an effective recovery rate of 100. Therefore, the data from this questionnaire is valid.

4. Discussion

4.1. Three Stages of China's Education Development. Measured by the degree of the use of science and technology in education and teaching in China and the central point around education, China's education development can be divided into three periods: the traditional education stage, the digital education stage, and the intelligent education stage. The characteristics of China's education at different stages are shown in Table 1:

4.1.1. Traditional Education Stage. Traditional education is dominated by teachers. Teachers rarely use information technology when teaching and managing, but only occasionally use computers to assist in teaching and register basic statistics of teaching. The important learning methods for students are mainly class learning and group learning under the class teaching system. Students also rarely use computer networks for learning and exploration. In short, at this stage, whether students, teachers, or schools, the use of information technology is extremely limited, and the teaching activity is single-handed and is mainly accomplished independently by the teacher.

4.1.2. Digital Education Stage. Digital education is centered on schools. Schools establish digital infrastructures and use the Internet to achieve data interconnection among students, classes, schools, and regions and to share high-quality educational resources. On the basis of the class teaching system, the use of information technology is to achieve a digital campus and teaching database, breaking the constraints of learning time and space. Establish a data center to realize the tracking records of important information and provide fixed data support for education and teaching decisions.

4.1.3. Intelligent Education Stage. Intelligent education is further developed based on Internet education. It is student-centered and uses cloud computing, big data, artificial intelligence, and other information technologies to record students' full-time chain of behavioral data. Intelligent education is a personalized teaching centered on students, which can stimulate students' potential and make all-round development possible. The current education in our country has entered the stage of networked education from traditional education and is marching towards intelligent education. In the context of the current era of artificial intelligence, the government and the market use information technology, the Internet, artificial intelligence, and other technologies to integrate different links and levels with education and teaching and promote education reform from different directions. Online education, "Internet + education," "cloud education," "cloud intelligent education," "intelligent tutor system," and other forms are driving education forward. China's education informatization has basically completed the infrastructure construction of campus informatization and is moving towards the direction of the deep integration of information technology and education and teaching. At the stage of Internet education, artificial intelligence based on the Internet, as an educational method and tool, has played an irreplaceable role and is a powerful assistant for teachers and students.

4.2. Teachers' Understanding of Artificial Intelligence. Since artificial intelligence is the hottest industry today, people can deepen their understanding and application of artificial intelligence through various channels. This article investigates teachers' understanding of artificial intelligence pathways and the use of artificial intelligence in their lives. The conclusions are shown in Figure 1.

Figure 1 can be drawn. In life, teachers know more about common artificial intelligence products, such as voice assistants, image recognition, fingerprint recognition, and smart home. It can be seen that artificial intelligence has become an important part of people's lives. But the application of intelligent products in education and teaching is not so widespread.

4.3. Teachers' Use of Artificial Intelligence in Teaching. In traditional teaching, it is difficult to provide natural phenomena and life scenes intuitively in the classroom. Applying artificial intelligence to teaching, the pictures to be described to students can be directly made into animations or the imported animations can be downloaded directly on the Internet, which can be introduced to students from the perspective of hearing and hearing to enhance students' interest in learning. The application of modern artificial intelligence in the field of education just happens to form a complementary relationship with traditional education methods. It will change the way of imparting knowledge, the way of dissemination and extraction, and set off a revolution in education. Various characteristics of modern artificial intelligence, such as networking and diversification, have brought new vigor and vitality to education. Compared with traditional education, it has greater advantages: rich expression forms that

TABLE 1: Analysis of the characteristics of China’s education at different stages.

Basic features	Traditional education	Digital education	Intelligent education
Center point	Teacher	School	Student
Learning method	Class and group learning	Digital campus and database	Personalized learning under big data
Information sharing	Group teaching, individual learning	Coconstruction and sharing of school-based resources	Private exclusive services
Application scenario	No	Single application scenario	Intelligent application comprehensive platform
Technical foundation	Computer+resource library	Internet, data center	Cloud computing, big data, artificial intelligence
Educational features	Artificial	Ergonomic	Humanize
Access to information	Offline manual information registration statistics	Important information tracking record	Full time chain behavior record
Teaching decision	Personal decision	Important node data support	Cloud big data comprehensive support

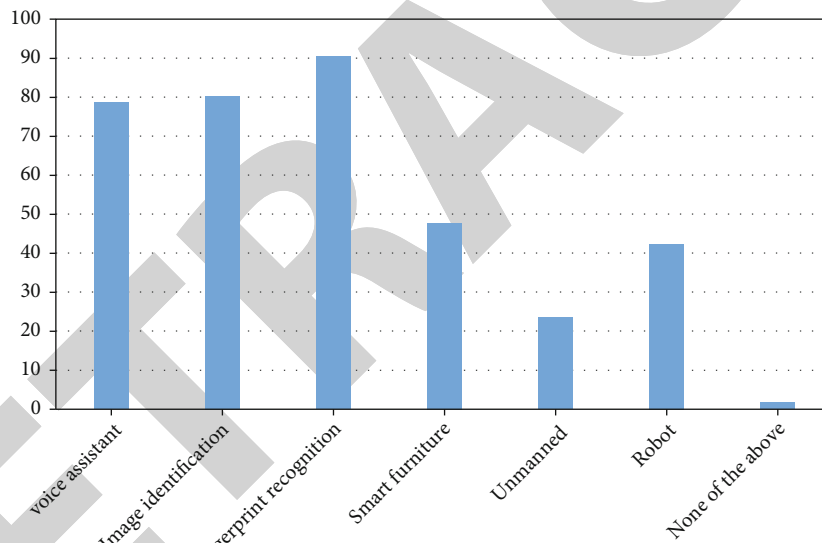


FIGURE 1: Teachers’ understanding of artificial intelligence in life (Unit%).

give students a visual impact; effective resources for multifaceted and multifaceted integration to give students a different experience; proper handling of knowledge; self-help inquiry learning, training the ability to learn autonomously; and help-based learning; courseware gives students more content than teachers talk in empty space.

According to Figure 2, among teachers using artificial intelligence products, the most frequently used are mobile APP teaching, followed by teachers’ online training platforms. Some teachers use automatic correction assignment systems in teaching. With the help of smart classrooms, robotic assistants, and other major future teaching intelligent products, the frequency of use is low, which indicates that artificial intelligence products are underdeveloped in

education and teaching and have great development potential in the future.

4.4. *Teachers’ Perception of Artificial Intelligence.* In the era of information education, the main link in teaching is to implement quality education, improve the quality of education and teaching, and expand the amount of information in classroom teaching. Research by authoritative experts shows that “sight and hearing are the main organs of student learning.” The use of information technology to teach can greatly change the amount of information that students receive. Therefore, after information technology becomes a teaching method, the tool library for our study is richer and more complete. In the traditional classroom, only on the basis of

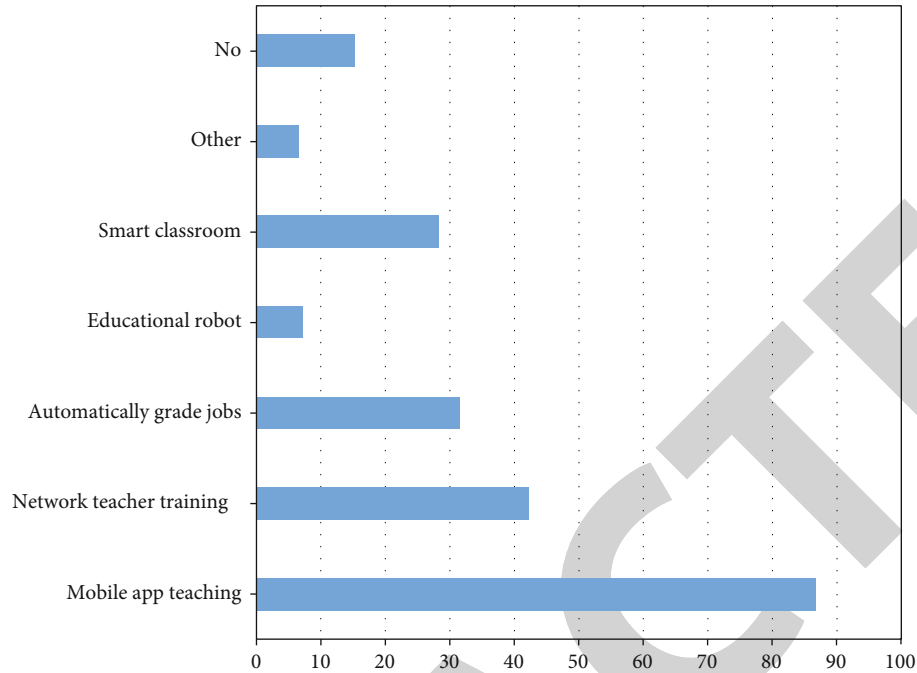


FIGURE 2: Teachers' use of artificial intelligence in teaching (Unit%).

the key points and difficulties of the students can improve the teaching quality. A large number of practical examples show that the use of information technology can break through the key points and difficulties in the teaching process.

In Figure 3, teachers highly recognize the role of artificial intelligence. 52.1% of teachers think that artificial intelligence is very helpful to the professional development of teachers, 32.3% of teachers think that artificial intelligence is more helpful to their professional development, and 12.5% of teachers are more comfortable with artificial intelligence. The recognition of intelligence is average, and only 3.1% of teachers believe that artificial intelligence is not helpful to their professional development. In general, as an inevitable trend, artificial intelligence will develop and grow in education and teaching.

4.5. Teachers' Expectations for Artificial Intelligence. Teachers can make full use of information technology methods in teaching, but they need to grasp a degree. The "degree" is well grasped. The information technology method is used by you to improve learning efficiency. If you do not grasp well, you will be bound by this tool and have a high-quality course declaration failed. The introduction of information technology into the classroom has brought great convenience to teachers but also brought great challenges to teachers. The emergence of a new thing has both advantages and disadvantages. Teachers should reasonably integrate information technology and teaching methods to cultivate students' creative thinking. The cultivation of creative thinking ability should be implemented in the main channel of classroom teaching, and let the new modern education technology teaching run through it, to achieve the effect of twice the result with half the effort.

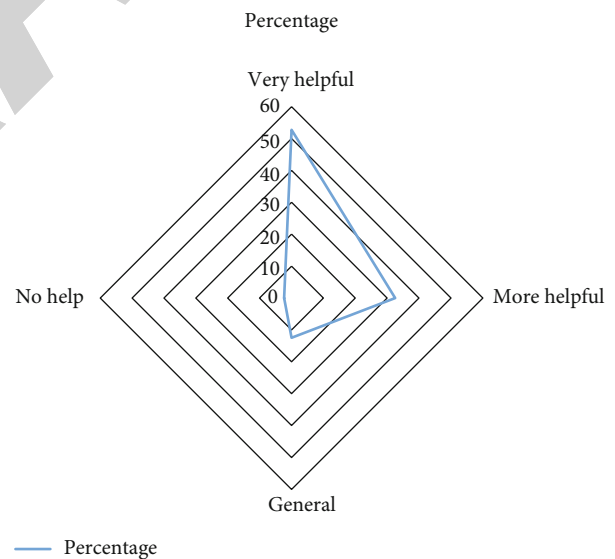


FIGURE 3: Teachers' recognition of artificial intelligence.

Figure 4 shows that the impact of artificial intelligence on teachers themselves is to reduce the teaching workload and improve information literacy. Of course, there are very few teachers who think that artificial intelligence has little or no relationship with teacher professional development. However, in the current actual teaching, artificial intelligence has not been fully applied, and teachers' understanding and use of artificial intelligence is not optimistic. The lack of training for teachers' artificial intelligence courses is also an important reason for the low use of teachers.

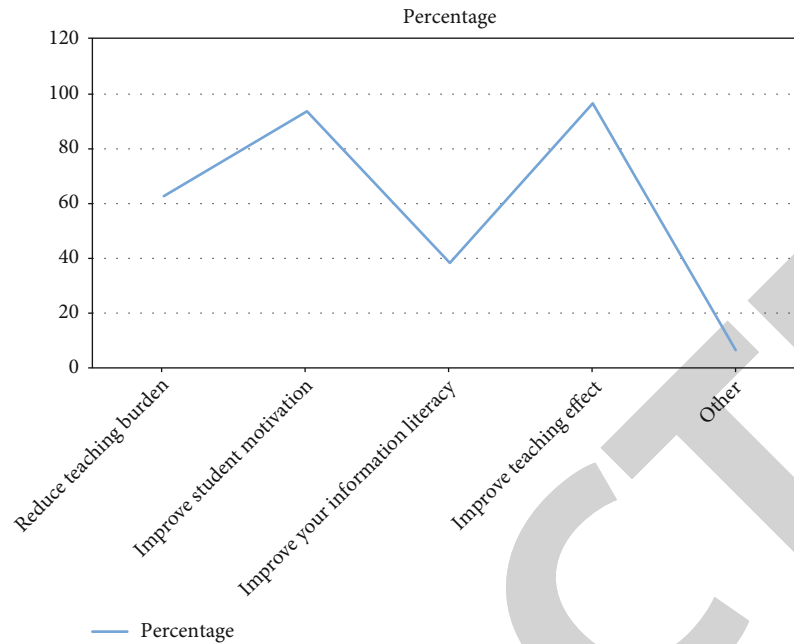


FIGURE 4: Teacher expectations for artificial intelligence.

5. Conclusions

Artificial intelligence is the product of development in the intelligent age. At present, various corporate departments are in the initial stage of research in this field and are scrambling to seize opportunities to promote new series of intelligent products to seize opportunities. As the main force of national scientific research, universities have an unshirkable responsibility for the study of artificial intelligence. Some universities offer artificial intelligence courses to lead the trend of the times. As a teacher, understanding and using artificial intelligence is a familiar skill. The theory of teachers' professional development at home and abroad is relatively mature. The advancement of educational technology will bring about changes in education. At present, the most popular artificial intelligence products have been put into use in the field of education, which has brought a certain impact on traditional education. This article uses questionnaires, interviews, and data collection to understand the use of artificial intelligence among teachers.

The development of artificial intelligence has had a profound impact on education and teaching practice. It is changing the teaching methods of teachers and the learning methods of students. A new era of technology has transformed education. In this context, the research takes artificial intelligence for education and teaching as the research theme and analyzes the current research status and related theories of artificial intelligence technology, artificial intelligence teaching application, teaching change, and artificial intelligence to promote teaching change. There were interviews with relevant experts and scholars to investigate the current application of artificial intelligence technology in teaching, to understand from which aspects of artificial intelligence will change teaching, to extract what aspects of artificial intelligence will affect teaching, to determine research

ideas, and to discuss artificial intelligence promotes innovation in teaching resources and the environment, changes in teaching and learning methods, and innovation in teaching evaluation and management.

This article uses data from questionnaires to analyze the data and analyzes the data on the basis of distributed cognitive theory and technological innovation theory. It is concluded that in life, teachers often understand and apply common artificial intelligence products, such as voice assistants, image recognition, fingerprint recognition, and smart home. Among teachers using artificial intelligence products, the most frequently used is mobile APP teaching, followed by teachers' online training platforms. Some teachers use automatic correction assignment systems in teaching, with the help of intelligent classrooms, robotic assistants, and other major future teaching intelligent products. Teachers recognize the role of artificial intelligence. 52.1% of teachers believe that artificial intelligence is very helpful to the professional development of teachers. 32.3% of teachers think that artificial intelligence is more helpful to their professional development. 12.5% of teachers recognize artificial intelligence. Generally, only 3.1% of teachers believe that artificial intelligence is not helpful to their professional development. The impact of artificial intelligence on teachers themselves is reducing the teaching workload and improving information literacy. Of course, there are very few teachers who think that artificial intelligence has little or no relationship with teacher professional development. Artificial intelligence will surge forward in this heat flow.

Data Availability

The data in this article comes from the survey conducted by the research group and only represents the results of this survey.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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