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A Study on the Realization Path of Integrating Artificial Intelligence into Curriculum Teaching

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Abstract: With the development of information technology, the functions and values of artificial intelligence in curriculum teaching are increasingly prominent, and the application of artificial intelligence devices in curriculum teaching will have a positive impact on the improvement of teaching quality. This study analyzes the functions and dilemmas of the application of artificial intelligence in teaching through the literature method, questionnaire survey method, interview method and logical analysis method, and on this basis, proposes the application of artificial intelligence in curriculum teaching the path of realization.

1. Introduction

With the rapid development of "Internet+" and other technologies, "artificial intelligence + education" has become an important issue in the improvement of teaching quality, and China has issued a series of policy documents closely related to the improvement of information literacy of primary and secondary school teachers since 2014, requiring the training of teachers engaged in basic education. In April 2019, the Ministry of Education promulgated the Opinion on Implementing the National Primary and Secondary School Teachers' Information Technology Application Ability Enhancement Project 2.0, which pointed out that information technology application ability, is the core quality of high-quality teachers in the new era. It is important to make full use of new technological achievements such as artificial intelligence to boost teacher education and enhance the ability of headmasters and teachers to innovate in education and teaching for future educational development [1]. Intelligent teaching has gradually become an important tool for promoting teaching reform, improving teaching quality, and perfecting teaching programs [2]. Based on this, this study will explore the functions, dilemmas, and realization paths of integrating artificial intelligence into curriculum teaching and provide feasible suggestions for promoting the application of artificial intelligence in teaching.

2. The Function of Artificial Intelligence in Teaching and Learning

2.1. Artificial Intelligence Facilitates Enrichment of Course Content

Artificial intelligence provides teachers with access to a wealth of online educational resources, which will be useful for enriching the content of the curriculum [3]. On the one hand, online books

and literature resources provide teachers with a rich theoretical foundation on which to base their teaching content through online integration [4]. On the other hand, with the development of online education, many commercial platforms have developed rapidly, such as shell.com and subject.com, which provide a more convenient way to access and update teaching content. Artificial intelligence provides an important platform for intuitive teaching. Previously, boring content in abstract lectures can be experienced intuitively through artificial intelligence and VR technology, which will further enrich the content of the curriculum [5].

2.2. Artificial Intelligence Helps to Enhance the Effectiveness of Teaching and Learning

The introduction of artificial intelligence into the classroom can introduce theoretical explanations and interesting, intuitive and interactive content into the classroom, achieving a diversification of teaching content and implementation, and thus reflecting the teaching goal of "building moral character". In addition, with the development of teaching software, the development of microlessons, check-in, mobile examinations, and live courses has provided more convenient channels for teaching, which will be useful for improving teaching efficiency and achieving teaching objectives[6]; at the same time, giving full play to students' subjective initiative in teaching will be useful for improving teaching effectiveness, as the integration of online content, the diversification of interaction and the expansion of classroom content in the course can The integration of online content, the variety of interactions and the expansion of classroom content can fully mobilize students' subjective motivation, which will be beneficial for enhancing learning efficiency, successfully completing the course content and achieving the course results[7].

2.3. Artificial Intelligence Contributes to the Quality of Teaching Evaluation and Feedback

Teaching evaluation is an important part of teaching, and the accuracy of teaching evaluation directly affects the implementation of later teaching. Artificial intelligence provides teaching evaluation on an intuitive, convenient, and efficient platform [8]. On the one hand, the evaluation and correction of after-class assignments and examination papers can be done automatically through an online program, which greatly improves labor costs and allows teachers to have more energy and time to engage in teaching research and professional knowledge learning, while also safeguarding the quality of marking and avoiding errors that occur manually. On the other hand, AI can provide teachers with efficient analysis reports on classroom performance, quality of homework completion, and examination levels. Teachers can quickly identify teaching problems in response to the analysis reports and make targeted optimization in the teaching process, which will be beneficial for teachers to improve the quality of their work and achieve teaching effectiveness [9]. In addition, artificial intelligence can provide teachers with horizontal comparison data through big data, by comparing the learning status and performance of students from top schools and high achievers with those of the students who teach to achieve evaluation and feedback on teaching quality, which can be used in later teaching practice [10].

2.4. Artificial Intelligence Facilitates Home-School Linkage

Policy documents issued by the Ministry of Education have repeatedly mentioned the need to build an education model that links home, school, and community, and to work together to promote student development through home-school collaboration. Artificial intelligence plays a key role in linking homes and schools. On the one hand, AI enables parents to interact with teachers at zero distance, greatly improving the efficiency of co-teaching, co-evaluation, and co-advocacy between teachers and parents. On the other hand, AI enables a synergy between school and home, so that

parents can implement the understanding of students' school learning status and teachers can understand students' homework and social practice completion, which will form an important two-way cycle and provide important conditions for achieving school feedback and home reinforcement.

3. Dilemmas of Artificial Intelligence in Teaching and Learning

3.1. Artificial Intelligence Use is constrained by Development

Although AI has been gradually applied in teaching, the popularity of AI still has a long way to go, as shown in Table 1, the results of the questionnaire survey show that: among the teachers surveyed, the percentages of Grade 3, Grade 2, Grade 1 and senior teachers who have adopted AI teaching are 67.3%, 62.1%, 37.5% and 50% respectively, showing that teachers of higher grades are more inclined to adopt AI teaching, while the lowest utilization rate was for Grade 1 teachers, combined with the percentages of teachers aged 20-30, 30-40, 40-50 and 50-60 using AI at 92.6%, 80.0%, 37.5% and 33.3% respectively as shown in Table 2, showing a trend of decreasing utilization with age, further interview results showed that teachers with lower titles were mostly Younger teachers, while university education and personal development are more inclined to adopt teaching tools that are products of the times, while teachers with higher titles and older ages show a decreasing trend in the index of interest in emerging teaching tools such as AI due to the profound influence of the traditional teaching model. The reason for this is that, on the one hand, younger teachers need to adapt to the times for their own development and thus achieve improved classroom quality. On the other hand, older teachers have shown a rejection of the tedium and instability of AI operation and learning. In addition, the survey also showed that the usage rate of AI among teachers in urban areas was as high as 89.8% (as shown in Table 3), while rural teachers were only 14.3%. The reasons for this, however, are that in rural areas, the application of AI is still out of reach due to problems such as lack of funding for construction, and at the same time, more schools rely on third-party organizations for the management of AI devices, and the lack of their own managers, which has also become an important factor limiting This has also become an important factor limiting the application of AI.

Table 1: Use of artificial intelligence in secondary school teaching

Teacher title	Number of people surveyed	Teaching with artificial intelligence (%)	No teaching with AI (%)
Grade 3	52	67.3%	32.7%
Grade 2	29	62.1%	37.9
Grade 1	16	37.5%	62.5%
Advanced	4	50%	50%

Table 2: Use of AI for teaching by teachers of different ages

Teacher age	Number of people	Teaching with artificial intelligence (%)	No teaching with AI (%)
20-30 years old	41	92.6%	7.4%
30-40 years old	35	80.0%	20.0%
40-50 years old	16	37.5%	62.5%
50-60 years old	9	33.3%	66.7%

Table 3: Teachers' use of AI for teaching in different regions

Teacher age	Number of people	Teaching with artificial intelligence (%)	No teaching with AI (%)
Countryside	42	14.3%	85.7%
City	59	89.8%	10.2%

3.2. Artificial Intelligence Products Themselves are in need of Improvement

A survey of 75 teachers using AI products showed that 13.3% and 30.7% of teachers felt very satisfied and satisfied, 42.7% and 8.0% felt dissatisfied and very dissatisfied. From the survey results, some teachers showed a state of dissatisfaction with the use of AI teaching products, and further surveys showed that 37.% of teachers thought that the AI teaching further investigation shows that 37.% of teachers think that the operating system of AI teaching products is cumbersome, 21.3% of teachers think that AI teaching products are frequently faulty and 69.3% of teachers think that the products lack educational resources, which indicates that although the effect of AI in teaching has been widely recognized, the realization of the functions of AI products in education needs to be further improved. The interviews revealed that, on the one hand, some technical flaws limit the application of the devices; for example, the Microsoft Little Britain software does not have a dedicated application and relies only on web pages and so on, which limits the application for teachers. On the other hand, although there is a trend towards a wide range of AI devices, little is known about education on most products, which leads to a disconnect between applications and education, as shown in Table 4 and Table 5.

Table 4: Satisfaction with the use of artificial intelligence teaching products

Satisfaction	Number of people	Percentage (%)
Very satisfied	10	13.3%
Satisfaction	23	30.7%
General	4	5.3%
Not satisfied	32	42.7%
Very dissatisfied	6	8.0%

Table 5: Problems with Artificial Intelligence teaching products

Category	Number of people	Percentage (%)
Complex operating systems	28	37.3%
Frequent system failures	16	21.3%
Lack of educational resources	52	69.3%

4. Pathways for Integrating Artificial Intelligence into Curriculum Teaching

4.1. Increase Investment in Education and Improve the Teaching and Learning Environment for Artificial Intelligence

Increasing investment in AI education is an important element in realizing the optimization of the AI teaching environment. On the one hand, the subjective departments should raise funds extensively to promote the construction of AI equipment, and on the other hand, training funds should be increased to enhance teachers' ability to use AI products through training. In addition, inter-school cooperation models should be established to realize the common construction, sharing, and common development of AI teaching by building an exchange platform model.

4.2. Improving the Quality of Artificial Intelligence Products

The quality of the AI product directly determines the application value of the product. On the one hand, AI development enterprises should establish school-enterprise partnerships to continuously optimise the educational functions of their own products through application feedback, and on the other hand, enterprises should continuously improve the convenience and systematization of product applications.

4.3. Continuous Development of Teachers' Awareness of AI Product Applications

Awareness is the precursor of behavior. Schools should promote teachers' awareness of the application of AI products in teaching and learning, on the one hand, by guiding them to change their thinking in the traditional teaching mode, and on the other hand, they should disseminate the functions and values of AI products in teaching and learning through curriculum competitions to increase teachers' enthusiasm and initiative to apply them actively.

5. Summary

The function of artificial intelligence in teaching is becoming increasingly prominent and gradually becoming an important tool to promote teaching quality reform. Relevant departments and schools should promote the application of artificial intelligence in the teaching environment to achieve innovation in teaching tools, and teachers should continuously improve their own abilities and literacy in the application of artificial intelligence teaching devices, and incorporate artificial intelligence into the tools of curriculum teaching to achieve the "established moral education " education goal.

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