

Research on Effective Approaches of Digital Empowerment for Individualized Teaching of Primary and Secondary School Students

Yang Wu

Huayu School, Anshan High-tech Zone, Anshan, Liaoning 114051, China

Email: 442754168@qq.com

How to cite this paper: Wu, Y. (2025). Research on Effective Approaches of Digital Empowerment for Individualized Teaching of Primary and Secondary School Students. *International Journal of Educational Development*, 1(2), 44-49. ISSN Print: 3104-4263; ISSN Online: 3104-4271. <https://doi.org/10.63313/IJED.9015>
Published: 2025-09-10

Copyright © 2025 by author(s) and Erytis Publishing Limited.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Abstract

"Teaching students in accordance with their aptitudes" is the essence of traditional Chinese educational thought and also a fundamental concept of modern education. Based on this, artificial intelligence education in the Internet era has emerged. Under the background of artificial intelligence education, "teaching students in accordance with their aptitudes" has been fully reflected. It is no longer the traditional "teaching students in accordance with their aptitudes", but rather provides students with more personalized, precise and intelligent teaching services through technological empowerment, helping them solve learning problems and truly achieving teaching students in accordance with their aptitudes. This article mainly starts from the relationship between artificial intelligence and teaching students in accordance with their aptitude, and conducts research on teaching students in accordance with their aptitude under the background of artificial intelligence education.

Keywords

Digital empowerment; primary and secondary school students; individualized teaching; effective approaches

1. Introduction

The term "teaching students in accordance with their aptitudes" first appeared in "The Book of Rites: The Doctrine of the Mean". Confucius put forward specific requirements for "teaching students in accordance with their aptitudes" in the educational process. He believed that in teaching, instruction should be tailored to the actual situations of different students. Only in this way can teaching students in accordance with their aptitudes be truly achieved. Since then, "teaching students in accordance with their aptitude" has been widely applied as a teaching method in ancient Chinese education and is also regarded as the essence of ancient Chinese

educational thought. Since the beginning of the 21st century, with the continuous development and popularization of artificial intelligence technology, "teaching students in accordance with their aptitude" has also been constantly improving and developing. Against this backdrop, the integration of artificial intelligence technology with education has gradually transformed traditional teaching methods and better met students' personalized learning needs.

"Teaching students in accordance with their aptitudes" is closely related to the development of modern education. There were records of "teaching students in accordance with their aptitudes" in ancient China. As early as the Spring and Autumn and Warring States Periods, Confucius put forward the educational thought of "teaching students in accordance with their aptitudes". The core idea of "teaching students in accordance with their aptitude" under the modern educational concept is to treat students differently based on their distinct characteristics and help them achieve all-round development. In the context of modern education, "teaching students in accordance with their aptitudes" has been widely applied as an important teaching method in primary and secondary school education. Whether in traditional classrooms or artificial intelligence classrooms, "teaching students in accordance with their aptitudes" is carried out with students as the main body, teachers as the guide, teaching content as the basis, and teaching methods as the means. Under the background of artificial intelligence education, "teaching students in accordance with their aptitudes" can not only make up for the deficiencies existing in traditional teaching, but also better play the leading role of students in the learning process.

2. The Relationship between Artificial Intelligence Education and Teaching Students in Accordance with Their Aptitudes

Teaching students in accordance with their aptitudes is the fundamental concept and ultimate goal of education in our country. It requires educators to cultivate students to varying degrees based on their different cognitive levels, personality traits, learning abilities and other aspects. With the advent of the Internet era, information technology and education and teaching have been continuously integrated, and artificial intelligence education has emerged as The Times require. Artificial intelligence education refers to the application of artificial intelligence technology in the teaching process, giving full play to the role of intelligent technology in the teaching process, thereby achieving personalized, precise and intelligent educational services.

Teaching students in accordance with their aptitudes is the essence of traditional Chinese educational thought and also an important concept formed in the long-term development of Chinese education. In modern society, artificial intelligence technology has become one of the important factors influencing social development. At present, the Internet + teaching model based on artificial intelligence technology is gradually penetrating into school education. Artificial intelligence education is based on the Internet and makes full use of big data, cloud computing and other technolo-

gies to precisely analyze and identify students' personalized learning needs, thereby providing students with more personalized, precise and intelligent teaching services. In the era of artificial intelligence, teaching students in accordance with their aptitudes is no longer the traditional sense of teaching students in accordance with their aptitudes. Instead, it empowers traditional teaching models through intelligent technologies to provide students with more precise, personalized and intelligent teaching services, truly achieving teaching students in accordance with their aptitudes.

Artificial intelligence education can precisely analyze students' learning needs

With the continuous development of artificial intelligence technology, intelligent technology has begun to integrate with the field of education. By conducting precise analysis of students' learning data, more personalized learning services are provided for students. The application of artificial intelligence technology in the field of education can provide teachers with more comprehensive and accurate data on students' learning, helping them better understand students' learning needs and thus achieve personalized teaching for students. Meanwhile, through the analysis of student data, teachers can identify the weak links and shortcomings of students in the learning process, and thus provide personalized teaching services for students in a targeted manner. Meanwhile, teachers can also utilize artificial intelligence technology to provide students with more personalized and precise teaching resources and services, thereby achieving individualized teaching for students and truly realizing individualized teaching. Therefore, artificial intelligence education is an important way to achieve individualized teaching.

Artificial intelligence education can enable personalized learning for students

The development of artificial intelligence education not only enables better individualized teaching but also allows students to fully exert their initiative and enthusiasm in learning, achieving personalized learning. Artificial intelligence education, by recording and analyzing students' learning behaviors, can formulate more personalized and precise teaching plans based on students' different learning needs, thereby achieving precise analysis and identification of students' individualized learning demands. In addition, artificial intelligence technology can also build more accurate student cognitive models by collecting students' historical data. Therefore, using artificial intelligence technology to conduct a comprehensive analysis and profiling of students can better grasp their learning patterns and cognitive characteristics. This lays the foundation for teaching students in accordance with their aptitudes.

In addition, artificial intelligence technology can also collect and analyze learning data to formulate more precise and personalized teaching plans for each student. These programs can not only help students master learning methods and skills, but also provide personalized services and assistance based on the problems they encounter during the learning process.

Artificial intelligence education can provide teachers with personalized teaching plans

Intelligent technology provides teachers with personalized teaching plans. Through intelligent technology, teachers can better understand students' learning situations and grasp their learning dynamics, thereby adjusting their teaching plans in a timely manner and conducting teaching activities in a way that is more in line with students' actual conditions. In the traditional teaching mode, teachers need to formulate different teaching plans based on students' learning situations. Usually, teachers can only start teaching after they have a clear understanding of students' learning conditions. The drawback of this traditional model lies in its inability to accurately understand students. However, intelligent technology can conduct a comprehensive analysis of students' learning situations through big data analysis, thereby providing teachers with more personalized, precise and intelligent teaching plans.

With the support of artificial intelligence technology, teachers can conduct a comprehensive analysis of students' learning behaviors, academic performance, etc. through intelligent technology, and thus adjust their teaching plans accordingly. For instance, through big data analysis, teachers can formulate corresponding teaching plans in a targeted manner based on the learning habits and academic performance of different types of students. When formulating teaching plans, teachers can follow certain principles, such as adhering to the principles of "student-centeredness" and "teaching students in accordance with their aptitudes". Specifically, teachers can start from two aspects: on the one hand, they can formulate different learning plans based on the learning abilities of different students; On the other hand, it is necessary to formulate corresponding study plans based on the characteristics of different students. Through personalized, precise and intelligent teaching plans, teachers can better understand students, analyze them and formulate different types of teaching plans for them.

3. Digital empowerment is an effective approach to teaching students in accordance with their aptitudes

"Teaching students in accordance with their aptitude", as an important idea in China's educational theory and practice, has been fully developed in the context of the new era. Especially with the empowerment of technology, the concept of "teaching students in accordance with their aptitudes" has been further deepened. It is no longer merely a traditional teaching method but aims at personalized learning and achieves precise learning for students through technological empowerment. Under the background of artificial intelligence education, individualized teaching can effectively achieve the following approaches:

(1) Establish a student situation file and conduct a precise analysis of the student situation. During the process of collecting student data, students can be classified into different types: The first type of students belong to those with strong learning

abilities but lack methods and skills; The second category of students belong to those with average learning ability but strong learning potential. The third category of students belong to those with relatively weak learning abilities and need enhanced guidance. Teachers can design corresponding teaching plans based on the different situations of these three types of students and adopt different teaching methods for different types of students. For instance, for the second category of students, it is possible to establish a student situation file to understand their current mastery of the content they have learned and the existing problems. For the first category of students, they can establish a student situation file to understand the current problems they have and formulate targeted study plans based on these problems. By establishing student situation files, teachers can accurately evaluate and analyze each student, and thus formulate different teaching plans and methods for different types of students.

(2) Create real-life scenarios to enhance the learning experience. Under the background of artificial intelligence education, educational scenarios such as virtual simulation teaching systems and digital humans have been developed based on artificial intelligence technologies like big data, cloud computing and virtual reality. The virtual simulation teaching system is mainly used to simulate a specific scene or process in a real-world environment. For instance, during the teaching process, teachers can design a classroom environment that simulates the real environment for students through a virtual simulation teaching system, allowing students to experience classroom knowledge through role-playing simulation. Teachers can design a virtual laboratory for students, allowing them to experience the experimental process through virtual experiments. Digital humans are teachers with "life" characteristics developed based on digital technology. For instance, digital human teachers can impart knowledge and engage in emotional communication just like real teachers, helping students solve various problems they encounter in their studies.

(3) Build smart classrooms and optimize the learning process. Under the background of artificial intelligence education, the smart classroom is a smart classroom system established on the basis of the Internet, the Internet of Things, etc. The smart classroom integrates various resources and equipment in teaching to form a smart teaching space featuring resource sharing and information exchange. In this space, teachers and students can communicate, interact and answer questions anytime and anywhere. At the same time, through the analysis and integration of background data, intelligent push of learning resources to students in need of assistance is achieved, enabling students to study more purposefully.

(4) Optimize teaching methods and improve teaching quality. Teachers can utilize these resources in various aspects such as lesson preparation and teaching. At the same time, teachers can also use these resources for teaching analysis and evaluation of students. By analyzing these data and evaluation results, more reasonable and scientific teaching methods and strategy guidance can be provided for teachers.

At the same time, it can also provide a reference basis for teachers to offer more complete personalized teaching plans.

4. Conclusion

The development of educational informatization has become an inevitable requirement of The Times, and the educational concept of "Internet +" has been integrated into China's teaching and education. In the era of artificial intelligence, "teaching students in accordance with their aptitude" is no longer a traditional teaching method, but rather a way to achieve more effective education through the aid of artificial intelligence technology. In the era of artificial intelligence, students' learning abilities and outcomes can be understood through data analysis. Based on this, teachers can formulate personalized teaching plans for students according to their learning situations and abilities, helping them solve learning problems.

In conclusion, in the context of the artificial intelligence era, artificial intelligence technology provides favorable conditions for teaching students in accordance with their aptitudes. Teachers can use big data and intelligent technologies to have a comprehensive understanding of students and formulate personalized teaching plans based on their actual situations. During this process, teachers should constantly enhance their professional qualities and comprehensive abilities, and continuously innovate teaching methods and means in the teaching process. In conclusion, in the context of the era of artificial intelligence, teaching students in accordance with their aptitudes is an inevitable trend in the development of educational informatization. Under the background of artificial intelligence education, implementing individualized teaching can help students better adapt to the development and changes of future society and improve their comprehensive quality. This is also the ultimate goal of the development of educational informatization.

References

- [1] CAI Linjie. Actively Exploring Innovative Paths for Empowering Ideological and Political Education with Digital Technology [N]. Ningxia Daily, 2025-06-29 (003).
- [2] Wu Di. Studying and Implementing the Spirit of the National Education Conference - Empowering Students' Digital Literacy Development with Artificial Intelligence [J]. Information Technology Education in Primary and Secondary Schools, 2024, (12): 1.
- [3] Zhang Ruiting. Exploration on Digital Empowerment of Red-Themed Education Activities for Primary and Secondary School Students [J]. Information Technology Education in Primary and Secondary Schools, 2024, (07): 76-77.
- [4] Wu Yinghui, Xu Yingfeng. Digital Technology Empowering the Cultivation of International Comprehension Ability among Primary and Secondary School Students [J]. Information Technology Education in Primary and Secondary Schools, 2024, (05): 33-35.
- [5] Wang Zhengqing, Yu Tian 'ao How Artificial Intelligence Technology Empowers Special Students' Education: Practical Experience Based on American Primary and Secondary Schools [J] Modern Distance Education, 2022, (05): 42-49.
- [6] Zhu Zhiting, Shen Shusheng. Digital Resilience Education: Empowering Students to Grow Happily in an Increasingly Complex World [J]. Modern Distance Education Research, 2020, 32 (04): 3-10.