

Research On The Application Of Artificial Intelligence In Assisting English Writing Teaching In Junior High School

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Abstract:

English, pivotal in global activities, significantly influences China's international engagement and the building of a shared future. With advancements in the Internet, big data, and AI technologies, new opportunities and challenges emerge in English writing teaching, particularly as part of junior high curriculum. Aiming to explore these dynamics, this study surveyed 204 valid samples from middle school English teachers on their use of AI for writing instruction. Results indicate that immature technology, scarce resources, and inefficiency hinder widespread AI integration. Despite limited application, most teachers reported improvements in teaching quality and efficiency after adopting AI technologies. This study, therefore, proposes strategies and suggestions to enhance AI's positive impact on English writing education, aiming to provide actionable insights for educators. By addressing current limitations, the authors aspire to foster more effective and inclusive AI-assisted teaching methods.

Background: English is one of the languages widely used in political, economic, cultural and other activities in today's world, and has a far-reaching impact on promoting China to the world and building a community of shared future. With the rapid development of the Internet and big data technology, artificial intelligence technology, as one of the new quality productive force, is profoundly affecting the teaching environment and teaching mode of English courses, and writing, as one of the difficulties in English teaching, also ushered in new opportunities and challenges.

Materials and Methods: The questionnaire is designed with 4 parts and totally 15 questions. It was created on the "Wenjuanxing" platform, and the QR code of this questionnaire was distributed through social media (QQ and WeChat) to different middle schools and different grades of English teachers. At the same time, the authors also sent questionnaires to the target groups through the push service of "Wenjuanxing".

Results: This survey analyzes the status, causes, impacts, and trends of AI-assisted English writing teaching in junior high schools. Despite AI tools' potential to enhance teaching and student skills, adoption remains limited, with only 24.51% of 204 respondents using them. Main barriers include lack of technical literacy and school resources, immature technology, and low efficiency. Preferred AI functions are content generation, grammar check, and writing evaluation. These tools boost student interest, teaching efficiency, and writing skills but face challenges like technological dependency and teachers' application ability. Respondents suggest improvements in content quality, assessment accuracy, user interface, and integration with teaching methods.

Conclusion: This study explores AI-assisted tools in junior high school English writing teaching. Key findings include: AI positively impacts teaching by enhancing efficiency through functions like content generation, grammar checking, and evaluation. However, widespread adoption is hindered by limited tech literacy, insufficient resources, and AI maturity. Despite this, teachers hold a positive view of AI, anticipating continued use and development. Among AI users, there's a demand for higher content quality, assessment accuracy, and practicality. To promote AI application, strategies such as enhancing teachers' AI skills, upgrading facilities, and creating personalized learning profiles are crucial, forming an interconnected system to advance AI in English writing teaching.

Keywords: artificial intelligence, Junior high school, English writing teaching, application strategies

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I. Introduction

With the comprehensive popularization of compulsory education, the national education department has put forward higher requirements for students' English listening, speaking, reading and writing ability. English teaching in the compulsory education stage, especially in the junior high school stage, plays an essential role in cultivating people with feelings of home and country, international vision and certain ability of cross-cultural communication and cooperation. Therefore, how to improve the quality of English writing teaching and enhance the comprehensive English ability of students is not only the difficulty faced by teachers, but also the

focus of academic circles.

Since the advent of strong artificial intelligence(AI) such as ChatGPT, all sectors of society are actively exploring how to use this new technology, including education. Artificial intelligence has many powerful functions, such as natural language processing, intelligent evaluation, and machine translation. The deep integration of artificial intelligence technology and modern teaching system is expected to not only improve students' learning efficiency and knowledge level, but also promote the realization of educational equity. Therefore, the authors hope to investigate the current situation of applying artificial intelligence technology in junior high school English writing teaching, analyze the impact of the introduction of this technology, and propose corresponding countermeasures and suggestions to make artificial intelligence better serve teachers and teaching.

II. Material And Methods

According to the new English curriculum standards (2022 version), English teaching in junior high school needs to pay attention to the development and progress of modern information technology in the field of English teaching application. Therefore, the purpose of this study is to understand the current situation and causes of the application of artificial intelligence by teachers in junior high school English writing classes, to find out the influence of teachers in the application of artificial intelligence technology in junior high school English writing classes, and to achieve the purpose of improving the teaching effect of junior high school English writing and promoting the development of English writing teaching under the background of new quality productive forces.

This study mainly focuses on the following three aspects:

- 1) How about the application of artificial intelligence in junior high school English writing teaching?
- 2) What are the causes of the current application status?
- 3) What is the impact of artificial intelligence on assisting junior high school English writing teaching?

In order to understand the application status of artificial intelligence in English writing teaching, the authors take junior high school English teachers as the object of this quantitative research. On the one hand, teachers are the front-line workers of teaching, and they have a more intuitive cognition of the current teaching environment. On the other hand, teachers' teaching work is directly related to students, and teachers can receive feedback from students at the first time. Therefore, junior high school English teachers are ideal samples for this survey.

Therefore, in order to widely collect data on the application of artificial intelligence in junior high school English writing teaching, the authors used the method of random sampling to distribute questionnaires to teachers of different types of schools and different teaching ages through the push services provided by questionnaire design platform and social media.

After identifying the participants, the authors designed the research instrument for the specific issues that need to be addressed in this research.

The questionnaire is mainly divided into 4 parts, with a total of 15 questions.

In terms of data collection methods, the authors chose to gather information through an electronic questionnaire, which was created on the "Wenjuanxing" platform. During the data collection process, from March 2024 to April 2024, the QR code of this questionnaires was distributed through social media (QQ and WeChat) to different middle schools and different grades of English teachers. At the same time, the authors also sent questionnaires to the target groups through the push service of "Wenjuanxing". This service played an important role in the process of questionnaire collection. Throughout the entire process, the authors placed utmost importance on safeguarding the privacy and data security of the participants. Strict adherence to relevant ethical norms was observed to uphold the legality and morality of the research.

Eventually, a total of 206 questionnaires were collected. After eliminating 2 invalid questionnaires, 204 valid questionnaires were obtained. It proved that the sample of this research is real and effective, and the credibility of the research results is relatively high.

III. Survey Results Analysis

The Current Situation of AI-assisted English Writing Teaching in Junior High Schools

Before investigating the application status of artificial intelligence in junior high school English writing teaching, it is helpful to know the teaching institutions where the respondents work to conduct an in-depth analysis of the survey results. It is illustrated in Table 3.1.

Table 3.1 Types of in-service schools

| Option | Frequency | Percentage |
|---------------------------------|-----------|------------|
| Provincial junior high school | 30 | 14.71% |
| Municipal junior high school | 103 | 50.49% |
| County-level junior high school | 51 | 25% |
| Tutoring institution | 20 | 9.8% |
| In total | 204 | 100% |

Table 3.1 clearly shows that out of 204 respondents, 103 respondents were from municipal junior high school. They are the main respondents of this questionnaire, accounting for 50.49%. Secondly, 51 people were from county-level junior high school schools, accounting for 25%; 30 people were from provincial junior high schools, accounting for 14.71%. Finally, 20 people were from tutoring institution, accounting for 9.8 percent.

Table 3.2 Teaching age

| Option | Frequency | Percentage |
|-------------------|-----------|------------|
| 0 to 3 years | 51 | 25% |
| 4 to 6 years | 92 | 45.1% |
| 6 to 8 years | 40 | 19.61% |
| More than 8 years | 21 | 10.29% |
| In total | 204 | 100% |

Teaching experience is another important indicator to reflect the sample situation of this questionnaire. In terms of Table 3.2, teachers with 4 to 6 years of teaching tenure were the most numerous, amounting to 92 and accounting for 45.1%. While the number of teachers with shorter or longer teaching tenures was relatively average. Teachers with 0 to 3 years of teaching tenure amount to 92 and account for 45.1%. And teachers possessing 6 to 8 years of experience make up 19.61% of the total, with a count of 40 individuals. Based on the above basic information of the respondents, the current situation of schools and teachers utilizing artificial intelligence to assist in junior high school English writing instruction can be roughly grasped.

Table 3.3 Whether to use artificial intelligence in English writing teaching

| Option | Frequency | Percentage |
|----------|-----------|------------|
| Yes | 50 | 24.51% |
| No | 154 | 75.49% |
| In total | 204 | 100% |

According to the feedback from Table 3.3, there are only 50 respondents who have already introduced AI-assisted tools into their English writing instruction, accounting for 24.51% of the total. The remaining 75.49%, which corresponds to 154 respondents, have not introduced AI-assisted tools. To further explore this issue, the questionnaire was designed with conditional questions. Teachers who had not introduced or accessed AI-assisted tools were prompted to explain their reasons and express their attitude towards the future prospects of educational artificial intelligence. Meanwhile, teachers who had already integrated AI-assisted tools into their teaching were asked to provide more detailed information about their experiences.

Table 3.4 Whether to receive training on AI tools

| Option | Frequency | Percentage |
|----------|-----------|------------|
| No | 5 | 10% |
| Yes | 45 | 90% |
| In total | 50 | 100% |

According to the data of further questionnaire surveys from Table 4.4, 90% of teachers, which is 45 respondents, indicated that they had received training on how to use AI-assisted tools. The remaining 10%, consisting of 5 individuals, did not receive such training.

Table 3.5 Helpfulness of the training

| Option | Frequency | Percentage |
|------------------|-----------|------------|
| Very helpful | 19 | 42.22% |
| Somewhat helpful | 19 | 42.22% |
| General | 6 | 13.33% |
| Less helpful | 1 | 2.22% |
| No helpful | 0 | 0% |
| In total | 45 | 100% |

Table 3.5 clearly shows that among those 45 teachers who have received training, 19 teachers considered the training of AI-assisted tools were “very helpful”, and another 19 teachers chose “somewhat helpful”. Both accounted for 42.22% respectively. It can be seen that most respondents have received relevant training and have achieved a certain level of improvement.

Overall, the number of schools and teachers who currently apply artificial intelligence in junior high school English writing teaching practices is still relatively small. However, even within this limited scope, the majority of teachers who have had contact with and applied artificial intelligence technology have received corresponding professional training and achieved a certain level of progress and improvement. This indicates that, despite the fact that the application of artificial intelligence in English writing teaching is still in its early stages, it has already demonstrated its potential and value in enhancing teachers' teaching abilities and students' writing skills.

The Causes of the Current Situation of AI-Assisted English Writing Teaching in Junior High Schools

From the analysis in the previous section, although artificial intelligence has demonstrated its potential application value and enhancement effects in junior high school English writing teaching, it is noteworthy that over 70% of teachers in the 204 questionnaire sample have not yet introduced this advanced technology into their teaching practices. This high percentage prompted the author to analyze the underlying reasons behind this phenomenon.

Table 3.6 Main reasons for AI non-usage or reluctance

| Option | Frequency | Percentage |
|----------------------------|-----------|------------|
| Immature technology | 58 | 37.66% |
| Lack of technical literacy | 97 | 62.99% |
| Low usage efficiency | 62 | 40.26% |
| Lack of school resources | 72 | 46.75% |
| Others | 0 | 0% |
| Number of valid samples | 154 | |

According to the survey results from Table 3.6, the main reason why respondents do not use or are unwilling to use AI-assisted tools is “lack of technical literacy”, which accounts for 62.99%. This option was selected by 97 respondents. And the results of this study revealed the primary challenge faced by English teachers in leveraging emerging technologies, namely that most teachers may lack the basic knowledge and skills to effectively integrate AI tools into the teaching of English writing.

In addition, 46.75% of the respondents believed that “lack of school resources” is a dilemma that cannot be ignored in the application of artificial intelligence, with this option being selected by 72 teachers. This result illustrates that despite widespread recognition of the potential of AI in education, many schools still face resource constraints to provide adequate technical support and equipment to teachers.

In addition, factors such as “immature technology” and “low usage efficiency” also affected teachers' willingness to adopt AI assistance tools to a certain extent. These problems may lead teachers to encounter technical barriers in the process of use, reduce teaching efficiency, and then affect teachers' acceptance and practical application of new technologies.

In summary, teachers face multiple challenges in using AI-assisted tools, among which the lack of technological literacy and the lack of school resources are the most prominent reasons.

The Influences of AI-assisted English Writing Teaching in Junior High Schools

The purpose of this questionnaire survey is not only to analyze the current situation and reasons for the application of artificial intelligence assistance tools in junior high school English writing teaching, but also to explore the specific impact of this emerging technology in practical applications. This exploration is also one of the main questions investigated in this study.

Table 3.7 Typical functions of AI-assisted tools used

| Option | Frequency | Percentage |
|-------------------------|-----------|------------|
| Grammar check | 35 | 70% |
| Content generation | 37 | 74% |
| Writing evaluation | 34 | 68% |
| Revision and polishing | 22 | 44% |
| Others | 0 | 0% |
| Number of valid samples | 50 | |

When surveying which functions of AI-assisted tools teachers typically use, Table 3.7 clearly shows that 37 respondents chose “content generation” as the most preferred feature for them, accounting for a whopping 74%.

It was followed by “grammar check” and “writing evaluation”, accounting for 70% and 68%, respectively, with 35 and 34 respondents choosing these options. Although relatively fewer teachers used the “revision and polishing” function, it still garnered 44% usage, which corresponds to 22 respondents. Evidently, AI-assisted tools have gained recognition among users for their effectiveness in content generation, text checking, evaluation, and revision.

Table 3.8 Important AI roles in junior high English writing instruction

| Option | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Raise student interest | 36 | 72% |
| Improving teaching efficiency | 43 | 86% |
| Improve students' writing skills | 36 | 72% |
| Assisting teachers in evaluation | 26 | 52% |
| Others | 0 | 0% |
| Number of valid samples | 50 | |

And Table 3.8 demonstrates the influences of AI-assisted tools on teachers and students. On the teacher side, 43 respondents believed that the primary role of AI-assisted tools in junior high school English writing teaching is to “improve teaching efficiency”. Additionally, over half of the respondents consider “assisting teachers in evaluation” as another crucial role of AI-assisted tools. As for students, according to the feedback from teachers in the questionnaire, among those who have utilized artificial intelligence in English writing teaching, 36 teachers discovered that these tools have increased students' interest and has enhanced students' writing skills. Both options account for 72%.

Table 3.9 Impact of AI on student English writing proficiency

| Option | Frequency | Percentage |
|-------------------------|-----------|------------|
| Improving significantly | 23 | 46% |
| Improving relatively | 23 | 46% |
| No significant changes | 4 | 8% |
| Decreasing slightly | 0 | 0% |
| In total | 50 | |

And according to Table 3.9, 46 teachers said that AI-assisted English writing instruction improved students' writing ability. It means that 92% of teachers who had utilized AI-assisted tools in teaching consider that AI has a positive impact on students. The feedback data from these respondents indicates that the adoption of AI-assisted tools in English writing instruction can improve students' engagement and writing proficiency.

However, the feedback from the questionnaire survey reveals that this emerging technology also has its shortcomings. By analyzing the challenges it faces and the potential improvement space, the author discusses its current shortcomings.

Table 3.10 Challenges faced by AI-assisted tools in junior high English writing instruction

| Option | Frequency | Percentage |
|---|-----------|------------|
| Problem of technological dependency | 38 | 76% |
| Acceptance of students | 32 | 64% |
| Teachers' ability to apply the technology | 36 | 72% |
| Support of schools | 19 | 38% |
| Others | 0 | 0% |
| Number of valid samples | 50 | |

Table 3.10 clearly shows the challenges of AI-assisted tools in teaching practice, which include “problem of technological dependency”, “teachers' ability to apply the technology”, “acceptance of students” and “support of schools”. There are 38, 36 and 32 respondents choosing the first three, accounting for 76%, 72% and 64%, respectively. And 19 respondents also chose the “Support of schools”.

Table 3.11 Rooms for improvement in AI-assisted tools

| Option | Frequency | Percentage |
|---|-----------|------------|
| Quality of generated content | 31 | 62% |
| Accuracy of writing assessment | 38 | 76% |
| Friendliness of the user interface | 24 | 48% |
| Integration with teachers' teaching methods | 32 | 64% |
| Technical support and maintenance | 14 | 28% |
| Others | 0 | 0% |
| Number of valid samples | 50 | |

Table 3.11 shows the current shortcomings of AI-assist tools from another Angle. First of all, the majority of respondents are most concerned about the quality of generated content, which received 31 choices, accounting for as high as 62%, indicating that content quality is one of the most important factors for users; Secondly, the accuracy of writing assessment also received high attention, with 38 respondents choosing this option, accounting for 76%; thirdly, 24 respondents chose the friendliness of the user interface, accounting for 48%, indicating that interface design has an important impact on improving user experience and acceptance.

The Development Tendency of AI-assisted English Writing Teaching in Junior High Schools

Through further analysis of the questionnaire, the authors gain insight into the development trend of AI-assisted junior high school English writing teaching. Analyzing from addressing the current limitations of artificial intelligence and maximize its effect in teaching, schools will emerge as one of the primary drivers for promotion and improvement.

Table 3.12 Measures for schools to promote AI-assisted tools

| Option | Frequency | Percentage |
|---|-----------|------------|
| Conducting teacher training on artificial intelligence | 32 | 64% |
| Encouraging teachers and students to share and communicate | 41 | 82% |
| Promoting the integration of technology and curriculum | 31 | 62% |
| Providing long-term technical updates and maintenance | 34 | 68% |
| Strengthening communication and understanding between home and school | 11 | 22% |
| Number of valid samples | 50 | |

According to Table 3.12, 41 respondents, who make up 82% of the total, believed that schools need to “encourage teachers and students to share and communicate”. And 34 respondents, accounting for 68%, considered that schools need to “provide long-term technical updates and maintenance”. Furthermore, “conducting teacher training on artificial intelligence” and “promoting the integration of technology and curriculum” are also regarded as important improvement trends by the respondents. The former accounts for 64% of the responses, which corresponds to 32 respondents, while the latter accounts for 62%, corresponding to 31 respondents.

Table 3.13 Desired additional functions from an AI-assisted tool

| Option | Frequency | Percentage |
|--|-----------|------------|
| More profound analysis and suggestions for writing content | 32 | 64% |
| Personalized writing plans | 35 | 70% |
| Display of writing examples and excellent works | 35 | 70% |
| Imitating and learning from excellent works | 31 | 62% |
| Interacting and discussing with other learners or teachers | 16 | 32% |
| Others | 0 | 0% |
| Number of valid samples | 50 | |

From the perspective of educational practices, Table 3.13 shows that the urgent needs of educators for artificial intelligence are reflected in “more profound analysis and suggestions for writing content”, “personalized writing plans” and “display of writing examples and excellent works”. The number of respondents choosing each of these options is 32, 35, and 35, respectively, which correspond to the percentages of 64%, 70%, and 70% respectively. Therefore, it can be predicted that future AI tools assisting English writing may undergo technological innovations and reforms in these directions to meet the growing needs of educators and students. This, in turn, will promote the modernization and intellectualization of junior high school English writing teaching.

Table 3.14 The recommendation of using artificial intelligence to assist writing teaching

| Option | Frequency | Percentage |
|--------------------|-----------|------------|
| Strongly recommend | 16 | 32% |
| Recommend | 27 | 54% |
| Neutral | 7 | 14% |
| Not recommend | 0 | 0% |
| In total | 50 | 100% |

From the perspective of teachers, Table 3.14 clearly shows that the majority of respondents hold a positive attitude towards the adoption of AI-assisted tools in English writing instruction, with 32% strongly recommending for their use and 54% generally recommending their adoption. There are 16 and 27 respondents choosing these two options, respectively.

Table 3.15 Predictions and attitudes towards artificial intelligence

| Option | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| Becoming mainstream | 90 | 44.12% |
| Maintaining the current situation | 84 | 41.18% |
| Dropping off | 20 | 9.8% |
| Impossible to predict | 10 | 4.9% |
| In total | 204 | 100% |

Furthermore, 174 respondents agreed that AI-assisted tools will achieve steady development or even prosperity in the field of English writing teaching within the next five years. It means that over 80% of respondents have a positive view to AI.

In summary, with the progress of technology and the continuous improvement of educational demand, as well as people's optimistic attitude towards new quality productive forces, AI-assisted English writing teaching in junior high schools is expected to achieve more in-depth teaching analysis, more personalized learning experience and more efficient teaching practice, thus promoting the modernization and intelligent development of junior high school English writing teaching.

IV. Strategies To Promote Artificial Intelligence To Junior High School

English Writing Teaching

Improving Media Literacy of Teachers About Artificial Intelligence

Media literacy refers to individuals' abilities to select, comprehend, question, evaluate, create, produce, and respond critically to various information disseminated through media. It originated in the United Kingdom in the 1930s. Since the advent of the internet era, media literacy has become one of the essential skills that every citizen should possess. Possessing media literacy lays a better foundation for integrating into the digital society, enabling individuals to gain fairness and respect in their work and life.

At present, with the transformation and upgrading of artificial intelligence technology, how to maximize their role in various disciplines and industries has become one of the most important topics in the current society. In the field of education, the application of artificial intelligence is inseparable from higher standards of media literacy of teachers. Therefore, teachers should take the initiative to understand and master AI technology, improve its application methods in teaching, and constantly reflect on their own teaching practices.

It is the primary task of teachers to improve their media literacy by establishing a sense of learning and understanding and exploring the basic functions of AI in English writing teaching. For instance, widely used English writing correction platforms powered by AI technologies, such as Youdao Writing, Lighthouse English Assistant, and Aim Writing, require English teachers to actively seek knowledge about and familiarize themselves with their operation modes. Teachers who are proficient in these technical tools can not only guide students in writing training more effectively, but also continuously improve their own teaching skills and levels, thereby significantly improving teaching efficiency. This process not only demonstrates the active application of advanced educational technology by teachers, but also reflects the importance of continuous self-improvement and professional development of teachers.

Next, teachers should actively explore the specific application strategies of AI in junior high school English writing instruction. Currently, the traditional task-based teaching still dominated English writing instruction, focusing on the evaluation of learning outcomes rather than the optimization of the learning process. Although task-based teaching method has proven effective in exam-oriented education, its impact on enhancing students' overall English language proficiency was limited. Therefore, while continuously enhancing their personal media literacy, teachers also need to explore innovative paths that integrate artificial intelligence with traditional teaching methods. For example, when implementing task-based teaching approach, teachers can introduce generative AI technology into the classroom. By guiding students to interact with artificial intelligence, it expands students' writing ideas and enhances students' understanding and application of sentence structure and vocabulary. This can not only make up for the shortcomings of traditional teaching methods, but also give full play to the auxiliary role of artificial intelligence, and ultimately improve students' English writing ability and language ability in an all-round way.

Meanwhile, in the process of enhancing their media literacy, teachers also need to continuously reflect on their own subjectivity. Teaching activities require “specific individuals” to cultivate “specific individuals”, which means that in educational practice, teachers should not simplify the core goal of “cultivating people” to the mechanized process of “making tools”, but should start from the “specific” situation of students' personality, interest, learning style and growth, and use the “specific” characteristics of teachers such as personality, emotion, attitude and values to teach students according to their talents, and integrate the vitality of human nature into every link of teaching activities.

Therefore, even though artificial intelligence can provide many conveniences for teaching, it cannot completely replace the role of teachers in the teaching process. Teachers are not only the disseminators of

knowledge, but also the guides of students' emotions and the formulators of values. Their subjectivity in the teaching process is irreplaceable. When applying AI technology, educators should ensure that teachers' leading position is not compromised and that technology serves as an auxiliary tool rather than the dominant force in teaching. This is also an essential component of teachers' media literacy.

Upgrading Infrastructure of Artificial Intelligence in English Writing Teaching

Before discussing the topic of enhancing the infrastructure of AI in English writing instruction, introducing the concept of "digital divide" can assist us in better understanding and addressing this issue. The concept of "digital divide" was first proposed by the National Telecommunications and Information Administration of the United States in its 1999 report titled *Falling Through the Net: Defining the Digital Divide*. The report aimed to illustrate that the development and application of digital technology had not made the world more equal, but had instead created new forms of inequality. According to the current research consensus, the digital divide can be divided into three levels: access divide, usage divide, and knowledge divide. The infrastructure upgrading of artificial intelligence falls within the first level of the digital divide, namely, the access divide.

The issue of resource allocation undoubtedly stands as a primary consideration in the upgrading process of AI infrastructure. Especially in China, the disparities in regional economic development levels have led to unequal distribution of educational resources, with the problem being particularly prominent in remote rural schools. These schools often face a dual shortage of teaching infrastructure and resources, which not only exacerbates the inequality between urban and rural education but also makes the digital divide between them increasingly apparent. According to data from the China Family Panel Studies (CFPS), while 85.6% of rural households have access to the internet, only 35.3% of them use computers for online activities. This implies that two-thirds of rural families are unable to effectively participate in online education.

Therefore, in the process of upgrading artificial intelligence infrastructure, educators must attach great importance to the issue of resource allocation. On one hand, the government and various sectors of society should increase investment in remote rural schools, improve their teaching infrastructure, and realize the "from nonexistence to pass into existence" in terms of artificial intelligence facilities. On the other hand, addressing the existing "digital divide" in remote rural areas requires the facilitation of resource flows between urban and rural areas through the internet. This can be achieved by fully utilizing open online education platforms, educational self-media accounts, and other content to access high-quality teaching resources, thereby providing rural students with more learning resources and opportunities. At the same time, rural schools in remote areas should pay attention to building their own exclusive teaching resource databases, enabling the flow and sharing of basic education information in big data, and realizing efficient utilization and transformation of teaching resources.

Addressing the issue of resource allocation is crucial to the upgrading of AI infrastructure. Only through reasonable resource allocation and intelligent approaches can educators gradually bridge the digital divide among different regions and promote the balanced development of education.

Establishing Personalized Profiles of Students in English Writing Teaching

With the increasing prominence of the student-centered educational philosophy, personalized learning, as a practical manifestation of this concept, has gradually been implemented. This approach focuses on the differences and needs of learners, tailoring learning content and paths, and providing personalized learning support and feedback. In the practice of junior high school English writing instruction, both generative artificial intelligence technology and intelligent writing correction platforms can effectively assist teachers in gaining a deeper understanding of each student's specific situation in English writing. Leveraging artificial intelligence technology, teachers can establish personalized learning portfolios for each student, thereby providing them with more precise and effective learning guidance.

Specifically, a highly adaptive artificial intelligence will play a fundamental role in promoting personalized learning. This adaptability is reflected in the ability of AI to flexibly provide personalized learning content and feedback based on the unique choices and needs of different learners. For instance, in junior high school English writing instruction, students often exhibit diverse vocabulary and sentence structures when completing the same composition. At the same time, there are also differences in individual students' lexical errors, grammatical mistakes, and other issues. Therefore, to accurately establish personalized learning portfolios for each student regarding English writing, it is essential to continuously enhance the adaptability of artificial intelligence to the teaching environment and individual differences among students.

After ensuring that the artificial intelligence system possesses sufficient adaptability, it is also crucial to stimulate students' subjective status in English writing learning. Personalized learning profiles are not only effective tools for teachers to gain insights into students' learning status, but also records of students' self-reflection and growth process. To fully utilize the subjective role of students, teachers should actively encourage them to actively participate in the construction and management of personalized learning portfolios, such as

regularly reviewing their English compositions, reflecting on and correcting writing errors, and so on. Additionally, teachers need to guide students to maintain an open and positive learning attitude, preventing them from experiencing anxiety or falling into the trap of utilitarianism due to the existence of personalized learning profiles. Through these measures, educators can not only cultivate students' self-management skills, but also effectively improve their English proficiency, enabling more comprehensive and profound development.

In addition, the establishment of student personalized profiles requires attention to their dynamic updates and assessments. Students' English writing skills will be gradually improved through continuous learning and practice, thus it is essential that personalized profiles keep pace with the times and reflect students' progress. To achieve this goal, teachers should regularly conduct thorough analysis and evaluation of students' personalized profiles, ensuring that the updates closely track the development of their English writing skills.

V. Conclusion

Under the background of continuous development of artificial intelligence technology and continuous attention to English in compulsory education, English writing teaching is facing new opportunities and challenges. In order to understand the status quo, causes and influences of AI-assisted tools in junior high school English writing teaching, the author conducted a questionnaire survey.

Based on the questionnaire survey on AI-assisted junior high school English writing teaching and theoretical study by other scholars, due to various practical factors, only a small proportion of schools and teachers have currently integrated AI into their English writing teaching practices. However, the application of this technology has indeed improved teaching efficiency and learning quality. In the future, educational AI is expected to continue its development and become more widespread.

Here are the main findings of this study: Firstly, the application of artificial intelligence in teaching will have a positive effect. Teachers often utilize functions such as content generation, grammar checking, and writing evaluation to support their teaching, thereby enhancing teaching efficiency. Students, according to the feedback from teachers, after engaging with AI, have generally shown an increase in interest and skill level in English writing.

Secondly, the application of artificial intelligence in junior high school English writing teaching has not yet become widespread due to various reasons. The lack of technological literacy and insufficient school resources are prominent causes for this situation. Additionally, educational AI is not yet fully mature, and some teachers have low efficiency in using this technology, which has also contributed to this phenomenon.

Thirdly, most teachers hold a positive attitude towards AI, and there is still room for progress in educational AI. A majority of teachers believe that AI-assisted tools will continue to be used and maintain their current development trend within the next five years. Among the teachers who have already used or are currently using AI, there is a higher demand for the quality of generated content, assessment accuracy, and practicality.

Fourthly, to promote the application of AI in junior high school English writing teaching, a series of comprehensive measures need to be taken. It is crucial to carefully consider the following specific strategies: (1) enhancing teachers' AI literacy to equip them with the ability to utilize new technologies in teaching; (2) upgrading relevant facilities to ensure the modernization and intelligence of the teaching environment; (3) establishing personalized learning profiles to meet the diverse learning needs of students. These measures are interconnected and mutually reinforcing, jointly constituting a complete strategic system for promoting the application of artificial intelligence in junior high school English writing teaching.

References

- [1] Moybeka A M, Syariatn N, Tatipang D P, Et Al. Artificial Intelligence And English Classroom: The Implications Of AI Toward EFL Students' Motivation[J]. *Edumaspul: Jurnal Pendidikan*, 2023, 7(2): 2444-2454.
- [2] Alqahtani T, Badreldin H A, Alrashed M, Et Al. The Emergent Role Of Artificial Intelligence, Natural Learning Processing, And Large Language Models In Higher Education And Research[J]. *Research In Social And Administrative Pharmacy*, 2023, 19(8): 1236-1242.
- [3] Hwang G J, Xie H, Wah B W, Et Al. Vision, Challenges, Roles And Research Issues Of Artificial Intelligence In Education[J]. *Computers And Education: Artificial Intelligence*, 2020, 1: 100001.
- [4] Ouyang F, Jiao P. Artificial Intelligence In Education: The Three Paradigms[J]. *Computers And Education: Artificial Intelligence*, 2021, 2: 100020.
- [5] Murtaza M, Ahmed Y, Shamsi J A, Et Al. AI-Based Personalized E-Learning Systems: Issues, Challenges, And Solutions[J]. *IEEE Access*, 2022, 10: 81323-81342.
- [6] Crevier, Daniel. *AI: The Tumultuous History Of The Search For Artificial Intelligence* [M]. New York: Basicbooks, 1993.
- [7] Laak K J, Aru J. AI And Personalized Learning: Bridging The Gap With Modern Educational Goals[J]. *Arxiv Preprint Arxiv:2404.02798*, 2024.