



The Application and Impact of Generative Artificial Intelligence in the Entire Process of Primary School Drama Education

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Abstract. With the continuous popularization of Generative Artificial Intelligence (Gen AI), the form and path of art education are also constantly being reshaped. This study mainly focuses on primary school drama education, aiming to explore the application mode and influence of Gen AI in its entire teaching process. This study adopts the methods of literature review and theoretical analysis. By sorting out some relevant research results, it analyzes the application and impact of Gen AI in the three stages of "before class - during class - after class". Research has found that at the application level, Gen AI can assist teachers in teaching design, classroom interaction, and post-class reflection and summary. Gen AI can stimulate students' creativity and enhance classroom interaction, but it also has drawbacks such as homogeneous creation and lack of empathy. This research theoretically contributes to the development of primary school drama education in the context of the digital intelligence era. Under the premise of making full use of technology to assist teaching, it promotes the coordinated development of students' digital literacy and artistic accomplishment.

Keywords: Generative Artificial Intelligence, Drama Education, Digital Education.

1 Introduction

In the era of digital intelligence, Artificial Intelligence technology is penetrating into all fields of society with unprecedented depth and breadth. The new generation of Artificial Intelligence has evolved from an emerging technology to a core force reshaping the relationship between the creative process and industries [1]. Education, as an important undertaking concerning the future development of humanity, is also undergoing a profound transformation driven by technology. In the field of drama education, new intelligent tools represented by Generative Artificial Intelligence (Gen AI) can not only assist teachers in lesson preparation before class, teaching during class and reflection after class, but also help in aspects such as intelligent simulation of drama teaching, establishment of teacher-student question-and-answer systems and divergent thinking [2].

Drama education in the primary school stage does not merely mean a performing art or a performing course. It cultivates, trains and guides students to form critical thinking, collective identity, collaboration ability and creativity through role-playing, teacher immersion and other methods [3]. The teaching process of drama education emphasizes situational experience, physical participation and improvisational generation, and has strong interactivity and cannot be completely preset. However, in current educational practice, drama education often faces problems such as insufficient teachers, scarce teaching resources, and single evaluation methods [4]. Especially in the integration of digital technologies, it is still in the initial exploration stage and there is a risk of being regarded as an outdated and unpromising discipline [5]. Although some research has begun to focus on the application of Gen AI in subject education, for art education forms like drama that highly rely on emotional communication and physical presence, how exactly can Gen AI be integrated into the entire process of "teaching design - classroom implementation - evaluation and reflection", and what impact will this integration have on the realization of teaching goals and the relationship between teachers and students' roles. There is still a lack of systematic theoretical exploration and empirical analysis.

Based on this, this study focuses on the application and influence of Gen AI in the field of primary school drama education. This research is of great significance for primary school drama teachers to promote the intelligent development of drama teaching. This study mainly conducts research from three dimensions: "before class - during class - after class", and uses the literature analysis method to search for and read relevant materials and literature. The ultimate research objective of this study is to explore the following core questions: In what specific ways does Gen AI intervene and influence the entire process of primary school drama education? What structural changes has its application brought to the realization of teaching goals and the interaction between teachers and students? Through literature review, this study attempts to construct a theoretical prototype of the "human-machine collaboration" drama teaching method, aiming to provide a reference for practical teaching paradigms for front-line teachers [6].

2 The Application of Gen AI in Primary School Drama Education

Generative Artificial Intelligence (Gen AI) is an Artificial Intelligence technology that automatically generates content based on prompts expressed by the human thinking symbol representation system [7]. Gen AI can automatically generate text, images, videos and so on, and is gradually penetrating into every aspect of the education field. In recent years, Gen AI has been initially applied in primary school drama education. While demonstrating multiple potentials, it also brings about a series of thoughts. This part mainly analyzes the relevant applications of Gen AI from the three stages of "pre-class implementation - classroom implementation - post-class evaluation" in the drama course.

During the pre-class preparation stage, teachers can utilize Gen AI tools (such as Chat GPT) to generate teaching process suggestions and interactive activity plans based on teaching objectives and student characteristics [8]. Gen AI can even propose some interdisciplinary integration ideas, such as how to apply the "Drama +" model to integrate drama with science, technology engineering and science, and stimulate students' interest in these disciplines through dramatic teaching methods [9]. In addition, in terms of preparing teaching materials, teachers can also use the Gen AI tool to quickly generate the plot framework of the script, and improve and optimize it on this basis. This is particularly suitable for converting fairy tales, fables and other texts into drama scripts [10].

During the in-class teaching stage, Gen AI is mainly applied in the part of interaction between teachers and students. On one hand, teachers can let Gen AI play a role and interact with students. This kind of role is not only that of a teacher and a student in the classroom, but can also be a role in a drama rehearsal. Teachers can input instructions to have Gen AI play any role in the script and have a dialogue between characters with students. This is conducive to more quickly immersing students in the dramatic situation and can, to a certain extent, address the problems of difficulty in getting into the role and low immersion. Also, they can dress AI up as an "expert" to communicate with students. In the interaction with students, by providing them with creative ideas through such an "expert" shell, the creativity of students can be better stimulated. This is also conducive to enhancing classroom participation, as it is difficult for teachers to take care of every student. This method is used to promote the progress of the script, cultivating students' improvisational expression ability and creativity [11]. On the other hand, teachers can adopt the "human-machine collaboration" teaching model for instruction. Le & Zhang have pointed out that, establishing communication between students and AI through AI voice or text enables students to ask questions and obtain information [6]. And it can assist teachers in conducting stratified teaching.

Finally, during the classroom discussion and reflection summary stage, Gen AI can serve as a "digital log" to assist teachers and students in reflection and summary. Gen AI can compile and archive drama-related audio and video, it can also record the full-process data of course teaching [2,12]. These materials can assist teachers in conducting teaching behavior analysis and teaching summary. In addition, Gen AI can not only provide inspiration for students' after-class drama discussion activities, but also help students build the framework of their scripts and offer script inspiration through dialogue and text generation, thereby assisting students in their script creation.

In conclusion, the application of Gen AI in the drama education process mainly utilizes its functions of generating text, videos, and images. However, since the sources from which Gen AI generates these materials are many existing resources on the Internet, teachers should be careful to distinguish the use of homogeneous or gender-biased and racially biased resources when using them [8].

3 The Impact of Gen AI on Primary School Drama Education

Professor Haseman once said that contemporary drama education has many possibilities [13]. Playwriting and drama performances might be able to break through tradition and connect with the audience through digital technology. Integrating digital technology into art education can enhance students' preparedness for the future and promote the sustainable development of art education [14]. Against such a background, this part explains the influence of Generative Artificial Intelligence (Gen AI) in primary school drama courses.

The impact of Generative Artificial Intelligence on primary school drama education is profound and multi-dimensional. To a certain extent, it has brought about innovations in teaching models and efficiency improvements. But at the same time, it has also triggered profound reflections on the essence of education, humanistic values, and technological ethics. This part aims to explore the impact of Gen AI on the teaching practice of primary school drama education and the roles of teachers and students, as well as the potential risks it poses.

One of the most significant impacts that Gen AI has brought to primary school drama classrooms is that it has made instructional design more intelligent. Gen AI can quickly generate initial drafts of scripts and teaching plans, thereby reducing the burden on teachers in lesson preparation. As Dai & Liu said, AI writing is the current trend [15]. Drama teachers should follow this trend when teaching and integrate AI into the writing of drama courses. Peng & Xia once held an "AI+ Drama" event in Shanghai, China [10]. In this activity, the teacher first used AI to form a draft of the script, and then continued to create the script based on this. Eventually, a script titled "The Adventure Journey of the Divine Beast Team" was formed, which has clear character settings and relatively lively and vivid language. During this process, they found that AI could help drama teachers organize the divergent thinking of primary school students, and at the same time, it also had certain advantages in stimulating inspiration and framework construction.

The interactivity of Gen AI has also enhanced communication between teachers and students and reshaped their relationship. In a normal teaching situation, a teacher usually has to deal with more than 20 students, which makes it difficult for them to take into account the individual development of each student and the communication with each student is also relatively limited. When Gen AI joins teaching as an assistant, it can become the second or even the third teacher in drama teaching to communicate with students. On this basis, it not only alleviates the teaching pressure on teachers but also enhances students' participation in class. At this level, students are more likely to shift from simple "listeners" to common "creators" of dramatic content. The construction of interactive meaning in the process of drama creation, multi-sensory cognition as a form of self-expression and creativity have all promoted communication between teachers and students as well as among students in drama classes [16]. During this process, the power structure in the classroom has also become more equal, with teachers, students and AI forming a creative community to communicate and create together.

4 Disadvantages and Improvement Suggestions of Gen AI

First of all, Gen AI has certain deficiencies in the emotional dimension. The content it generates lacks genuine emotional experience and warmth, making it difficult to convey the emotional appeal required in the process of drama education [17]. Moreover, it cannot truly empathize with students' joys, sorrows, anger and happiness in teaching. It can only obtain an answer for the majority through algorithmic simulation, and this answer may not be applicable to every student. In addition, excessive use of Gen AI in the teaching process may pose a risk of homogenization [8]. AI tools that rely on the same training data may generate formulaic scripts, characters and plots, resulting in students' works lacking individuality and originality. Meanwhile, if students develop mental inertia during the excessive use of Gen AI, their ability to conceive independently and solve problems independently will both be weakened.

Nevertheless, these risks are not impossible to prevent. First, teachers need to clearly define the boundaries of using Gen AI in their teaching concepts and must not allow it to be overly involved in the teaching process. During this process, teachers should always hold the initiative in teaching and remain cautious and skeptical about the content generated by Gen AI. In addition, it is necessary to design AI applications with the goal of cultivating students' creativity and empathy through drama teaching. Second, in terms of teaching strategies, teachers should adopt a critical attitude towards the content generated by Gen AI. In terms of scriptwriting, students should first come up with their own ideas and then refer to AI for optimization to prevent them from forming their own thinking patterns. One can also apply Peng&Xia's "grappling" creative approach, engaging in multiple rounds of dialogue and interaction, continuously questioning, questioning and correcting, and constantly optimizing the text content [10].

As a result of this, when conducting drama teaching, drama teachers should strike a balance between "auxiliary nature" and "humanistic nature". In the first place, teachers must always be clear that technology is merely an auxiliary tool for children's emotional growth and development. And teachers must not allow drama to become a subordinate of algorithms. Secondly, before the course begins, teachers should also explain to students the auxiliary role of Gen AI. This can prevent students from overly relying on AI and losing their own creativity to a certain extent. Finally, teachers should clearly define the boundaries of the use of Gen AI in the classroom. This boundary should be reasonably demarcated by teachers based on the number of students and their background.

5 Conclusion

This study mainly explored the application models and multi-dimensional influences of Generative Artificial Intelligence (Gen AI) in primary school drama education. It finally reached the following core conclusions:

Firstly, at the application level, Gen AI has already permeated the process of "teaching design - classroom implementation - post-class evaluation and reflection" in

drama classrooms. Specifically, it is manifested in assisting teachers with lesson plan design and script creation before class, helping teachers with scenario simulation and real-time feedback during class, and using the data recording function to assist teachers in process evaluation and reflection after class. This application approach implies that drama education is gradually shifting from the traditional teacher-led model to a "human-machine collaborative" co-creation model.

Secondly, in terms of influence, the impact brought by Gen AI is multi-dimensional. Its positive value lies in enhancing teaching efficiency and stimulating students' creativity, and training students' multi-level abilities through methods such as virtual role-playing and virtual dialogue. However, at the same time, teachers cannot ignore its risks: it may weaken the humanistic value of drama education, cause the emotional value of students to be empty, and its algorithm may bring about some negative ideas such as gender and racial discrimination.

Last but not least, the significance of "people" must never be overlooked in drama education. In the process of using Gen AI to assist teaching, teachers should always adhere to humanistic thought, and focus on cultivating students' imagination, emotional resonance, the joy of cooperation, and their personal perception of beauty. It must be made clear that technology is merely a tool to assist teaching and by no means can it replace the position of teachers. In future teaching practices, teachers can gradually explore the "drama +" teaching model. Not only "AI+ drama", but also various disciplines, which is conducive to cultivating students' comprehensive qualities and the ability to integrate disciplines. The advent of Generative Artificial Intelligence has brought not only a new set of tools to primary school drama education, but also an opportunity to promote drama education to re-examine the essence of education, reconstruct teaching relationships and reaffirm humanistic values.

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