The Impact of Generative Artificial Intelligence on the Role of Teachers in Art Colleges

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Abstract. The widespread use of generative artificial intelligence has brought new challenges to teachers and requires teachers to change their role. Against this background, this study analyzes the main challenges faced by teachers in terms of teaching methods, teacher professional development, and educational value rationality in art college. Besides, the internal mechanism of the transformation of teachers' role positioning was analyzed, from instructional leaders to collaborative learning facilitators, from knowledge transmitters to technology users, and from skill demonstrators to value guides. On this basis, a practical path for reshaping the role of teachers is put forward in a targeted manner, which is to guide teachers to enrich their knowledge structure, improve their intellectual literacy, and strengthen their value guidance. Teachers of art college must keep up with the changes of the times and make adjustments to teachers' roles to adapt to the transformation of higher education in the digital era.

Keywords: generative artificial intelligence; art colleges; teachers' role; educational impact

1 Introduction

The integration of artificial intelligence (AI) technology and education has become an inevitable trend. With the increasing accessibility of generative AI, it has impacted school education in numerous ways, including the role of teachers. Most of the discussions occur in higher education about generative AI applications such as ChatGPT, which is likely one of the rapidly expanding technologies ever embraced by the global community. Netflix achieved 1 million users in a span of 3.5 years, while Facebook accomplished the same feat in a mere 10 months. Spotify achieved this milestone in approximately 5 months, and the iPhone reached 1 million users in a remarkable 74 days. It is astonishing to note that the worldwide user base reached 1 million users in just 5 days[1]. The recent widespread adoption of ChatGPT has shown its usage for the technology involving software development, essays and poetry, which allows users to generate new content by typing their requests [2]. Generative AI can use the method of deep learning to produce automatic pictures by learning a large number of works of art, which can greatly shorten the production time of art works. However, it has also aroused concerns about the difficulty in differentiating human versus AI authorship in the education domain and debates on the significance of traditional human endeavors [3]. Meanwhile, it can enhance students capabilities of learning and collecting information. Whereas applicants like ChatGPT may not be completely correct, while it still generates inaccurate outputs. Whether students have the ability to judge what is generated by AI is reliable and correct?

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Some teachers are reluctant to allow students to use applications in their assignments, while others are willing students to do. Therefore, it requires taking into consideration how to develop students' soft skills, such as critical thinking, creativity and decision-making, complex problem solving, that takes into account various teaching and learning spaces (e.g., classrooms, meeting rooms, the industry) using new digital technology [4]. These applications can act as teachers, designers, tutors and coaches which change the role of traditional teachers. Meanwhile, generative AI changes the content and means of teaching, and will also change the relationship between teachers and students. Compared with other schools, teachers in art colleges may be more inclined to cultivate students' artistic skills and creativity through practical guidance, personal guidance and digital environment. Generative AI may lower the threshold of creation, high quality of art works require fine craftsmanship and artistic aesthetics, which cannot be replaced by computers. This implies that teachers play a significant role in students' learning and skill teaching in college. The role of teachers not only affects the process of education, but also determines the effectiveness of efficiency. Thus, this study aims at exploring how teachers in art colleges change their roles to cope with the widespread use of generative language models in education.

2 Challenges brought by generative AI to art college teachers

In traditional educational activities, teachers are the organizers, leaders and guides of educational activities, who are the main body of educational practice. Teachers' teaching practice is transmission of their knowledge, skill and emotion. As AI has applied in the field of education, diverse human-computer integration and ubiquitous intelligent education break through traditional knowledge production and expand the breadth and depth of knowledge dissemination, which is reflected in teaching methods, classroom management, teaching evaluation, etc. All this has had an impact on teachers' knowledge dissemination and caused serious challenges to teachers' teaching, professional development and explore of educational value rationality.

2.1 Challenges of generative AI to teaching methods

With the emergence of teaching models such as MOOCs, flipped classrooms and robot education based on artificial intelligence and big data networks, massive amounts of knowledge and information are emerging on interactive media such as tablets and smartphones. Students' sources of knowledge are becoming more and more diverse and extensive. This will directly impact the main position of teachers as knowledge imparters that changes in teaching methods.

By the widespread use of AI technology, the intellectual authority of teachers is challenged. Generative AI, such as ChatGPT and Amelia, has the potential to revolutionize the conventional faculty-centered approach by offering 24/7 access to virtual instructors equipped with globally recognized expertise, who are available in multiple languages and formats, accessible through any device, ushering in a new era of education[5]. This may transform the role of teachers into facilitators of learning and implementation, which towards a student-centered educational paradigm.

Changes in the way students acquire knowledge and the role of teachers will, to a certain extent, lead to changes in the form of classroom organization, from class teaching to flipped classroom, project-based teaching, group cooperation and other forms. On the one hand, with the support of technology, students' learning preferences and learning needs can be met. In the future, personalized learning, cooperative learning, self-adjusted learning, etc. may become the new normal of learning. For example, AI technology can imitate different styles for drawing and the animation generation, reducing the difficulty of hand-drawing for students. On the other hand, ChatGPT can enhance innovative teaching and learning methods such as the flipped classroom, project-based teaching and blended learning. By providing introductory reading materials, ChatGPT enables students to engage in higher-level analytical and practice with faculty during class. This approach promotes active learning and has the potential to revolutionize the education sector, shifting the focus towards practical training and the development of applied life skills [6].

2.2 Challenges of generative AI to teachers' professional development

The professional quality of teachers is closely related to the background of different times. In traditional teaching, teachers assume the responsibility of "preaching, teaching, and solving problems" by efficiently transferring subject knowledge. In the era of artificial intelligence, the needs for precise teaching and students' personalized learning pose challenges to teachers' professional qualities and become the internal driving force for teachers' professional development.

Teachers should have good AI literacy. They need to familiarize themselves with generative AI and learn how to effectively integrate them into their teaching practices, which requires time and effort to understand the capabilities, limitations, and appropriate use cases of the technology. When it comes to academic integrity, models like ChatGPT raise concerns about potential academic misconduct. Nevertheless, ChatGPT and similar AI models also offer various advantages that can significantly enhance educational practices and student learning. . It is conceivable that in the future, AI-based systems could predominantly undertake the task of correcting students’ assignments, providing more comprehensive and expedited feedback for both formative and summative assessments compared to human. If students have applied generative AI applications in their study, teachers should be able to understand how these applications work, in order to judge whether these are suitable to use in their curriculum.

AI constantly evolves, generating up-to-date and extensive information. Teachers must keep pace with these advancements to ensure the accuracy and relevance of the content they deliver to students. This requires continuous professional development and staying informed about the latest developments in their respective fields. The most essential for teachers is to have the ability to learn and maintain problem awareness, so as to cope with changes. On the one side, teachers need to improve their AI skills to apply them to students’ teaching and learning. Adhere to the concept of lifelong learning, view changes in educational technology from a research perspective, and use theory to guide practice to promoting changes in teaching methods. On the other side, by the generative AI applications are Chatbots, users should be able to use broader or more specific questions to challenge the responses from ChatGPT. The previous research also proposes that the utilization of questioning skills contributes to the development of critical thinking abilities [7]. Teacher questioning skills enhancement and the

cultivation of student questioning skills are important in professional development programs, particularly in the context of generative AI-based learning environments.

2.3 Challenges of generative AI to educational value rationality

Max Weber thought that humans had two kinds of rationality: instrumental rationality and value rationality[8]. Instrumental rationality is a rationality that focuses on efficacy and takes technologism as its development goal, and corresponds to value rationality that give priority to the meaning of human existence and life consciousness[9]. Value rationality is people's understanding of behavioral norms and norms in social life, and it is people's accurate grasp of social nature. Marx believed that value rationality was the expression of the social relationship between individuals and others [10]. Educational value rationality means that teachers use their own value rationality as the support to understand the attributes, potential, understanding and application conditions of the value relationship between the knowledge teaching content and the subject and society, so as to form a grasp of the value attributes of the knowledge teaching content . Educational value rationality needs to be embedded in educational activities and transmitted through teachers.

Firstly, teachers should pay attention to students' personality development. Teachers can use generative AI to simulate teacher's behaviour. With the help of ChatGPT technology, teachers can follow the rules of teaching, design and integrate the resources generated by ChatGPT in a purposeful and planned manner in order to teach students in accordance with their aptitude. Secondly, teachers need to guide students to establish correct values and cultivate students' moral character. ChatGPT generate content without human supervision and may produce fake information at scale becomes significantly easier and faster. Given the capability to generate copious amounts of unverified unilaterally-biased content, there is a potential for the creation of a false perception of majority opinion. Thirdly, the relationship between learner and knowledge has to rebulid. Students are more inclined to socialize on virtual networks and disconnect from real life. Though communication and cooperation, teachers would establish visual digital scenes that are related to the real world, so as to enhance students' relationship with nature and society.

3 The transformation of teacher roles under the influence of generative AI

With the iteration of AI technology, the role of teachers needs to be reshaped. The field of higher education is a gathering place for conceptual innovation and innovation. Teachers of art college think deeply about changes in educational concepts, teaching methods, and learning methods and actively respond to the challenges of generative AI.

3.1 Shifting from instructional leaders to collaborative learning facilitators

Teachers would change from imparters of knowledge to stimulators of students' learning motivation. In traditional education, schools are the main place where teachers take the initiative in the entire learning process, control the progress of students' learning, and influence students' learning effectiveness. Nowadays, the acquisition of learning opportunities

has become more diversified and convenient. Students become helmsmen of their own learning process, and personalized learning becomes the normal.

In the process of personalized learning, teachers need to cultivate students' problem awareness and effectively grasp the essential knowledge in a large amount of information. The optimal students, alongside educators, will discover innovative methods for engaging with technology. Deliberate consideration is necessary regarding the instructional framework that encourages students' utilization of ChatGPT as a co-curricular and learning design tool. Therefore, sufficient curiosity and innovation ability are required. Compared with giving students knowledge, how to stimulate students' curiosity for learning is a question that teachers need to explore. We should try to connect knowledge with students' actual life, help students construct knowledge, guide students to sort out the internal relationships of knowledge points, explore the evolution rules of knowledge, and construct their own system.

Teachers and students should collaboratively explore the diverse applications and limitations of this technology, enabling its utilization in unprecedented ways. Many scholarly articles have been published on platforms such as SSRN, and other expedited publication outlets, offering high-quality in-class exercises and assignments that facilitate student experimentation under the professor's guidance. For instance, a teacher can assign students the task of utilizing ChatGPT to compose an essay relevant to the course. Subsequently, teachers can prompt students to critically evaluate the essay, facilitating an exploration process that involves a comprehensive analysis of its strengths and weaknesses [11].

3.2 Transitioning from knowledge transmitters to technology user

Traditional teachers are more of knowledge transmitters, which is the characteristic of social changes. In the era of AI, knowledge is growing exponentially. If teachers are still obsessed with the role of knowledge transmitters in traditional classrooms, they will be submerged in the historical tide of AI. In virtual networks, information is superficial and homogeneous, and virtualization leads to the weakening of interaction between teachers and students, which greatly reduces students' valuable knowledge creation and value judgment abilities. Therefore, teachers need to integrate resources, construct their own curriculum knowledge system, and help students complete the construction of knowledge and experience, becoming the constructors of curriculum knowledge.

Under the cross-border integration of ChatGPT technology, teachers should use it to organize and design course resources, and guide art college students to use generative AI for painting or design. In actual production, basic paintings or designs can already be generated using ChatGPT. Faced with this situation, it is worth thinking about the future development of students in art colleges. Specifically, teachers can serve as cooperator in AI technology and integrate teaching concepts and learners' needs into the research and development of AI technology, so as to deepen and expand teachers’ subject ontology knowledge, accelerate the accumulation of practical knowledge. By interacting with ChatGPT, teachers and students can quickly generate multiple design works, evaluate and improve them.

However, teachers need to understand the limitations of GPT to fully utilize the potential of ChatGPT and ensure the effectiveness and quality of teaching. In other words, on the one hand, teachers should face up to the changes brought by technology to higher education and use technology correctly to promote educational innovation; on the other hand, they cannot rely on

the "technical support" role of AI and must insist on the dominant position of human beings to promote the all-round development of human beings.

3.3 Evolving from skill demonstrators to value guides

Things generated by AI are currently difficult to detect. Teachers need to determine whether students' design works or paper writing are created by themselves or AI. It has aroused discussion in the field of education that students will use generative AI to write articles and complete assignments and even dissertations, but the students' abilities have not met the standard. Similar concerns are being observed in various domains, such as speeches, business leaders' addresses, song lyrics (in a specific style), art, music, and advertising writing. While there are multiple approaches to comprehend ChatGPT, the ethical perspective remains a significant concern, as it does with any AI system.

Students are growing up in an online environment. Teachers not only need to teach students to use generative AI to work, but also need to cultivate students to establish correct values. Hence, teachers can stimulate students' spontaneity in moral behavior. In traditional education, instilling moral education ignores the process in which values need to be carried by practice. This kind of teaching method will separate the meaningful connection between people and the world. At present, teachers need to pay attention to the real society and proactively design interesting classroom activities in various situations through generative AI technology, so as to combine intelligent technology with the lifelong development of learners.

Meanwhile, teachers need to be emotional protector. Students who only pursue instrumental and rational data processing, but ignore irrational emotional communication, are prone to psychological anxiety, mood swings and social barriers. Therefore, teachers not only need to help students choose learning resources and critically judge the results of generative AI output, but also focus on students’ psychological guidance and ideological value guidance, and pay attention to personal problems that arise in academics, life, and interpersonal interactions.

4 Reshaping the role of teachers in art schools

With the emergence of generative AI, the ways for students to acquire knowledge and strengthen skills have become diverse, and the role of teachers as knowledge transmitters has been challenged. Whether they are learning facilitators, technology users or value guides, they all indicate the new positioning of teachers' roles. Clarifying the path of changing and reshaping the role of teachers in art colleges and guiding students to establish a sense of science and technology ethics has become a problem that teachers need to face.

4.1 Enrich the knowledge structure

AI has changed the learning ecology, strategies and space based on knowledge production. Teachers should adapt to the changes in learning methods and improve the knowledge structure to achieve self - improvement by the use of technology applications. Generative AI applications are more useful in classroom which they have to learn more about their development and how they work. Teachers should try to combine AI with new classroom organization forms, such as project-based learning, flipped classroom and blended learning. For teachers in art schools, it is particularly important to cultivate students' practical abilities,

which can train students' aesthetic abilities, design abilities or painting abilities in practice. In this way, students' AI operating capabilities can be improved to adapt to the technological development of society.

Additionally, teachers need to establish the concept of lifelong learning and be constructors of knowledge. Generative AI applications have changed the way knowledge is produced, Besides, the production method of art is not limited to teaching. Several design or painting workers in the market have been replaced by AI for painting or design can be produced from generative AI. Higher education needs to serve society that requires teachers to keep up with the trends of the times. Meanwhile, information technology is used to create new knowledge, share new knowledge based on smart environments, and effectively transfer new knowledge to students, providing students with research methods, tools and resource services. It's significant for teachers to have objective and tolerant attitudes towards new things and enrich their own knowledge. Teachers should not be satisfied with the role of traditional knowledge transmitters, but should correctly view the production and dissemination methods of AI, establish a lifelong learning, actively learn how to use generative AI.

What's more, teachers should strengthen technology to have a good AI literacy. In the context of digital transformation, there is an increasingly urgent need for the development of teachers' professional knowledge, experience and skills. Therefore, teachers should use AI applications and intelligent sharing platforms to update their teaching, which can improve teaching levels from teaching content, methods and evaluation, using intelligent feedback of information data, collaborative communication and other methods. Students like to use mobile phones in class, and teachers can allow students to use software to participate in classroom activities, such as answering questions and participating in class discussions. Teachers can cultivate students' information literacy by collecting student learning information, accurately analyzing students' learning interests and formulating personalized learning plans.

4.2 Improve intellectual literacy

The progress and development of AI is inseparable from intelligent literacy. Teachers need to adapt to the intelligent environment, take advantage of human-machine collaboration, and build a human-machine integrated thinking model. In general, teachers' intelligent literacy mainly includes human - computer collaboration literacy, innovative ability literacy, and humanistic literacy.

Firstly, teachers should strengthen human - computer collaboration literacy training. For teachers, they must be proficient in generative AI technology and have basic judgment on these technologies. Teachers need to possess a comprehensive understanding of the functioning of generative AI applications to effectively facilitate teaching and learning in the classroom.

Secondly, teachers should have innovative abilities. Innovation ability literacy refers to teachers' active use of AI technology in the process of knowledge construction to stimulate students' creativity and innovation consciousness. For students in art schools, the cultivation of innovative ability is crucial. Teachers need to have innovative awareness and promote the shift from "teaching" to "learning".

Thirdly, teachers must have a sense of subjectivity. If teachers have to rely on technology for a long time, their subjectivity will be weakened. Teachers must have a clear understanding of their profession. Once cognitive bias occurs driven by technology, the value rationality and educational function of education will be affected. Although AI technology itself has no value rationality or educational function, the developers behind the technology are value-oriented. Teachers carry the mission of cultivating morality and cultivating people, and must adhere to the subjective consciousness in the use of technology.

4.3 Strengthen value guidance

Although ChatGPT technology has expressive capabilities, it cannot be equated to a real teacher. The group that teachers work with is students, which has unpredictable factors, such as psychology, emotions, etc. In teaching, teachers guide learners to understand and internalize knowledge. In this learning and communication process, the emotional communication between teachers and students is an area that artificial intelligence technology cannot touch.

Humanistic literacy is reflected in the guidance of students' humanistic care, emotional attitudes and values. AI is a technological achievement and has no emotional attitude. Teachers should actively pay attention to students' learning experience and emotional issues. Most college students are "natives" of the digital age, and as they grow up, they often face real-life conflicts brought about by virtual space and online identities. Therefore, teachers should guide students to think critically about technology when using AI teaching, and strengthen guidance on life experience and learning life, in order to cultivate physically and mentally healthy college students.

Under the background of AI technology, teachers need to break through the traditional teacher-student role. On the one hand, cultivating moral character and cultivating people is still the foundation of education. The essence of education is a social activity that cultivates people. No matter how advanced technology is, it is only a derivative of cognitive thinking and creativity. On the other hand, the healthy development of students requires the guidance and cultivation of teachers with correct conscience, values, morals and other qualities. AI technology is neither ethical nor immoral. The widespread use of AI technology has triggered discussions on moral education. Teachers should make full use of the accuracy and personalization of artificial intelligence technology to strengthen students' judgment of right and wrong.

5 Conclusion

In the face of unstoppable technological changes, digital education has brought new challenges to the transformation of teachers' role. There is a need to recognize that future teachers should be able to respond to a changing world. This study analyzes the challenges that AI brings to art school teachers from three aspects: teaching methods, teacher professional development, and educational value rationality, and explores the transformation of teachers' role positioning to explore the internal mechanism and practical path of the role transformation of art school teachers. It is worth noting that a new round of scientific and technological revolution and industrial revolution are in the ascendant, and deciphering the

changes in the roles faced by teachers requires the efforts of many parties to realize the fundamental individuality of teachers' role positioning.

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