Role Transformation of Teachers in Higher Vocational Colleges under Artificial Intelligence Assisted Art Creation: A Qualitative Study of Art Design Teachers

Jiabao Wu[1], Luis Miguel DOS SANTOS[2]

[1]Changzhou College of Information Technology, China
[2]Department of Counselling and Psychology, Hong Kong Shue Yan University, Hong Kong SAR, China

Abstract: *Artificial Intelligence (AI) technology has made remarkable progress in image processing, speech synthesis, intelligent creation, etc., and has shown great potential for application in artistic creation. In the teaching scenario of higher vocational colleges, teachers not only bear the responsibility of cultivating students' hands-on ability and creative thinking but also need to constantly adapt to the teaching changes brought about by technological advances. With their strong digital intuition, creative thinking and flexible adaptability, young art design teachers can make better use of AI technology to assist artistic creation, improve teaching quality, and enrich students' creative learning experience. Traditional art education usually relies on teachers to impart knowledge, guide practice, and evaluate works in the classroom; however, the widespread application of AI technologies has brought about a revolutionary transformation in art education, and new educational resources such as generative design tools and online assisted design platforms are gradually changing the traditional teaching mode and the role of teachers. Using self-efficacy theory and social cognitive career and motivation theory as a framework, this study investigated twelve in-service young art design teachers through 1) semi-structured interviews; 2) focus group discussions, and 3) member-checking interviews. The researcher analysed the data using a general inductive approach to capture the following core themes: 1) new role orientation; 2) continuing professional development and 3) support from society and educational institutions. Institutional support. The results of the study help to deeply understand the relationship between AI and art education in higher vocational colleges, clarify the self-worth positioning of young art design teachers in the new era, and provide theoretical support and practical guidance for the transformation of teachers' roles and the professional development of art education.*

Keywords: Role Transformation, Artificial Intelligence Technology, Arts Education, Teacher Professional Development, Higher Vocational Colleges.

1. Introduction

The dawn of the AI era has become a hot topic of public debate as products such as ChatGPT and Sora launched by Open AI have entered the public eye. In 2022, five different AIGC painting apps were launched by five companies, including Google, Open AI, Meta, Midjourney, and Stability AI. More and more artists are using AI technology, and galleries and auction houses are increasingly interested in AI art, fueling discussions on various practical and theoretical aspects of this new movement (Cetinic & She, 2022). According to several studies, in addition to helping students develop personalised learning plans for art design (Yu et al., 2019), the use of AI in art education opens up new possibilities for the creation of personalised knowledge bases, allowing for a better understanding of the benefits of combining the human brain with computers (Tao et al., 2018). However, the role of the teacher has become particularly critical in AI-driven educational innovation and development (Shen & Su, 2020). Therefore, it is necessary to explore how art education in the age of intelligence can not be confined to the barriers of instrumental rationality, where to go as a teacher engaged in art education, and how the role of teachers should be positioned and transformed under AI-assisted art creation.

1.1 The Research Background

As a product of human spiritual activities, art is inevitably affected by the intelligent era in terms of creative subjects and appreciation activities. When technology gradually evolves from a tool to a thinking and paradigm, art also enters the digital context of the intelligent era. The relationship between artificial intelligence and art includes three levels: external openness, internal openness, and interaction between subject and object (Jin, 2022). Some scholars argue that "AI-generated products can be associated with the concept of art and conform to the subjectivity and standards of art (Hong & Curran, 2019). In addition, AI technology provides new ways and means of creation for art design and offers audiences a richer, more convenient, and more personalised art experience (Zhang, 2023). Artificial intelligence technology has made great progress in image processing, speech synthesis, intelligent creation, etc. It has great potential for application in art creation，and human-machine collaboration is the future of art creation. Traditional art education often relies on teachers' guidance. Teachers play an important role in imparting knowledge, guiding practice and evaluating work in the classroom. However, there is a potential intersection between the increasing rise of artificial intelligence and art education (Pente et al., 2022). How art is created and educated is changing profoundly with the development of digital technology and artificial intelligence. In the digital age, integrating online education, AI, and big data mining is crucial to the development of art education (Wang, 2020). In addition, there are many possibilities for applying AI technology in art education, which can provide new educational resources such as intelligent online teaching platforms, automatic image generation tools, and intelligent analysis of works. AI technology has been used for artistic creation and cultural education to enhance creativity and communication skills,

including critical analysis and creative thinking using AI-generated images (Kim, 2023). The role of AI is to enhance pedagogical communication and feedback, broaden the scope and perspectives of teaching and learning, and improve instructional management and course delivery for arts professionals (Yang, 2020). Also, big data analysis and multimedia teaching can enhance the efficiency of art education (Zheng, 2023).

Secondly, there is a shift in the traditional role of teachers in the educational process, as well as pressures and challenges to find ways for teachers to cope with AI technology, first, in terms of role identity. Some studies have shown that teachers in the age of AI are mentors of students, facilitators of learning, participants and collaborators in the learning process, learners of knowledge, and researchers of teaching and learning (Chen, 2018). Although AI can automate tasks, it cannot replace teachers in the more complex aspects of higher education (Fahimirad & Kotamjani, 2018). AI cannot completely replace the role of teachers; the nature of education, the value of the teacher's role, and the teacher's beliefs in education remain unchanged (Zhao & Zhang, 2021). Researchers believe that teachers in the age of AI should play an important role in leading students' character as data analysts full of data spirit and as adaptors, users, and leaders of AI (Miao & Yao, 2021). In addition, some researchers have proposed a manifesto to guide the evolution of teachers' roles based on the concept of paradigm shift proposed by Kuhn in science (Gentile et al., 2023). However, AI as a "technology" and "tool" that can empower art creation and art education has limitations and problems at different levels. Whether art teachers' creative knowledge and skills will gradually be replaced, students may use these tools more easily to create without relying on teachers' guidance. Instead of paying sufficient attention to the subjectivity of the teacher's role, excessive technologisation of education has had a significant negative impact on teacher-student and student-student relationships, weakening the role of the teacher's personality connotations in nurturing and weakening the educational goal of being a role model for others (Laura & Chapman, 2009).

Thirdly, AI technology focuses on students' personalised learning, where students are free to choose the knowledge that interests them in a state of technological freedom (Wang, 2021). This coincides with the idea of personalised art education. Some students had mixed views on integrating AI into the art classroom. Some students view the relationship between AI and creativity positively, while others are fearful and worried about AI (Morajda, 2022). Artificial intelligence still has many weaknesses, mainly in "human inadequacy", such as convergent thinking but lack of divergent thinking, lack of complex communication skills, lack of emotions such as empathy and curiosity, and lack of comprehensive ability to wrap things up like the human brain (Wang, 2018). However, art education must be orientated towards students' life world, enrich their life experience and emotional accumulation, further develop their imagination and creativity, promote their thinking about values and meanings, and cultivate their humanism in the pluralistic connection of individuals, society, culture and machines (Yi, 2021). As an important position for talent cultivation, art educators should face up to the development trend of intelligent technology and think about the change in art education. Art education should cultivate personalised and diversified talents and students' creativity so that creativity and personalised cultivation complement each other.

1.2 Purpose of the Study and Research Questions

This study focuses on the reasons, positioning, dilemmas, and challenges faced by teachers engaged in art education in higher vocational colleges facing role transformation under artificial intelligence-assisted art creation, as well as the main issues that need to be focused on in terms of their professional development and personal career planning, analysing how teachers of art design can cope with the pressures of the age of artificial intelligence, and proposing the relevant structure for professional belief enhancement. Based on self-efficacy theory (Bandura, 1982) and social cognitive career and motivation theory (Dos Santos, 2021, 2022; Kwee, 2021), this study aims to understand and investigate how teachers of art design majors in higher vocational education can make role positioning and transformation under the artificial intelligence technology-assisted art creation, including the role transformation facing the dilemmas, how it affects the quality of teaching, personal career and art education. Based on the nature of the research, this study is guided by three research questions.

1) What are the changes in art education in the era of AI?

2) How can art design teachers in higher vocational colleges apply AI technologies (concepts, applications, platforms, etc.) to assist teaching?

3) What dilemmas does AI technology bring to the professional development of art design teachers in higher vocational colleges? How should creativity and professional beliefs be enhanced?

## 1.3 Significance of the Study

This study focuses exclusively on teachers engaged in art education at higher vocational colleges in China. It provides insights into their educational background, teaching experience, transformation of teaching methods, and how they adapt to the application of AI technology in art teaching. First, the results of this research contribute to an in-depth understanding of the relationship between AI and art education; secondly, it provides insight into the difficulties encountered by teachers of art design in higher vocational colleges in the transformation of their roles and provides theoretical protection for their role orientation and personal, professional development. Finally, it tries to construct coping strategies to clarify teachers' self-existence value, enhance professional competitiveness, and contribute to the transformation of art education in higher vocational colleges in the era of AI.

2. Theoretical Framework

Self-efficacy theory (Bandura, 1982) and Social Cognitive Career and Motivation Theory (Dos Santos, 2021, 2022; Kwee, 2021) were used to understand and examine the reasons for dilemmas faced by and strategies for coping with the changing role of teachers. Self-efficacy theory was developed

by Bandura (1982). The theory suggests that an individual's confidence in his or her skills influences his or her actions and achievements, not only in personal motivation and behaviour but also in the ability to control the social environment. Specifically, individuals with high self-efficacy tend to perform tasks they believe they can do successfully and thus are more likely to achieve good outcomes. In contrast, individuals with low self-efficacy may avoid more difficult challenges. Ways to enhance self-efficacy include providing experiences and models of success, and social support and positive feedback are also key factors in developing positive self-evaluations. Self-efficacy is primarily shaped by (1) Mastery Experiences (Performance Outcomes), (2) Vicarious Experiences (Social Models), (3) Social Persuasion, and (4) Psychological and Affective States are formed from four sources. This theory can explain how teachers' cognitive processes and environmental factors shape behaviour and guide their motivation and likelihood of success in achieving their goals, particularly in terms of enhancing their confidence and adaptability in dealing with new technologies.

The Social Cognitive Career and Motivation Theory (Dos Santos, 2021, 2022; Kwee, 2021) builds on two theories such as the Social Cognitive Career Theory (Lent & Brown, 1996; Lent et al., 1994) and the Social Cognitive Theory (Bandura, 1989, 1992). Based on these two theories, the Social Cognitive Career and Motivation Theory states that internal and external factors can influence an individual. First, social cognitive occupation and motivation theory states that individuals think, motivate and behave due to their psychological and internal thinking. In this direction, it is referred to as psychological and internal factors with self-efficacy (Bandura, 1995). The psychological and internal factors involved in self-efficacy affect 1) achievement of educational and career goals, 2) personal considerations, and 3) academic interests. Second, external social factors influence 1) interest in career development, 2) financial considerations, and 3) the surrounding environment and the individual (Figure 1. shows an example).
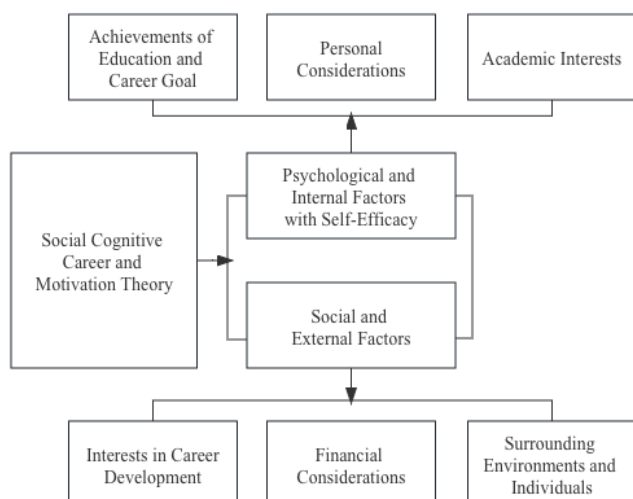
Figure 1: The Social Cognitive Career and Motivation Theory (Dos Santos, 2021)

What makes the Social Cognitive Career and Motivation Theory (Dos Santos, 2021, 2022; Kwee, 2021) useful, in this study is that it can guide researchers and scholars to understand how teachers of art design perceive their roles in the context of the development of AI technology-assisted art

creation, and how they adapt and transform to respond to the art education demands and challenges. In addition, this theory helps researchers gain insights into teachers' motivations, beliefs, self-efficacy, and professional aspirations, as well as how these factors interact with their teaching practices and professional development in art education. With this insight, educators and policymakers can better support teachers' professional development in the age of AI to ensure that they can provide high-quality arts education to their students.

3. Methodology

3.1 General Inductive Approach

This study adopted the general inductive approach (Thomas, 2006), a systematic approach to extracting themes and categorising from qualitative data. The general inductive approach enabled the researcher to effectively identify patterns in the data, which led to a deeper understanding of the process of transforming the role of the teacher. By generalising participants' perspectives, the researcher understands how these reflect their interpretations of their role transitions and implications. The choice of a generalised inductive approach to the underlying qualitative research data was justified by the high degree of flexibility and adaptability of the method in exploring participants' experiences and extracting in-depth data.

3.2 The Participants

Based on a purposive sampling strategy (Creswell, 2007; Merriam, 2009), the researchers recruited and invited 12 participants for the focus group, including 8 males and 4 females. They were currently serving teachers of art design at higher vocational colleges in China, with an average of eight years of teaching experience, ranging from three to fifteen years. First, 12 participants were contacted and invited to participate in this study based on the researcher's network. Invitation letters were emailed to potential study participants, and 16 invitation letters were sent out. Eventually, 12 people decided to participate in the study. Next, once the participants agreed to this study, the researcher formally sent consent forms, the purpose of the study, data collection protocol, risk statements, procedures and related materials. All signed and agreed to the procedures of the study. In addition, participants were required to meet all of the following conditions.

- All participants should have experience in training and activities related to art design assisted by AI technology.

- All participants should have experience applying AI technologies to teaching practices, such as using AI tools, applications, and platforms to assist in teaching art design courses or participating in related art education projects.

3.3 Date Collection

Three data collection tools were used, including 1) semi-structured interviews,2) focus group activities, and 3) member check interviews. First, according to Creswell, the interview instrument is one of the commonly used data collection tools in qualitative and educational research. According to Seidman,

to collect rich and comprehensive qualitative data in social science and educational research, it is recommended to conduct multiple interviews. Indeed, life stories and personal backgrounds cannot be answered in a short time. If multiple interviews are conducted with individuals, some depth of understanding and life stories may be gained. Therefore, the researcher decided to conduct two interviews with each participant. According to this protocol and arrangement, the researcher asked the participants to participate in two virtual, semi-structured, one-on-one private interviews.

In addition, after all participants completed the interviews, the researcher scheduled focus groups (three groups of four participants each) to collect stories based on the group discussions. Due to geographic location and time differences, the focus group activities were conducted through a virtual application.

After all participants had completed the data collection process, the researcher sent the relevant data to the participants for confirmation. The researcher arranged a member check interview session to confirm the validity of the qualitative data. To protect the privacy of the respondents, the code of the respondents represented the "serial number-teaching age-gender" of the respondents. For example, 01-4-F represents female teacher 01 with four years of teaching experience.

3.4 Data Analysis

A grounded theory approach (Strauss & Corbin, 1990) and a generalised inductive approach (Thomas, 2006) were used to narrow and examine the data. Firstly, the researcher collected interview data and audio files and transcribed these materials verbatim into text transcripts. The researcher reread the transcripts and qualitative materials several times to identify potential themes and sub-themes. Next, this large amount of data was categorised to compile into meaningful units using open coding techniques to categorise the connections, themes and sub-themes within it. Based on the themes and sub-themes from the previous step, the researcher employed axial coding techniques to narrow the data further. As a result, three themes were categorised.

4. Findings and Discussion

AI Art has begun and will continue to have far-reaching implications for the role of teachers involved in arts education and their teaching methods. These changes are reflected in the enhancement of teaching content and modes and show new needs and directions regarding teachers' professional identity and continuing development. Please note that as this is a study in progress, this study only summarises some of the findings based on current developments. The themes are summarised in Table 1.

Table 1: Themes.

Themes
4.1 New Role Orientation: Becoming a Curriculum Designer, Instructional Leader and Student Collaborator
4.2 Continuing Professional Development: Sustaining Professional Growth and Technological Interrogation
4.3 Support from Society and Educational Institutions: Resourcing and Management

4.1 New Role Orientation: Becoming a Curriculum Designer, Instructional Leader and Student Collaborator

While traditional art relies on physical media and manual techniques, AI art uses algorithms and software to create artwork. Not only does this provide new ways for creators to express themselves, but it also requires significant changes in the professional identity of art educators and the skills they need. Teachers are no longer just transmitters of information but have become curriculum designers, leaders of students in the learning process, and partners. This shift in role directly reflects the increased self-efficacy of teachers, who rely more on AI to process information and manage the learning process, as well as devote more energy to stimulating students' creativity and critical thinking. Three participants said,

...using AI to analyse big data such as historical artworks, popular trends, user preferences, etc., we help students understand the diverse perspectives and future trends of art design and inspire them to engage in innovative thinking and forward-looking design...(10-3-M)

...AI has changed the way teachers and students interact in the course, with teachers guiding and counseling more rather than one-way knowledge transfer...(08-10-F)

...my role has become more of an innovation facilitator and technology adopter, and I help students expand their creative horizons and skills by introducing AI technology... (06-5-M)

In addition, the role of students changed from passive recipients of knowledge to active explorers and constructors of knowledge, and the personalised learning experience they gained through the AI tools greatly enhanced their motivation and engagement. One participant said,

... students stop being passive recipients of knowledge and become active participants and creators... (02-11-M)

Teachers generally suggested that AI technology assistance in the classroom can quickly achieve image generation, which greatly enhances the interactivity of teaching and student participation. The AI tools make teaching design thinking and visual expression more efficient and precise, and students are trained in trial and error to find problems, which promotes the practice and innovation of students in the virtual environment and the formation of the teacher-machine-student triad of intelligent teaching mode. Three participants shared their experiences and said,

...In a virtual reality UI design course, I instructed students to use Stable Diffusion to generate icon sketches, then refine and iterate...(06-5-M)

...In the Interaction Design course, I used JS AI to generate editable interaction prototypes from text descriptions... Although the generated designs were not as expected, it was a fruitful attempt, and the students were willing to keep trying...(11-10-F)

...In teaching the design of domestic spaces, students use Stable Diffusion to generate interior design renderings, generated by inputting descriptions and finally discussed based on the generated images...(03-4-M)

Based on the above, the teachers feel confident in their ability to use AI technology, and this confidence comes from the mastery of skills in operating AI tools and experience in their pedagogical application. This experience contributed to their willingness to experiment with and adopt new tools. Teachers with a high sense of self-efficacy are more likely to explore the advanced features of AI, which further enhances the personalisation and interactivity of teaching.

4.2 Continuing Professional Development: Sustaining Professional Growth and Technological Interrogation

All participants expressed an interest in integrating AI technology with their teaching practices as a driving force in exploring and implementing new teaching strategies. This interest stems from the need for personal and professional development and a commitment to improving student learning outcomes. Furthermore, the generation of AI art requires personalised textual description instructions. The descriptive instructions themselves, in turn, test the user's knowledge of art theory and personal imagination. Three participants stated that,

...AI has been involved in most of the art resources for recent new projects, which has greatly improved efficiency without having to purchase a gallery membership, and I have made significant progress in learning and applying new technologies, which has enhanced my teaching abilities and professional satisfaction...(06-5-M)

...I need to learn programming knowledge, e.g., Python, SQL data analysis, and English communication skills to understand better and apply cutting-edge international technical resources and research findings...(03-4-M)

AIGC tools will inevitably advance design efficiency by leaps and bounds. New content, cognition, communication methods and new values are all being constantly reconstructed in rapid iteration, inherent production relationships and business models are being disrupted, AI has changed the entire design workflow, and today's innovation paths are being collapsed ...(10-3-M)

However, reflecting on AI's limitations and potential risks is an important part of teacher professional development and the foundation for maintaining educational fairness and effectiveness. Looking critically at AI technologies and being wary of the ethical issues that these technologies can bring, including data privacy, student monitoring, and algorithmic bias. Two participants gave negative ratings and said,

...Some students have become slaves to AI, not using their brains at all anymore, and accepting all the wrong information given by AI...(09-8-F)

...Over-reliance on AI makes some students lazier...(12-13-F)

4.3 Support from Society and Educational Institutions: Resourcing and Management

...Money! Money! Money! The school's technical support and resource investment are critical to adapting to the role transformation, including providing up-to-date software and hardware resources. Now the college computer is training a model, and the display card does not move to burst the video memory, and cannot carry on at all...(06-5-M)

...teachers should receive comprehensive and in-depth professional training and continuing education, including AI educational technology training to master the use of relevant tools...(10-3-M)

Limitations in technology, policy, or resources hinder teachers' use of AI tools. Understanding and coping with these barriers is key to developing teachers' professional adaptability. Social support to reduce technology adoption's psychological and material costs, such as software licenses, hardware updates, etc., is crucial for effectively integrating AI technologies and achieving pedagogical goals. At the same time, high societal expectations for innovation in education are important external drivers for teachers to adapt and adopt new technologies, and these pressures and expectations not only change teachers' pedagogical approaches but also contribute to the development of the teaching profession to make educational practices more modern and holistic.

In short, interest in educational career goals (i.e., new orientation to the role), interest in professional development (i.e., sustaining professional growth and technology critique), and the surrounding environment (i.e., society and educational institutions) play a significant role in their experiential and perceptual processes (Dos Santos, 2021) Artificial intelligence technology-assisted art making, and teaching have had a significant impact on teachers' role change, perceptual processes, and professional development. As this is an ongoing study, the researcher will discuss this further upon completion.

5. Limitations and Future Research Development

First, this study investigated the reasons for and decision-making process for the role change for some of the teachers involved in arts education, especially higher vocational colleges in China. However, many higher vocational colleges internationally may need help with similar problems. Therefore, future research could expand its scope and objectives to other countries and regions.

Second, intelligent technologies can be used to assess and provide feedback on artworks. For example, computer vision techniques can analyse the quality and skill of artworks. While this can provide objective assessment, whether it can completely replace professional teachers' aesthetic judgement and feedback remains controversial.

Third, some students are trapped in traditional software learning and use habits, and there is some resistance and fear of learning and using AI. Issues such as "what should be taught in art courses under the iteration of AI technology" and "how to articulate new AI technology in design courses" should become realistic propositions for future art education

and teaching reform.

6. Contribution to Practice

The integration of artificial intelligence into art creation not only reshapes the constituent elements of artworks but also affects the teaching strategies of art education and the role of teachers in a deeper way. Through qualitative analyses, this study explores the fundamental shift of art design teachers in higher vocational colleges from one-way knowledge transfer to dynamic and interactive guides in an AI-assisted art creation environment and its specific contributions to teaching practice. In addition, the results of this study provide recommendations for professional department heads and university leaders and outline the broader vision and more possibilities for promoting intelligent teaching models and improving the quality of education, as well as for students' future careers, especially with the rise of AI-assisted art education.

Acknowledgements

References

[1] Bandura, A. (1982). Self-efficacy mechanism in human agency. American psychologist, 37(2), 122.

[2] Bandura, A. (1989). Human agency in social cognitive theory. American psychologist, 44(9), 1175.

[3] Bandura, A. (1992). Social cognitive theory of social referencing. In Social referencing and the social construction of reality in infancy (pp. 175-208). Springer.

[4] Bandura, A. (1995). Self-efficacy in changing societies Cambridge. MA: Cambridge.

[5] Cetinic, E., & She, J. (2022). Understanding and creating art with AI: Review and outlook. ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM), 18(2), 1-22.

[6] Chen, N. (2018). Role Repositioning of Teachers in the Era of Internet and Intelligence. 2018 3rd International Conference on Humanities Science, Management and Education Technology (HSMET 2018),

[7] Creswell, J. W. (2007). QUALITATIVE INQUIRY& RESEARCH DESIGN.

[8] Dos Santos, L. M. (2021). Motivations and career decisions in occupational therapy course: A qualitative inquiry of Asia-Pacific international students in Australia. Advances in Medical Education and Practice, 825-834.

[9] Dos Santos, L. M. (2022). Human resources and workforce shortages in Jeju Island due to islandness: The challenges faced by former hospitality and tourism professionals. Island Studies Journal, 17(2), 130-152.

[10] Fahimirad, M., & Kotamjani, S. S. (2018). A review on application of artificial intelligence in teaching and learning in educational contexts. International Journal of Learning and Development, 8(4), 106-118.

[11] Gentile, M., Città, G., Perna, S., & Allegra, M. (2023). Do we still need teachers? Navigating the paradigm shift of the teacher's role in the AI era. Frontiers in Education,

[12] Hong, J.-W., & Curran, N. M. (2019). Artificial intelligence, artists, and art: attitudes toward artwork produced by humans vs. artificial intelligence. ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM), 15(2s), 1-16.

[13] Jin, T. (2022). ANALYSIS OF THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND ART FROM THE PERSPECTIVE OF SOCIAL PSYCHOLOGY AND ITS IMPACT ON STUDENTS'PSYCHOLOGICAL EMOTIONS. Psychiatria Danubina, 34(suppl 4), 754-754.

[14] Kim, J.-W. (2023). A study on gamification culture and arts education using artificial intelligence. cartoon and Animation Studies, 515-555.

[15] Kwee, C. T. T. (2021). I want to teach sustainable development in my English classroom: A case study of incorporating sustainable development goals in English teaching. Sustainability, 13(8), 4195.

[16] Laura, R. S., & Chapman, A. (2009). The technologisation of education: philosophical reflections on being too plugged in. International Journal of Children's Spirituality, 14(3), 289-298.

[17] Lent, R. W., & Brown, S. D. (1996). Social cognitive approach to career development: An overview. The career development quarterly, 44(4), 310-321.

[18] Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. Journal of vocational behavior, 45(1), 79-122.

[19] Merriam, S. B. (2009). Qualitative Research: A Guide to Design and Implementation.

[20] Miao, Y., & Yao, Y. (2021). Professional development of college teachers in the era of artificial intelligence: role rebuilding and development path. Application of Intelligent Systems in Multi-modal Information Analytics: Proceedings of the 2020 International Conference on Multi-model Information Analytics (MMIA2020), Volume 1,

[21] Morajda, J. (2022). ARTIFICIAL INTELLIGENCE APPLICATIONS IN VISUAL ART – CAPABILITIES, PERSPECTIVES AND LIMITATIONS. Proceedings of 9th SWS International Scientific Conference on Arts And Humanities - ISCAH 2022, VOL 9,

[22] Pente, P., Adams, C., & Yuen, C. (2022). Artificial Intelligence, ethics, and art education in a posthuman world. In Global Media Arts Education: Mapping Global Perspectives of Media Arts in Education (pp. 197-211). Springer.

[23] Shen, L., & Su, A. (2020). The changing roles of teachers with AI. In Revolutionizing Education in the Age of AI and Machine Learning (pp. 1-25). IGI Global.

[24] Tao, F., Zou, X., & Ren, D. (2018). The art of human intelligence and the technology of artificial intelligence: artificial intelligence visual art research. Intelligence Science II: Third IFIP TC 12 International Conference,

ICIS 2018, Beijing, China, November 2-5, 2018, Proceedings 2,

[25] Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. American journal of evaluation, 27(2), 237-246.

[26] Wang, H. N. (2021). Variables and drivers: The impact of intelligent technology on journalism education. Modern Communication (Journal of Communication University of China), 2, 162-166.

[27] Wang, Z. B. (2018). Education revolution in the era of artificial intelligence. Education.

[28] Yang, R. (2020). Artificial intelligence-based strategies for improving the teaching effect of art major courses in colleges. International Journal of Emerging Technologies in Learning (iJET), 15(22), 146-160.

[29] Yi, X. M. (2021). The emergence of artificial intelligence art and the persistence of art education. Aesthetic Education.

[30] Yu, D., Ding, M., Li, W., Wang, L., & Liang, B. (2019). Designing an artificial intelligence platform to assist undergraduate in art and design to develop a personal learning plans. Design, User Experience, and Usability. Application Domains: 8th International Conference, DUXU 2019, Held as Part of the 21st HCI International Conference, HCII 2019, Orlando, FL, USA, July 26–31, 2019, Proceedings, Part III 21,

[31] Zhang, S. M. (2023). Research on art design exploration in the era of artificial intelligence. Shoe Craft and Design, 3(14), 129-131.

[32] Zhao, N., & Zhang, J. (2021). The "Change" and "Constancy" of Teacher's Role in the Age of Artificial Intelligence. 6th International Conference on Education Reform and Modern Management (ERMM 2021),

[33] Zheng, W. (2023). Artificial intelligence education and art course optimization based on multimedia system simulation.