

The Traditional to Digital: Evolution and Trends in the Accessibility of Art Education

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Abstract

The purpose of the office study is the issue of the evolution and trend of accessibility of traditional art education to digital art education . The samples were experts from 21 schools in Anhui Province, China. They consisted of experts in the field of art education. The research tools chosen for data collection were questionnaires and interview forms. Statistical data for data analysis were represented by quartile values and median values. The results of the study are as follows:

(1) The influencing factors of the application and impact of digital technology in art teaching are 3 aspects, i.e. geographical limitation, lack of resources, and economic threshold. (2) The influencing factors of the change of art education mode under digital transformation are 4 aspects The rise and development of online art education platforms, the application of VR and AR technology in art education. The role of digital resources and social media in art education, the development of personalisation and differentiation in art education. (3) Challenges and coping strategies of digital transformation The influencing factors of the problem of digital transformation are 4 aspects Balance between the use of technology and educational effects, inequality of educational resources brought about by digital technology, the role of teachers and students in the digital environment and their adaptations, and the issue of privacy and copyright in digital art education. Concerns.

Keywords: Digitalisation; Accessibility; Fine Arts Education

Introduction

Art education is an essential domain for nurturing and developing students' artistic creativity, aesthetic abilities, and cultural literacy. However, traditional models of art education face a series of accessibility issues, including geographical constraints, resource scarcity, and economic barriers. These issues limit the opportunities for many students to access and participate in art education, leading to the unequal distribution of art education resources.

With the rapid development of digital technology, digital art education has become an important approach to address traditional accessibility issues. Digital technology provides students with more flexible and convenient learning methods, breaking geographical and temporal barriers, broadening the accessibility of art education, and positively impacting its accessibility.

However, the digital transformation also brings about a series of challenges. Balancing the use of technology and educational effectiveness is a significant issue facing digital art education. The problem of unequal distribution of educational resources brought about by digital technology needs to be addressed. The role transformation and adaptation of teachers and students in the digital environment is another challenge. Additionally, privacy and copyright issues also require sufficient attention and concern in digital art education.

Digital art education will continue to develop and gradually become mainstream. Trends such as personalized education, intelligent learning, and community co-construction will lead the development of digital art education. Governments and schools should formulate corresponding policies and practices to promote the accessibility of digital art education. At the same time, digital art education should also take on the responsibility of sustainable development and social responsibility, cultivating more talents with artistic enthusiasm and creativity for society, and promoting the prosperity and development of arts and culture.

Research Objectives

1. To examine the application and impact of digital technology in art education.
2. To explore the transformation of art education models under digitalization.
3. To study the challenges and strategies for addressing the digital transformation.

Research Methodology

1. Questionnaire Method: The questionnaire method is a commonly used data collection technique for gathering opinions, views, behaviors, and other information from a large number of participants. Typically, a questionnaire consists of a series of questions, and participants provide information by filling out these questions. Questionnaires can be distributed through paper-based, electronic, or face-to-face interview formats.

2. Interview Method: The interview method involves collecting information and data by directly engaging in conversation with respondents. It can be used to gain in-depth insights into individuals' perspectives, experiences, attitudes, values, as well as to understand the motivations and meanings behind them. Interviews can be structured (following a predetermined sequence of questions), semi-structured (partially fixed questions but also allowing for flexibility), or unstructured (open-ended dialogue guided primarily by the respondent's answers).

Research Scope

The researchers' study period is from March 2023 to March 2024. The location is in Anhui Province, China.

Limiting the research scope to this period ensures the novelty and contemporaneity of the study. Research conducted during this timeframe may more accurately reflect the social, economic, technological, and political environment at that time. Researchers have obtained specific datasets or sources within this period, which may contain information from a specific timeframe. This contributes to ensuring the relevance and applicability of the research findings.

Research Conceptual Framework

The conceptual framework of this study is shown in Figure 1:

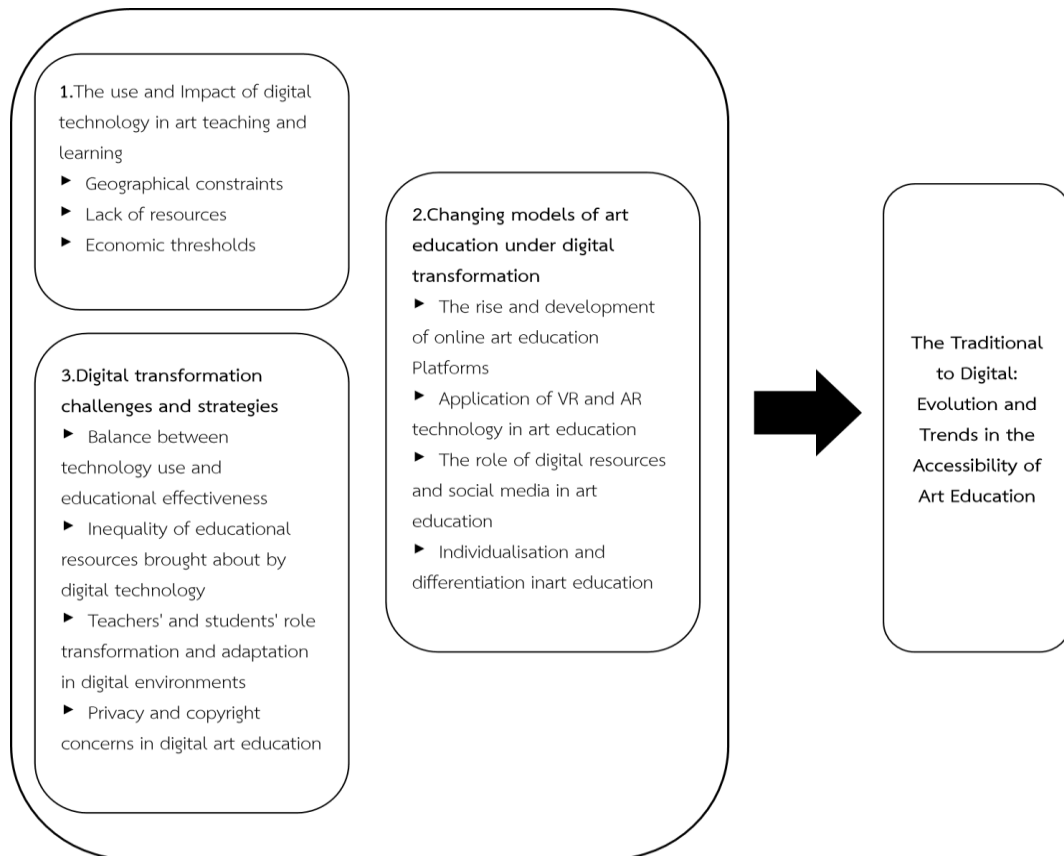


Figure 1 Research Conceptual Framework

Research Results

The problem of the application and impact of digital technology in art teaching. Fine arts education is an important area for cultivating and developing students' artistic creativity, aesthetic ability and cultural literacy. However, the traditional model of art education has a series of accessibility problems, including geographical restrictions, lack of resources and economic thresholds. These problems limit many students' access to and participation in fine arts education, resulting in a lack of equitable distribution of fine arts education resources.

In order to study the issue of changing the art education model under digital transformation. Digital transformation brings a series of challenges. How to balance the use of technology and educational effects is an important issue facing digital art education. The problem of inequality of educational resources brought about by digital technology. The issue of role change and adaptation of teachers and students in the digital environment. In addition, privacy and copyright issues need to be given sufficient attention and concern in digital art education.

In order to examine the issue of challenges and coping strategies for digital transformation. Digital art education will continue to develop and gradually become mainstream. Trends such as personalised education, intelligent learning and community co-construction will lead the development of digital art education. The government and schools should formulate appropriate policies and practical measures to promote the accessibility of digital art education. At the same time, digital art education should also assume sustainable development and social responsibility, cultivate more talents with artistic sentiments and creativity for the society, and promote the prosperity and development of art and culture.

1. Accessibility issues in the traditional art education model

1.1 Characteristics and Limitations of Traditional Art Education

Traditional art education is characterized by its curriculum content, teaching methods, and learning environment. It emphasizes the imparting of fundamental knowledge, including training in drawing, color theory, and composition. This traditional foundational training helps improve students' drawing skills and artistic literacy, providing them with a strong artistic foundation (Li, 2021).

Furthermore, traditional art education emphasizes the cultivation of students' practical abilities through extensive practical exercises and artwork creation, enhancing their artistic creativity. Additionally, it focuses on developing students' observational and imaginative skills, inspiring their love for art and unleashing their creative potential through activities such as plein air sketching and free-form creation. The traditional art education model emphasizes manual guidance and teacher-student interaction (Feng, 2012). In a traditional classroom environment, interaction between students and teachers and individualized guidance are crucial. Teachers can tailor teaching plans according to individual differences, provide professional guidance and feedback, and help students overcome difficulties and improve their skills.

However, traditional art education also faces some limitations and challenges. Firstly, there is a clear geographical restriction in traditional art education. Traditional art education primarily relies on schools and specialized art institutions, with only specific regions or universities possessing good art education resources, while students in other areas have limited access to art education opportunities. Secondly, resource scarcity is also a major constraint of traditional art education. Traditional art education requires substantial resources such as art materials, equipment, and qualified teachers, yet in some regions or schools, these resources are insufficient to meet students' needs. Additionally, traditional art education also faces economic barriers. Due to the substantial investment in human and material resources required by traditional art education, learning art requires high costs, and some students cannot afford high-quality art education due to economic constraints.

Furthermore, the traditional art education model also has some limitations. It primarily focuses on imparting knowledge and skills, lacking cultivation of students' autonomous development and creativity. Emphasizing a standardized teaching and evaluation system overlooks students' individuality and innovative capabilities (Zhao, 2015). This may limit students' creativity and personality development, resulting in artworks lacking uniqueness and innovation. The traditional art education model also suffers from the issue of a singular learning approach. In the traditional educational model, students mainly acquire knowledge and skills through lectures and imitation, which may limit students' diverse learning needs and personalized development.

In summary, traditional art education demonstrates certain advantages in cultivating students' foundational and creative abilities, particularly in developing students' drawing skills and fundamental techniques. However, challenges such as geographical constraints, resource scarcity, and economic barriers (Figure 1), hinder traditional art education in the digital era, posing both opportunities and challenges. Only through the application and innovation of digital technology can the accessibility of art education be further enhanced, promoting the diversification and personalization of art education models.

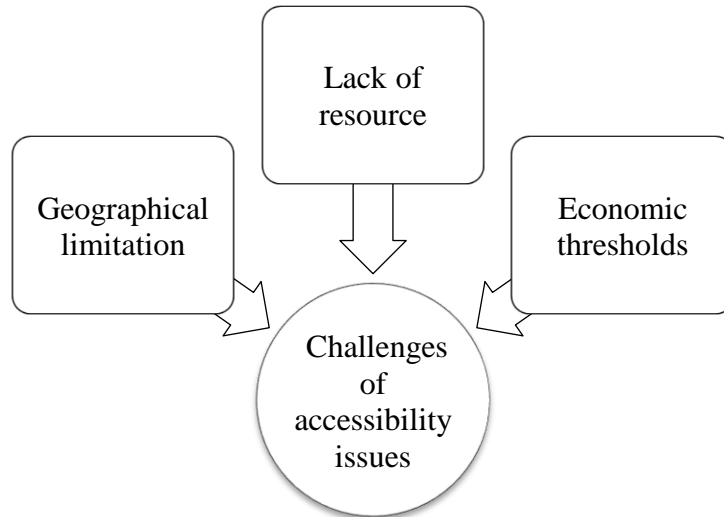


Figure 2 The challenge of accessibility
Source: Created by author

1.2 Challenges of Accessibility

Under the traditional art education model, accessibility has always been a significant challenge. Factors such as geographical constraints, resource scarcity, and economic barriers affect students' ability to access high-quality art education.

Firstly, geographical constraints pose a major challenge in traditional art education. In the traditional educational model, students need to physically attend schools or specialized training institutions to receive education. Due to geographical limitations, some regions may lack schools or institutions with abundant art resources, preventing students from accessing quality art education. Particularly, students in remote or impoverished areas often face greater geographical restrictions.

Secondly, resource scarcity is also a major factor contributing to accessibility challenges. Teaching resources required for traditional art education include art materials, tools, and teaching equipment, which may not be readily available to all students. Some schools or institutions may be unable to provide adequate art teaching resources to students due to insufficient funding or uneven resource distribution (Yu, 2011). This results in some students being unable to access comprehensive art education, limiting their opportunities for development.

Moreover, economic barriers are also a significant factor restricting students' access to art education. Traditional art education typically requires certain tuition or training fees, which may be burdensome for economically disadvantaged students. Particularly, some high-quality art education institutions may have high tuition fees, making it unaffordable for students from financially challenged families. This leads to inequality in art education, preventing some students with artistic talent but poor economic conditions from fully realizing their potential.

Digital art education also faces additional challenges. Balancing between technology use and educational effectiveness is crucial. While digital technology brings convenience to art education, excessive reliance on technology may affect students' creativity and practical skills. Educators need to focus on cultivating students' artistic literacy and creativity while utilizing digital technology. The problem of unequal access to educational resources persists despite the abundance of digital resources. Due to economic and technological constraints, some students may not fully utilize learning resources provided by digital technology, leading to the existence of a digital divide. The role transformation of teachers and students in the digital environment is also a challenge. Teachers need to adapt to the characteristics of digital teaching, requiring not only expertise in art education but also proficiency in digital technology and teaching methods. For students, they need to possess a certain level of information literacy and self-learning ability to effectively utilize digital technology for learning. Finally, privacy and copyright issues require sufficient attention. In digital art education, students may need to upload or share personal works and teaching resources. Therefore, protecting students' privacy and copyright and establishing reasonable legal protection measures are crucial.

In conclusion, geographical constraints, resource scarcity, and economic barriers are challenges faced by accessibility under the traditional art education model. The application of digital technology can effectively address these challenges and improve the accessibility of art education. However, digital art education also faces challenges that require joint efforts from educators and relevant authorities to achieve sustainable development and promote students' artistic literacy.

2. Digital Technology Application and Impact in Art Education

2.1 Emergence and Development of Digital Technology

The rise and development of digital technology have become an undeniable trend in contemporary society. With the continuous advancement of technology, digital technology has been widely applied in various fields. Similarly, in the field of art education, digital technology plays a significant role.

The emergence of digital technology is attributed to the rapid development of information technology. With the widespread popularity of computer technology and the internet, digital technology has found extensive application in art education. For instance, through the dissemination and storage of digital media, art education can transcend geographical limitations, allowing students to access more learning resources and knowledge from experts and teachers from different regions and even countries. Additionally, digital technology provides students with more flexible learning methods, enabling them to choose learning materials tailored to their interests and needs, thus enhancing their autonomy in learning (Xia,2018). The development of digital technology promotes innovation in art education. Supported by digital technology, teachers can utilize various multimedia teaching

tools such as projectors and digital drawing boards to demonstrate and showcase artworks, enhancing students' understanding and appreciation of art. Furthermore, the application of digital technology has brought about the utilization of virtual reality (VR) and augmented reality (AR) technologies, allowing students to experience the charm of art more deeply through simulated real-life scenarios or interactions with the real world (Shao,2018).

These new teaching methods not only enhance students' learning enthusiasm and interest but also boost their creativity and imagination. The rapid evolution of digital technology necessitates continuous learning and mastery of new technologies by teachers to better integrate them into teaching. The emergence and development of digital technology present many opportunities and challenges for art education. Educational authorities and educators need to actively explore and research how to better apply digital technology to improve the accessibility and quality of art education. Only through continuous innovation and improvement can digital art education advance towards a brighter future.

2.2 Current Application of Digital Technology in Art Education

Digital technology has provided students with access to more learning resources and opportunities in art education. Through the internet, students can easily access a diverse range of art learning resources, such as art appreciation, professional knowledge learning, and instructional videos. The open sharing of these resources allows students to go beyond traditional textbooks and choose learning materials that suit their needs and interests. Additionally, digital technology provides students with opportunities for online learning (Mai,2021), enabling them to participate in remote teaching through online classrooms and engage in real-time interaction and learning with professional artists and teachers from around the world.

An important technology widely applied in art education is computer-aided design and image processing software (Ma,2016).These software tools assist students in creating and designing artworks more effectively. Through these software tools, students can quickly transform their ideas into concrete design plans and make modifications and adjustments during the design process. Furthermore, digital technology provides students with virtual reality and augmented reality technologies, allowing them to immerse themselves in painting and sculpting experiences, thereby increasing the interest and interactivity of learning.

Digital technology has also facilitated personalized and differentiated development in art education. With digital technology, teachers can provide students with personalized learning resources and learning aids based on their learning situations and interests. For example, teachers can recommend instructional videos and art appreciation materials suitable for students' painting levels and interests. This personalized learning approach better meets students' learning needs, enhancing their learning enthusiasm and effectiveness (Deng, 2018).

The current application of digital technology in art education is diverse. Students have access to rich learning resources and opportunities through the internet, computer-aided design and image processing software provide students with more creative and design tools, virtual reality and augmented reality technologies enable students to experience art firsthand, and personalized learning methods offer students a better learning experience and outcome. The application of digital technology brings new opportunities and challenges to art education while also providing a broader space for the accessibility of art education. In the future, with the continuous development and innovation of technology, the application of digital technology in art education will become more extensive and profound.

2.3 Impact of Digital Technology on the Accessibility of Art Education

The rapid development and widespread application of digital technology have significantly influenced the accessibility of art education. Through the introduction of digital technology, issues such as geographical limitations, resource scarcity, and economic barriers present in traditional art education models have been effectively alleviated, providing more equal learning opportunities for students.

Digital technology has overcome the geographical limitations inherent in traditional art education. In traditional models, accessing high-quality art education often requires students to travel to major cities or regions with art academies (He,2022). However, with the application of digital technology, students can participate in global art education resources through the internet from the comfort of their homes. Whether attending remote online courses, watching instructional videos from renowned teachers, or engaging in collaborations with students from around the world, digital technology offers students broader learning opportunities, breaking through geographical constraints and enhancing the accessibility of art education.

Digital technology has addressed the issue of resource scarcity in traditional art education. In traditional models, some schools in certain regions lack the necessary resources to provide rich art education, making it difficult for students to access quality art education. However, the application of digital technology provides students with online art courses, learning materials, and diverse digital art resources. Students can access high-definition images and videos of artworks and museum collections from around the world through the internet, benefiting from the vast resources brought by digital technology and gaining access to a wider range of in-depth art knowledge. As a result, regardless of their location, students can access abundant art education resources, thereby improving the quality and effectiveness of learning.

Digital technology has also lowered the economic barriers in traditional art education. In traditional models, the high cost of art education often serves as a major barrier for students. However, through the application of digital technology, students can participate in free or low-cost online art courses via the internet, no longer constrained by economic conditions. Additionally, digital technology provides students with more learning methods and material choices, such as downloading e-books and watching online instructional videos, reducing the cost of learning economically and enabling more students to enjoy quality art education.

In conclusion, digital technology has positively impacted the accessibility of art education. Through the application of digital technology, geographical limitations have been overcome, resource scarcity has been addressed, and economic barriers have been lowered. Students can participate in global art education and access diverse art resources through the internet. Digital technology offers new avenues and possibilities for achieving accessibility in art education, playing a crucial role in advancing the development of art education. However, challenges and issues still exist in the application of digital technology, requiring concerted efforts from educational authorities, schools, and educators to formulate reasonable policies and measures to further promote the development of digital art education, ensuring its sustainability and quality.

3. Changing Models of Art Education under Digital Transformation

3.1 The Rise and Development of Online Art Education Platforms

Online art education platforms refer to platforms that provide art education services through internet technology. By offering online courses, sharing teaching resources, and establishing learning communities, these platforms provide students with more flexible and convenient learning methods, injecting new vitality into traditional art education models (Tang,2020). The emergence and development of online art education platforms have had a positive impact on improving the accessibility of art education.

These platforms break geographical barriers by providing students with learning resources and teaching services through the internet. Students can access high-quality art education from around the world without leaving their homes, greatly expanding their learning scope and providing more opportunities for students to access and learn art.

Online art education platforms broaden the ways in which students acquire resources. Traditional art education often faces limitations in accessing teaching resources, making it difficult for students to encounter various art styles and learn from experiences shared by artists from different regions. However, online art education platforms, through digital technology, can replicate and disseminate artworks, art history knowledge, and professional skills resources infinitely, enriching students' learning content. Students can watch tutorial videos, participate in online discussions, and share learning experiences with art enthusiasts from around the world, broadening their perspectives and thinking.

Online art education platforms also promote personalized learning and differentiated development. Traditional art education models are often one-to-many, where teachers may not fully focus on each student's individual development and different needs. However, online art education platforms can provide personalized learning plans and guidance for each student based on their interests, learning levels, and pace. Students can learn according to their own learning progress and styles, thereby enhancing learning effectiveness and motivation (Li&Liu,2008).

3.2 The Application of VR and AR Technology in Art Education

Virtual Reality (VR) and Augmented Reality (AR) technologies are key innovations in the digital age. By providing users with new sensory experiences and interaction methods, they are gradually changing various fields, including art education.

VR and AR technologies offer immersive learning experiences for students (Zhang,2021). Students can enter a virtual art world through VR devices, intimately interact with artworks, and engage in creation and practice within virtual spaces. This immersive learning method can stimulate students' creativity and imagination, enabling them to better understand and appreciate artworks.

VR and AR technologies provide opportunities for simulated practice. Practice is crucial for art education, yet traditional art education models limit students' opportunities for practice. With VR and AR technologies, students can practice various art forms, such as painting, sculpting, or designing, in virtual spaces (Chen,2021). This simulated practice can improve students' skills and creative abilities, making them more confident and proficient.

VR and AR technologies can create interactive learning environments. Traditional art education is often one-way, with students passively receiving knowledge and skills. However, VR and AR technologies can provide opportunities for interaction and participation, allowing students to interact, collaborate, and create with virtual artworks. This interactive

learning environment helps cultivate students' collaboration, innovative thinking, and problem-solving skills.

3.3 The Role of Digital Resources and Social Media in Art Education

With the continuous advancement and development of digital technology, it has played an increasingly important role in the field of art education. The emergence of digital resources and social media has brought new opportunities and challenges to art education.

Digital resources provide abundant learning materials for art education. In traditional art education, students often rely on physical books, teacher explanations, and classroom practice to acquire knowledge and skills. However, these resources are sometimes limited by geographical and quantity constraints. The advent of digital resources allows students to access more information and learning resources via the internet. For example, students can visit art exhibitions from around the world through online galleries, watch demonstration videos by renowned artists, and participate in talent selection and competitions globally through online platforms. These digital resources offer more learning opportunities and pathways, making art education more diverse and enriched.

Social media platforms serve as a communication and sharing platform for students and teachers. In traditional art education, communication between students and teachers is mainly confined to the classroom, and student-to-student communication is often restricted by time and space. The emergence of social media breaks these constraints, allowing students and teachers to share their works, exchange learning experiences, and insights. Additionally, social media provides an opportunity for interaction with artists and enthusiasts worldwide, allowing students to draw inspiration from different cultures and art styles. Through social media, students can establish a more open and free learning environment, fostering creativity and imagination.

3.4 Personalized and Differentiated Development in Art Education

Personalized education is one of the hot topics in the current education field, and art education also needs to explore paths of personalized and differentiated development in the digital transformation. The personalized and differentiated development of art education not only affects students' learning outcomes but also relates to the fairness and inclusiveness of education.

The personalized and differentiated development of art education needs to fully respect students' individual differences and interests. Each student has different aesthetic abilities, creative potentials, and learning styles, so art education should focus on respecting and developing individual differences. By providing personalized learning content and diversified teaching methods, art education can stimulate students' creativity and imagination, helping them find their interests and directions in artistic practice (Huang & Huang, 2017).

The personalized and differentiated development of art education needs to leverage digital technology. Digital technology provides more diverse and autonomous learning resources and tools to meet the diverse needs of different students. For example, through online learning platforms and applications, students can choose learning content and engage in personalized learning and creative practice according to their levels and interests. Additionally, by using Virtual Reality (VR) and Augmented Reality (AR) technologies, art education can break the constraints of time and space, providing more specific and realistic art experiences, and promoting personalized development.

The personalized and differentiated development of art education also requires teachers to enhance their professional competence and update their educational philosophies. Teachers need to be sensitive to and understand students' individual differences, providing personalized guidance and feedback based on students' different needs and characteristics. Teachers also need to continuously learn and innovate, using digital tools and resources in teaching, constructing personalized learning environments, and inspiring students' learning motivation and creativity.

Furthermore, in the personalized and differentiated development of art education, cooperation with families, communities, and industries is also necessary. Family support and participation are crucial for students' personalized development, while resources and practical experiences from communities and industries can provide students with broader development opportunities and platforms. Through extensive cooperation with various sectors of society, art education can promote students' personalized development, cultivate talents with creativity and innovative thinking, and contribute to the sustainable development of art education.

4. Challenges and Strategies in Digital Transformation

4.1 Balancing Technology Use and Educational Effectiveness

In digital art education, the application of technology plays a crucial role in enhancing educational effectiveness. However, striking a balance between technology use and educational effectiveness is a key issue. Excessive use of technology may have negative impacts on students' learning, while inadequate use may fail to fully realize its potential. Therefore, finding a balance between technology use and educational effectiveness is an important task in digital art education.

It is essential to recognize that technology is merely a tool for education, not education itself. The application of technology should serve the goals and content of education rather than blindly pursuing technological novelty and advancement. When designing digital art education courses, teachers should clarify the core objectives of education and students' learning needs, then choose appropriate technological tools to support teaching.

Technology use should consider both teaching effectiveness and students' learning experiences. In digital art education, technology can provide a more diverse range of teaching resources and learning environments. However, excessive application of technology may lead students to spend too much time and energy on technical operations, thereby affecting their genuine learning and mastery of artistic knowledge and skills. Therefore, teachers should reasonably select and use technology based on students' actual situations and learning abilities, avoiding the problem of over-reliance on technology.

Technology use should emphasize evaluation and reflection. In digital art education, teachers should promptly evaluate and reflect on the technology they use, understanding students' acceptance of the technology and its learning effects. Based on the evaluation results, adjustments and improvements should be made accordingly. Only through continuous evaluation and reflection can the balance between technology use and educational effectiveness be found.

Teachers' roles in digital art education also need to adapt and transform. Teachers need to become guides for learning and partners of students. Teachers should choose appropriate technological tools and teaching strategies based on students' learning needs and interests, stimulating students' learning interests and initiative, thereby achieving a balance between technology use and educational effectiveness (Hu,2018).Choosing suitable technological tools, paying attention to students' learning experiences, conducting evaluation

and reflection, and adapting to their role transformation are essential to achieving a balance between technology use and educational effectiveness, thus improving the quality and effectiveness of digital art education.

4.2 Inequality in Educational Resources Due to Digital Technology

With the widespread application of digital technology in art education, the issue of inequality in educational resources has gradually become prominent. Although digital technology provides more learning opportunities and resources, due to the existence of the digital divide, some students may face difficulties in accessing these resources equally. This poses new challenges to educational fairness.

The use of digital technology requires students to have certain technical capabilities and equipment conditions. However, some students come from economically disadvantaged families and cannot afford expensive computers, tablets, or other necessary digital devices. They may only rely on limited school-provided equipment for learning, which is far from meeting their comprehensive and in-depth artistic education needs. Although many high-quality learning resources such as video tutorials, online courses, and educational software can be freely accessed through the internet, these resources may still not be equally distributed among students in different regions. On the one hand, some remote schools may lack network bandwidth and equipment, resulting in students being unable to fully utilize these resources. On the other hand, some schools or regions may lack awareness and resources to purchase and use these digital educational resources, making students unable to access the same learning opportunities as those in other areas (Wang,2017). The use of digital technology also requires teachers to have corresponding teaching capabilities and knowledge reserves. However, some teachers may lack sufficient training and support to fully utilize digital technology to provide high-quality artistic education. This also results in some students not receiving sufficient guidance and support in the digital environment, further exacerbating the inequality in educational resources.

Governments and educational authorities should formulate and implement targeted policies to ensure wider coverage and higher popularity of digital technology. This may include providing economic support to help economically disadvantaged students purchase and use digital devices, as well as providing training and support to teachers to enhance their digital teaching capabilities. Schools and educational institutions should strengthen cooperation and share digital educational resources to expand students' learning opportunities. This can be achieved through establishing joint education platforms, sharing courses, and resource libraries. At the same time, schools should actively promote the popularity and application of digital technology and provide more digital education opportunities to students.

In addition, education authorities can increase support for remote areas by providing network equipment and bandwidth improvement measures to deliver digital learning resources to these areas. At the same time, cooperation with internet companies can provide free or low-cost internet access services to ensure that all students have equal access to digital learning resources.

Finally, educational institutions and teachers should strengthen training and research on digital technology to improve their digital teaching capabilities and professional levels. This can be achieved through teacher training programs, seminars, and cooperative exchanges. At the same time, establishing dedicated digital education teams and professional

committees can promote the application and research of digital technology in the field of art education.

4.3 Role Transformation and Adaptation of Teachers and Students in the Digital Environment

In traditional art education, teachers often play the roles of knowledge disseminators and learning guides, while students are recipients and executors. However, with the application of digital technology in art education, the roles of teachers and students are also undergoing transformation and adaptation.

The digital environment brings more possibilities for teachers' roles. In the digital environment, students can access a large amount of art knowledge and resources through various channels, and the role of teachers transitions from traditional knowledge disseminators to resource integrators and guides. Teachers need to have a broader knowledge base, accurately analyze and judge students' needs, and provide more targeted guidance and support. The digital environment empowers students with more opportunities and autonomy in learning. Students can autonomously choose learning content and methods through online courses, teaching platforms, etc., thus achieving personalized learning better. In the digital environment, teachers need to focus more on stimulating students' learning interests and autonomy, guiding them to actively participate in learning and independent thinking (Yuan, 2003).

Furthermore, the digital environment also prompts teachers to make adjustments and adaptations in teaching methods and techniques. Teachers can use multimedia, virtual reality, and other technological means to enrich teaching content and forms, providing more interactive and interesting teaching experiences. At the same time, teachers also need to learn and master digital teaching tools and skills to improve their teaching abilities and adaptability.

In the face of the role transformation of teachers and students in the digital environment, teachers need to possess technological application capabilities and innovative spirit. Meanwhile, students also need to have certain digital literacy and self-learning abilities to better adapt to the learning methods and requirements in the digital environment. In the digital environment, there are issues such as information overload and fragmented learning. Teachers need to help students correctly understand and apply a large amount of information resources. Only when teachers and students can reasonably cope with and adapt to the role changes in the digital environment can they better promote the development and progress of digital art education.

4.4 Privacy and Copyright Concerns in Digital Art Education

Privacy and copyright issues are crucial concerns in digital art education. With the digitization of learning content and the popularity of online education platforms, personal information of students and teachers is widely collected and used in digital art education. However, the protection of personal information has become an important issue. The use of personal information such as students' and teachers' names, ages, and contact information must comply with relevant privacy policies and regulations. Copyright issues in digital art education are also a focus of attention. Students' works can be easily disseminated and replicated in digital form, bringing the risk of copyright infringement. Students' works created in digital art education may be plagiarized or used without authorization, damaging students' intellectual property rights.

To address these issues, a series of measures need to be taken to solve privacy and copyright concerns. Firstly, educational institutions and platforms should strengthen data security management, formulate privacy policies, and ensure their compliance. Secondly, awareness of personal information protection for students and teachers should be enhanced, educating them on the correct use and management of personal information. At the same time, education on copyright awareness and intellectual property protection should be strengthened, guiding students to correctly understand and safeguard their copyrights. Additionally, at the legal and policy level, relevant regulations and enforcement concerning privacy and copyright protection should be strengthened.

Discussion

Art education, as an important part of cultural inheritance and personal growth, has shown a diverse trend in its evolution from traditional to digital. The aim of this thesis is to explore the application and impact of digital technology in art teaching and learning, the changes in the art education model brought about by digital transformation, and the challenges and coping strategies brought about by digital transformation. These three research aims will contribute to an in-depth understanding of the development trends and challenges in the field of art education, and provide theoretical support and practical guidance for future educational practice and policy making.

1. To study the application and impact of digital technology in the teaching of fine arts. With the continuous development and popularisation of digital technology, the field of art education is gradually making use of digital tools for teaching innovation. Digital technology has brought new possibilities for art teaching, such as the application of digital painting software, virtual reality technology, digital image processing and other tools. The application of these technologies enriches the form and content of art teaching, expands students' learning channels and methods, and improves the learning effect and creative ability. Relevant studies have shown that the application of digital technology in art teaching can promote students' creative thinking, aesthetic ability and technical level, and push students to achieve personalised artistic expression. With this research purpose, we will explore the specific application of digital technology in art teaching, analyse its impact on students' learning and creativity, and discuss the future development trend of digital technology in art education.

2. To study the issue of changing the art education model under digital transformation. Digital transformation is not only the introduction of technological tools, but also a profound challenge and change to the art education model. The traditional art teaching mode focuses on the teaching of manual art skills and the accumulation of practical experience, while digital transformation requires educators to rethink the teaching content, methods and evaluation system. The wide application of digital technology allows art teaching to be more personalised and autonomous, with students acquiring knowledge and skills through online courses and remote instruction. Digital transformation has also prompted art education to move from a single traditional art form to diversity and interdisciplinary integration, opening up the boundaries and possibilities of art teaching. With this research purpose in mind, we will analyse in depth the specific impact of digital transformation on the art education model, and explore how art education can innovate and change its teaching model with the help of digital technology.

3. Examining the challenges of digital transformation and coping strategies. Although digital transformation has brought many opportunities to art education, it also faces a series of challenges. The upgrading of teachers' skill levels, the acquisition and management of digital resources, and the updating of the teaching and learning environment are all aspects of the challenges of digital transformation. In order to effectively deal with these challenges, educational institutions and teachers need to adopt a series of coping strategies, including but not limited to professional training, co-operation and co-construction, and innovation in curriculum design. These strategies aim to enhance teachers' digital literacy and teaching ability, promote the effective application of digital technology in art teaching, and thus facilitate the sustainable development of art education.

Recommendations

Digital transformation has brought unprecedented opportunities for art education, however, it is also accompanied by a series of challenges. In order to effectively address these challenges, educational institutions, teachers and policy-makers need to adopt a series of strategies and measures to ensure the effective application of digital technologies in art education.

Provide professional training programmes on digital technologies to help teachers familiarise themselves with the use of various digital tools and platforms, as well as the corresponding teaching strategies and techniques. Encourage teachers to participate in professional communities and seminars to share experiences and exchange techniques, so as to continuously enhance their digital literacy and teaching abilities. To support teachers to participate in practical projects and research, so as to cultivate their innovative ability and practical experience in the field of digital transformation.

To establish a digital resource library to collect and collate quality digital teaching resources, including teaching videos, tutorials and demonstration works, for use by teachers and students. Provide appropriate technical support and services to help teachers and students make full use of digital resources and resolve technical problems and difficulties encountered in the process of using them. Encourage teachers and students to actively participate in the co-construction and sharing of digital resources, so as to jointly create a richer and more diversified teaching resource base.

Updating teaching facilities and equipment, and providing hardware equipment and software tools suitable for digital teaching and learning, including computers, tablet PCs, digital drawing boards, and so on. Improve the teaching environment by designing flexible and diverse classroom layouts and space settings to suit different teaching modes and needs. Encourage teachers and students to participate in the design and renovation of the teaching environment, and advocate the concept of co-operation and co-construction, so as to create a teaching place with an artistic atmosphere and creative stimulation.

In summary, addressing the challenges posed by digital transformation requires the concerted efforts of educational institutions, teachers and policy makers to promote the effective application of digital technologies in art education through measures such as upgrading the level of teachers' skills, optimising the management of digital resources and updating the teaching and learning environments, so as to promote the continuous development and progress of art education.

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