

# Research on "AI+X" Composite Non-heritage Exhibition Design Talents Cultivation

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**Abstract:** In April 2018, the Ministry of Education proposed that it would gradually promote the construction of a new model of "AI+X" composite professional training. the current situation of non-heritage protection and the development of AI technology, as well as the emergence of "AI+X" composite talent cultivation mode, have brought new opportunities and challenges for non-heritage exhibition design. This study aims to analyse the current situation of "AI+X" technology in non-heritage exhibition design, discuss the necessity of talent training, and propose corresponding training strategies to inject new vitality into the cause of non-heritage protection. This study adopts literature research method, case study method and comparative research method to sort out the research progress in the field of non-heritage exhibition design and AI+X at home and abroad, and compare and analyse the successful cases at home and abroad, summarize the experience and inspiration, and put forward the "AI+X" composite non-heritage exhibition design talent cultivation mode, which emphasizes the combination of technology and cultural inheritance, cultivates talents with innovative consciousness and technical ability, and cultivates talents with innovative consciousness and technical ability. the model emphasises the combination of technology and cultural inheritance, and cultivates composite talents with a sense of innovation, technical ability and cultural understanding. the "AI+X" mode can effectively solve the problems of disconnection between theory and practice and insufficient innovation ability in the traditional cultivation mode, integrating multidisciplinary knowledge of artificial intelligence, design and culture, cultivating composite talents with interdisciplinary

cross-fertilisation ability, and better adapting to the needs of non-heritage exhibition design.

**Keywords:** Non-Heritage; AI+X; Compound Talent Cultivation; Innovative Teaching Mode

## 1. Introduction

During the two sessions in 2024, the 'Artificial Intelligence +' action was written into the government's work report, which explicitly proposed to cultivate composite talents with AI application ability, pointing out the direction for the development of the cause of non-heritage protection in the new period. In recent years, the research on the protection of non-heritage and exhibition design has gradually increased, but the research on the integration of AI technology into the field of non-heritage exhibition design is still in its infancy. Scholars mostly explore the application prospects of AI technology in the protection of non-heritage from the theoretical level, such as the use of AI technology for the digital recording, intelligent identification and classification of non-heritage projects; at the same time, some scholars have begun to pay attention to the application of AI technology in non-heritage exhibition design, from the digital Dunhuang exhibition launched by Dunhuang Academy in order to bring the audience a richer content, a more vivid experience, and a deeper understanding of the visiting experience. Immersive exhibition [1], to the Shanghai Yuyuan Park to the 'Classic of Mountains and Seas' as the theme of the AR light show, to create the yuan universe lantern, upgrade the online and offline tour interactive experience, artificial intelligence and other digital technologies to strengthen the integration of virtual and reality, to provide the public with a from 'online' to 'scene AI and other digital technologies have strengthened

the integration of virtual and reality, providing the public with a new perceptual experience from 'online' to 'live'. However, most of these researches remain in the stage of technical exploration and preliminary application, lacking systematic theoretical summaries and in-depth research on talent training mode. the cause of intangible cultural heritage protection is facing challenges such as inheritor breaks, single inheritance method, etc. the work of protecting, displaying and disseminating the intangible heritage can be described as a heavy load and a long way to go, and the urgent need to cultivate and innovation ability of the financial science and technology talents has become particularly important. the purpose of this paper is to analyse the current situation of the application of 'AI+X' technology in the design of non-heritage exhibition, discuss the necessity, challenges and opportunities of the cultivation of 'AI+X' composite non-heritage exhibition design talents, and put forward the corresponding cultivation.

## 2. AI+X' Concept and Application

The so-called 'AI+X' model is a comprehensive training model that takes artificial intelligence (AI) as a pillar and integrates elements of multiple interdisciplinary disciplines (X), so that AI can be deeply integrated with traditional design disciplines and the design industry, 'Artificial intelligence, as an enabling technology, has a natural inclination to intersect with research in other disciplines [2], and this model aims to cultivate talents with interdisciplinary knowledge background and practical ability to meet the development needs of future society. As an enabling technology, AI has a natural tendency to cross with other disciplines [2], and this model aims to cultivate talents who can adapt to the development needs of the future society, have interdisciplinary knowledge background and practical ability, and be able to apply AI technology in various fields to promote industrial upgrading and innovation.

The development of artificial intelligence industry and the intelligent upgrading of traditional industries cannot be separated from the support of AI talents, and AI+X composite talents play a very important role in the transformation of traditional industry, agriculture, medicine, education and business

to intelligent upgrading and transformation, and show great potential for development and application prospects. In the medical field, AI technology is widely used in disease diagnosis, patient monitoring, drug development and other aspects, improving medical efficiency and accuracy. In the field of urban management, AI technology is applied to traffic management, public security, energy management and other aspects, which improves the efficiency and management level of urban operation.

In the field of non-heritage textile, 'X' can refer to textile design, material science, history and other related disciplines, and the development of AI technology provides intelligent and personalised solutions for the design of non-heritage textile exhibition. For example, AI technology can be used for textile pattern design, material performance analysis, historical and cultural research, etc., to create a more attractive and interactive exhibition experience, and enhance the inheritance and development of non-heritage textile. the digital museum, as an emerging way of displaying non-heritage, through the interaction of panoramic images and user interface, the display enables the audience to understand the intangible cultural heritage in a deeper way, and better realises the user's immersive viewing experience in the non-heritage digital museum [3]. the application of 'AI+X' mode in the design of non-heritage textile exhibition has a broad prospect, which can promote the innovative development of non-heritage textile, enhance the cultural value and economic value of non-heritage textile, and provide new ideas and methods for the protection and inheritance of non-heritage.

## 3. 'AI+X' Composite Non-Heritage Exhibition Design Talent Training Status Quo

### 3.1 Current Situation of Talent Training Mode

Artificial intelligence as an emerging discipline, 'AI+X' composite talent training puts forward new requirements, which has brought a great impact on the education and teaching of colleges and universities. In order to adapt to the demand for talents in the era of artificial intelligence and respond to the 'New Generation Artificial Intelligence Development

Plan’ and the ‘Action Plan for Artificial Intelligence Innovation in Colleges and Universities’, colleges and universities are required to upgrade the connotation of existing majors, adjust the curriculum system, and improve the teaching content. This includes increasing the integration of AI and professional courses, as well as implanting the content of AI knowledge and technology in the teaching of professional courses. These measures aim to enhance the professionalism and comprehensiveness of education. At the same time, in accordance with the Action Plan for Education Informatisation 2.0, which makes use of technologies such as big data, cloud computing and artificial intelligence to improve teaching methods and enhance the quality and efficiency of education, the teaching methods of teachers will need to be changed accordingly, so as to adapt to the development and application of education technology.

Under the guidance of national policies related to the exhibition and display of non-heritage, a large number of different types of display venues or forms have emerged across the country. However, one of the core problems faced by the exhibition of ‘non-heritage’ is that the ‘object’-centred display mechanism of traditional museums seems to be too monolithic, which leads to a disconnection between the narrative of ‘non-heritage’ and the social reality, as well as a lack of connection between ‘non-heritage’ and the social reality. This has led to a series of problems such as the disconnection between the ‘non-heritage’ display narrative and the social reality, as well as the separation between materiality and immateriality. Although non-heritage has not yet been fully integrated into the undergraduate education system in the form of independent majors, some colleges and universities have already taken positive steps to subtly integrate non-heritage into undergraduate cultivation programmes through the establishment of professional direction points. These direction points are often closely related to specific non-heritage projects, such as traditional fine arts and traditional skills, and are arranged in carefully designed curricula. There are even some colleges and universities that further deepen the cultivation of non-heritage exhibition design talents by setting up interdisciplinary research directions closely

related to non-heritage. While focusing on the inheritance of non-heritage skills, these disciplines also emphasise the close integration of theoretical knowledge and practical operation.

### **3.2 Impact of ‘AI+X’ on the cultivation mode**

The ‘AI+X’ cultivation mode is having a profound impact on the traditional education mode with its unique advantages and innovativeness. This mode not only optimises the allocation of educational resources, but also greatly improves the quality and efficiency of education through the deep integration of AI technology and educational practice. Within a limited time and space, the ‘AI+X’ model can maximise the use of educational resources and provide students with more personalised and precise learning paths, thus better adapting to the learning needs and potential of each student. For example: NUIST carries out the ‘AI+STEAM’ curriculum system, which is a cross-innovation between AI and various disciplines to help improve the quality and efficiency of AI education in primary and secondary schools [4]. This kind of cross-disciplinary cross-innovation provides a strong support for the improvement of the quality and efficiency of primary and secondary schools' AI education and enables students to learn in a diversified learning environment. learning environment, which not only enriches the teaching content, but also stimulates students' innovative thinking and practical ability. At a broader regional level, the Guangdong, Hong Kong and Macao Greater Bay Area has created an ‘AI+X’ innovative talent cultivation matrix, which deeply implements the integration of industry and education, school-enterprise cooperation, training and education, and highlights the practical and skillful nature of AI talent cultivation to form a comprehensive cultivation situation for talents [5]. This model can make the comprehensive practical training projects of different majors take intelligent works as the carrier, promote the communication and collaboration between different disciplines, complete the collaborative construction of knowledge in different disciplinary fields in the collaborative exploration, enhance students' artificial intelligence thinking and problem solving

ability, and cultivate innovative talents who can adapt to the intelligent society. the rapid development of artificial intelligence technology has provided education with a wealth of online teaching resources and sharing platforms, greatly expanding students' learning channels. Students can use these resources to learn independently and acquire the knowledge they need, which also poses a new challenge to students' self-learning ability and self-management ability. Therefore, in the face of this challenge, we adopt different divisions of labour, integrate artificial intelligence technology to train students from the 'theory-practice-competition' teaching method, solve the contradiction between student training and the needs of modern enterprises, and cultivate composite talents [6].

#### **4.1 Cultivation Objectives and Cultivation Mode Innovation**

According to the scientific and technological frontier demand of relevant disciplines in the national innovation-driven development strategy, and starting from the construction of first-class disciplines, the cultivation objectives of 'AI+X' composite exhibition design talents of intangible cultural heritage are determined, so as to give full play to the advantages of the school's design disciplines and to cultivate the composite talents needed by the society. On the basis of the cultivation objectives, the cultivation mechanism and curriculum system of 'AI+X' composite exhibition design talents of intangible cultural heritage are set up. Firstly, strengthen the professional basic courses in artificial intelligence; secondly, open the textile intangible cultural heritage education elective courses and other permeable courses [7]. On this basis, with the cross-disciplinary projects as the carrier, academic exchanges and professional practice courses are offered to provide the 'AI+X' composite exhibition design talents of non-heritage with a 'strong foundation, broad intersection, and innovation' curriculum system, which emphasises the combination of technology and cultural inheritance. It emphasises the combination of technology and cultural heritage, and cultivates composite talents with a sense of innovation, technical ability and cultural understanding. In the curriculum system, new technology courses such as AI basic knowledge, data analysis and virtual

reality are introduced, while the teaching of traditional culture and design theory is strengthened.

#### **4.2 Reform of Curriculum System and Teaching Content.**

The 'AI+X' curriculum update proposal mainly includes three parts: firstly, optimising the 'AI+X' exhibition design training mechanism and curriculum system; secondly, diversifying the curriculum; thirdly, creating the 'AI+X' 'exhibition design innovation ability training platform curriculum content system settings mainly include the following points.

Based on the innovative teaching mode of cross-fertilisation of multiple knowledge systems in the context of the new era, we analyse the learning situation of the curriculum from three aspects, namely professional knowledge ability, moral education and innovation and entrepreneurship cultivation, and build a multiple knowledge system of the curriculum in a multi-dimensional way, explore the 'AI' content related to the professional knowledge and the frontier knowledge of disciplines, and optimise the teaching design and classroom teaching methods. Optimise teaching design and classroom teaching methods to 'connect different disciplines through interdisciplinary themes and emphasise students' acquisition of interdisciplinary knowledge and skills'. We will cultivate students to become highly qualified design talents with moral integrity and all-round development. the cultivation of postgraduates' innovation ability in the interdisciplinary background is affected by many factors. Through the establishment of general education course modules such as scientific thinking and artificial intelligence, innovative design and extended practice, Chinese tradition and contemporary China, and attempts to set up a blended teaching programme and a special demonstration programme platform for "speciality and creation integration", we have promoted the integration of non-heritage exhibition design into the professional curriculum, and formed a "non-heritage design" programme for students. Try to set up hybrid teaching courses and a special demonstration course platform of 'integration of speciality and creation' to promote the integration of non-heritage

exhibition design into professional courses, forming a progressive growth path of 'non-heritage knowledge - integration of speciality - innovation and practice', so as to cultivate students' ability to use professional knowledge to solve practical problems and innovative thinking.

### 4.3 Cross-border Integration and Cultivation of Innovative Thinking

Cross-border integration is an important way to stimulate students' innovative thinking, and the international teaching of AI and interdisciplinary integration started and developed earlier. In Japan, the two modules of AI-related knowledge and AI technology are deeply integrated with the existing disciplinary curriculum, and the knowledge of mathematics, physics, information technology and other knowledge related to the basics of AI is integrated into the corresponding disciplines, and the experience and practice of AI technology is added to art, music and other disciplines to help students learn and perceive AI from the perspective of both knowledge learning and technology experience [8]. Developed countries in Europe and the United States pay special attention to the development of a clear plan for AI talent training to maintain their leading edge in the field [9], and the U. S. government released the 'U. S. Artificial Intelligence Initiative' [10], which emphasises the importance of talent training. the initiative plans to invest nearly \$1 billion in the next five years, not only to support AI research, but also to pay special attention to the training of talents at all levels, from K-12 education to postdoctoral research, and proposes to invest nearly \$1 billion in AI research and education in the next five years; the UK government released the 'National Strategy for Artificial Intelligence', which plans to train 2, 000 doctoral students in AI research by 2030, and provide master's degrees in AI for colleges and universities. the UK government released the National Artificial Intelligence Strategy, which plans to train 2, 000 PhD students in AI research by 2030, and provide financial support for universities to offer AI master's programmes [11]; this can be effectively implemented in education through the following measures: firstly, encouraging students from different professional backgrounds to participate in the exhibition

design project through cross-disciplinary teamwork, and such a diversified team composition can promote the complementarity of knowledge and skills, and stimulate new creativity and solutions; secondly, introducing courses of thinking training such as innovative thinking and design thinking, and these courses will help to promote the development of new ideas and solutions. Secondly, introduce thinking training courses, such as Creative Thinking and Design Thinking, which aim to teach students how to use cross-boundary thinking to identify problems, generate ideas and carry out problem solving; and lastly, establish an open evaluation system with diversified evaluation criteria, which not only recognises and encourages the diversity of students' explorations in design and performance, but also motivates them to try and innovate. Through these comprehensive measures, an open, collaborative and innovative learning environment can be created for students, so as to effectively cultivate their innovative thinking ability.

Under the current background of rapid development of artificial intelligence technology, how to effectively cultivate 'AI+X' composite talents has become a common concern of the education and industrial sectors. By comparing and analysing the successful cases of 'AI+X' composite talents cultivation at home and abroad, this chapter aims to provide reference and inspiration for the cultivation of non-heritage exhibition design talents in China.

### 4.4 Insights and Improvement Strategies

#### 4.4.1 Strengthening interdisciplinary integration

First of all, interdisciplinary integration education can comprehensively improve students' comprehensive quality. Through the cross-study of multidisciplinary knowledge, students not only master a wide range of knowledge, but also cultivate critical thinking and creative problem-solving ability. Secondly, interdisciplinary integrated education helps to cultivate students' innovative ability. the intersection of different disciplines is often the source of innovation. Through interdisciplinary learning and research, students are able to come into contact with a variety of ways of thinking and problem solving methods, stimulating innovative thinking. Cases from

the University of Oxford and Zhejiang University show that through interdisciplinary curriculum design and research projects, interdisciplinary integrated education also enhances students' teamwork and communication skills. In interdisciplinary team projects, students need to work with classmates from different disciplinary backgrounds, which not only cultivates their teamwork spirit, but also enhances interdisciplinary communication and coordination skills.

In order to better implement interdisciplinary integrated education, it is recommended that domestic universities establish interdisciplinary research platforms and encourage teachers and students from different disciplines to collaborate and develop courses and projects together. At the same time, humanities and social sciences content should be increased to enhance students' social, cultural and ethical understanding of AI technology. Through these measures, domestic colleges and universities can better adapt to the demand for composite talents in the age of AI and cultivate composite talents with both professional skills and humanistic qualities.

#### 4.4.2 Promote personalised education

Promoting personalised education is the key to cultivating 'AI+X' composite talents. We use AI technology to build an intelligent learning platform to provide students with customised learning experiences, and combine the mentorship system and college system to provide students with personalised academic guidance and career planning, and promote students' comprehensive development. the platform provides personalised learning resources and pathways based on students' learning habits, ability levels and interest preferences, and recommends appropriate courses and learning materials based on learning progress, as well as different learning styles based on learning styles.

The mentorship system and college system provide personalised academic guidance and career planning for 'AI+X' composite talents. Mentors provide one-on-one guidance to help students solve problems in their studies and guide them in self-exploration to develop independent thinking and problem-solving skills. the Academy system promotes interdisciplinary exchanges among students, broadens academic horizons, and develops students' teamwork and communication skills,

laying the foundation for future cross-disciplinary collaboration.

In addition, we use big data and artificial intelligence technology to optimise teaching resources and teaching methods, and improve the relevance and effectiveness of education. We use big data to analyse students' learning data to understand their learning needs and difficulties, and adjust teaching content and methods accordingly. At the same time, AI technology is used to develop intelligent teaching tools, such as intelligent question-and-answer systems and virtual laboratories, to provide students with a richer and more interactive learning experience and to stimulate learning interest.

By building an intelligent learning platform, implementing the tutor system and academy system, optimising teaching with big data and AI technology, and establishing a diversified evaluation system, we can effectively promote personalised education, cultivate 'AI+X' composite talents with both professional skills and humanistic qualities, and contribute to the inheritance and development of non-heritage culture. development for the inheritance and development of non-heritage culture.

#### 4.4.3 Strengthening school-enterprise cooperation

School-enterprise cooperation is an effective way to improve students' practical ability and innovation ability. Zhejiang University's virtual teaching and research laboratory and science education practical training platform provide students with opportunities to cooperate with enterprises. Domestic colleges and universities should deepen the integration of industry and education and establish close cooperation with enterprises and industrial organisations. Through internship training and project cooperation, students can better understand industry needs and cutting-edge technology dynamics, and improve their practical ability and innovation ability. Colleges and universities can also promote the transformation and application of scientific and technological achievements by cooperating with enterprises to carry out industry-university-research projects, combining the actual needs of enterprises with the scientific research achievements of colleges and universities. At the same time, colleges and universities can invite enterprise experts to participate in curriculum design and teaching,

introduce the actual experience and cases of enterprises into the classroom, and improve students' practical ability and innovation consciousness.

In addition, colleges and universities can cooperate with enterprises to carry out innovation and entrepreneurship education, provide students with entrepreneurial guidance and resource support, encourage students to apply what they have learnt to actual entrepreneurial projects, and cultivate their innovative spirit and entrepreneurial ability.

Through the implementation of the above improvement strategies, domestic colleges and universities can better adapt to the demand for composite talents in the era of artificial intelligence and cultivate 'AI+X' composite talents with both professional skills and humanistic qualities.

## 5. Conclusion and Suggestion

This study has deeply explored the application value of 'AI+X' mode in the cultivation of intangible cultural heritage (intangible heritage) exhibition design talents, and found that this mode can effectively solve the problems of disconnecting theory and practice and insufficient innovation ability in the traditional cultivation mode. the model integrates multidisciplinary knowledge of artificial intelligence, design, culture and other disciplines to cultivate composite talents with interdisciplinary cross-fertilisation ability, which can better adapt to the needs of non-heritage exhibition design. At the same time, through the introduction of artificial intelligence technology, such as digital twin, virtual reality, etc., it stimulates students' innovative thinking, improves their design ability and practical ability, and enriches the teaching means to improve the teaching effect. In addition, the application of artificial intelligence technology in the design of non-heritage exhibition can better show the charm of non-heritage culture and promote the inheritance and development of non-heritage culture. This study has certain limitations though, mainly reflected in the limitations of the case study and the lack of research depth. Future research should expand the scope of the study, select more colleges and universities to conduct case studies to verify the universality of the 'AI+X' talent training mode; further deepen the theoretical research to build a more

perfect theoretical system; pay attention to the application of artificial intelligence technology in the design of non-heritage exhibition and conduct in-depth research; conduct international comparative research to learn from foreign advanced 'AI+X' talent training mode to improve the quality of education and the development of China in this field. We will also conduct international comparative research and learn from foreign advanced 'AI+X' talent cultivation mode, so as to improve the quality of education and international competitiveness in this field.

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