Exploring the Teaching Path of Visual Communication in the Digital Era

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ABSTRACT

The update of artificial intelligence (AI) is triggering the innovation of education concepts, education methods, and education means. This paper takes the impact of contemporary visual communication design on design methods, design means, and presentation methods brought by AI as the starting point; combines the possibilities brought by the characteristics of AI to the teaching mode; integrates and deepens the development of educating mode; and makes AI play a benefit in the educating of visual correspondence design, so as to transform and upgrade to the intelligent teaching of visual communication design.

KEYWORDS

Artificial Intelligence, Teaching Mode Innovation, Visual Communication Design

With the rapid development of technologies such as the internet, mobile communication, and big data, we have entered a highly digital era (Gawer, 2022). Today, people can obtain and share information through various devices and platforms, and information is ubiquitous (Lv, 2020). From social media to online shopping and remote work to smart homes, informatization has profoundly changed our way of life and social organization. Visual communication is a profession that covers multiple fields such as graphic design, illustration, photography, animation, and more. It is committed to conveying information, expressing opinions and emotions through visual forms, and plays an important role in advertising, brand design, publications, movies, games, and other fields (Uprichard, 2020). The information age has brought many technological breakthroughs, such as digital design tools, virtual reality, augmented reality, and so on. These new technologies provide more creative and presentation methods for visual communication professionals, expanding their horizons and creative space. However, the visual communication profession also faces a series of challenges, such as its inability to adapt to industrial structure adjustments (Bachmann et al., 2018). Starting from the impact of artificial intelligence (AI) on the design methods and presentation methods of visual communication design in the era of information technology, this article integrates and deepens the development of educational models by combining the characteristics of AI with the possibilities brought by teaching models, allowing AI to play a role in visual communication design education, thereby transforming and upgrading to intelligent teaching of visual communication design.

LITERATURE REVIEW

AI technology refers to the ability to simulate human intelligence through computers, thereby achieving autonomous learning, reasoning, decision-making, and task execution capabilities. It involves multiple fields, such as deep learning, machine learning, natural language processing, and so on. AI technology is widely used in various fields, such as healthcare, finance, security monitoring, and logistics management. In the field of healthcare, AI technology can help doctors diagnose diseases and develop treatment plans; in the financial industry, AI technology can assist in risk assessment and anti-fraud efforts; in the field of security monitoring, AI technology can achieve intelligent monitoring through technologies such as image recognition. AI technology is currently in a stage of rapid development and will continue to usher in new breakthroughs in the future. The rapid development of AI resembles a situation with two sides, and no one can predict exactly what the future will look like (Fantini et al., 2020). Much in modern society seems to be unpredictable, and the possibility of simply knowing a subject and doing only one job for a lifetime is slim. In recent years, the labor market is such that it is difficult to hire highly qualified employees with even higher salaries (Brell et al., 2020). The economically developed eastern coastal regions of China have taken the lead in starting the "machine for human" project, which promotes the change of industrial production methods. This has also brought unprecedented disruptive changes to the labor market.

Today, people's work and life are greatly affected by AI, and visual communication design has also been transformed and upgraded under the drive of AI (Qin & Jiang, 2019). The State Council, in its *New Generation of AI Development Plan*, points out that intelligent technology should be used to promote the reform of teaching models, speed up the foundation of intelligent learning frameworks. The idea of "AI + training" fosters instructive advancement and provides significant help for improving an astute educating model. Consequently, schools need to contemplate how to more readily coordinate across disciplines, utilize the benefits of AI, make changes in light of the existing visual correspondence configuration model, and construct another model of intelligent, customized and incorporated educating.

RELATED MATERIALS AND METHODS

Visual Communication Design

The main purpose of visual communication design is to convey information and concepts through images and visual elements, helping people better understand and accept information. This design form has been widely used in advertising, brand marketing, publishing, digital media, and website design. The basic elements of visual communication design include graphics, text, color, layout, and images. Designers can use these elements to convey the necessary information, emotions, and brand image, making the design work more attractive and effective. The process of visual communication design includes stages such as research, planning, creativity, production, and implementation. Designers need to have a thorough understanding and analysis of the conveyed information, target audience, and market demand, and then engage in creative and layout work to ultimately produce high-quality design works. With the continuous development and application of digital technology, visual communication design is also constantly developing and innovating. For example, the popularity of mobile devices and social media has made design more focused on responsive design and social media marketing. New technologies such as artificial intelligence and virtual reality also provide more possibilities and challenges for design.

The visual communication profession has developed with the changing times, and its connotation and extension are gradually expanding as it is sensitive to technological changes, market demand, and aesthetic changes of the public (Zhu, 2021). The innovation of information technology, especially the large-scale application of "intelligent technology + APP," has forced the teaching of visual communication to be constantly updated in terms of aesthetic concept – means of expression and

form – which requires practitioners to conduct market research, design scheme conception, and physical design production, as well as to use the knowledge of communication (Maheshwari, 2021). This requires practitioners to use the knowledge framework of communication, psychology, and marketing with intelligent internet technology for exploratory practice and to update their design concepts and improve their skills according to the changes in market demand.

Challenges in Visual Communication

The design of professional structure is not well adapted to the needs of dynamic adjustment of industrial structure. The following challenges exist in visual communication.

(1) Rapid development of digital media and internet technology: With the rapid development of the internet and digital media, traditional visual communication methods are undergoing changes. New digital media platforms and social media channels have put forward new requirements for content creation and dissemination. However, the curriculum and teaching methods of some traditional visual communication majors may not be able to keep up with these changes in a timely manner, resulting in students lacking the necessary knowledge and skills when facing emerging media environments.

(2) Diversified demand and industry development: The application fields of visual communication are very extensive, involving multiple industries such as advertising, brand design, packaging design, and digital media design. There are also differences in the demand for visual communication professionals among different industries. However, the curriculum and teaching content of some traditional visual communication majors are relatively rigid, unable to meet the needs of different industries, resulting in graduates facing competitive pressure in the job market.

(3) The cultivation of innovation and technological ability: The importance of creativity and innovation for visual communication professionals is self-evident. However, some traditional visual communication professional education places too much emphasis on the application of technology and tools, with less emphasis on cultivating creative thinking and innovative abilities. With the rapid development of technology, designers need to constantly learn and adapt to new technologies and tools to enhance their creative ability and competitiveness.

(4) Cross disciplinary cooperation and resource integration: The creative process of visual communication design usually requires interdisciplinary cooperation with other disciplines, such as marketing, psychology, and engineering technology. However, in some traditional visual communication majors, there is a lack of close connection and cooperation opportunities with other disciplines. This may lead to a disconnect between the visual communication work and actual needs, which cannot achieve the expected effect.

Professional setting is the premise of design education talent training. From the viewpoint of professionals, the scope of visual communication research in Chinese schools is relatively narrow and not as comprehensive as that in foreign countries, and at the same time, the depth of research is not enough; the goal of talent training is also mostly to provide skills to facilitate future employment (Mourtzis et al., 2020).In order to address the above challenges, visual communication professionals in China should consider the following directions:

(1) Update the curriculum and teaching methods, strengthen the teaching of emerging media and digital technologies, and cultivate students' creativity and adaptability in different media environments.

(2) Strengthen cooperation with the industry, understand industry needs, adjust curriculum and teaching content, and enhance the employment competitiveness of graduates.

(3) Emphasize the cultivation of creative thinking and innovative abilities and encourage students to engage in diverse creative practices and project experiences.

(4) Strengthen cooperation with other disciplines, promote interdisciplinary communication and resource integration, and improve the professionalism and practicality of visual communication works.

Traditional visual communication lacks a focus on general ability and comprehensive quality in talent training. Specific areas of weakness include the following:

(1) Single skill training mode: Traditional visual communication education focuses too much on the application of technology and tools, while neglecting the cultivation of students' comprehensive abilities and qualities. During their school years, students only focus on training a single skill or technique, lacking the cross integration of knowledge and abilities from multiple fields, leaving them unable to adapt well to industry development trends.
(2) Lack of practical experience: The visual communication profession requires practical operation, and designers need to improve their comprehensive abilities and qualities through practical project experience. However, in some traditional visual communication majors, there is a lack of opportunities to collaborate with the industry, making it difficult to provide real project experience and creativity and design that match the actual needs of the industry.
(3) Lack of comprehensive quality cultivation in the teaching team: Some teachers in the field of visual communication have excellent skills in the design field, but lack the cultivation of comprehensive abilities and qualities, making it difficult to provide more comprehensive guidance and support for students.
(4) The industry's demand for comprehensive abilities and qualities: With the development of the visual communication industry, in addition to professional skills, the industry's demand for designers' comprehensive abilities and qualities is also increasing. For example, the requirements for communication and coordination skills, business thinking skills, leadership skills, and other aspects are all lacking in traditional visual communication professional education.

To address the above challenges, visual communication professionals should consider the following methods:

(1) Strengthen practical teaching, introduce real projects and enterprise cooperation, provide diverse practical experience, and enable students to continuously improve their comprehensive abilities and qualities in practice.
(2) Optimize the teaching system, strengthen course design, focus on knowledge intersection and ability integration, and improve the cultivation of students' comprehensive abilities and qualities.
(3) Cultivate the comprehensive quality of teachers, strengthen the construction of the teaching staff, introduce teachers of high comprehensive quality, and improve their teaching level and professional abilities.
(4) Strengthen the cultivation of students' comprehensive abilities and qualities, provide them with more opportunities for communication, practice, and training courses, and help them better adapt to the development trends of the industry.

In summary, the visual communication major in China needs to pay attention to the cultivation of comprehensive abilities and qualities in talent cultivation. By strengthening practical teaching, optimizing teaching systems, cultivating teacher quality, and meeting industry needs, efforts are made to enhance students' comprehensive qualities and abilities, in order to better adapt to the development and changes of the industry.

The education and training of visual communication majors fails to fit the needs of market and cultural demands in the following ways.

(1) The disconnect between industrial demand and education and cultivation: With the rapid development of economy, culture, and technology, the development of the visual communication industry is becoming increasingly diversified and complex. However, some traditional visual communication majors place too much emphasis on basic skills and theoretical knowledge in education and cultivation, which is disconnected from actual industry needs and fails to provide students with an innovative and relevant design education. In particular, the development of AI has elevated requirements for the comprehensive quality of design talents, and the design talents who simply cultivate skills simply cannot meet the needs of market and cultural demands.

(2) Lack of innovative educational models: Currently, visual communication education worldwide is facing the challenge of innovative educational models. But in China, traditional education models still dominate. Traditional teaching methods, textbooks, and evaluation standards cannot meet the personalized needs of students and the needs of the future job market.

(3) Shortcomings in cultivating multi-dimensional talents: The training goal of a visual communication major is not only to cultivate professional skills, but also includes interdisciplinary abilities, humanities literacy, scientific literacy, and knowledge of other fields. However, in China, the education and cultivation of visual communication majors often only focus on the cultivation of a single skill, lacking consideration for the overall quality of students.

(4) Uneven distribution of educational resources: Currently, there are many visual communication majors in Chinese universities, but there are differences in teaching resources and teaching staff. Some universities have relatively weak educational facilities, laboratories, and teaching staff, which affects the learning and training effectiveness of students.

The need of social development (L) is chosen to measure the comparability between the education and training function of visual communication majors, and the formula is:

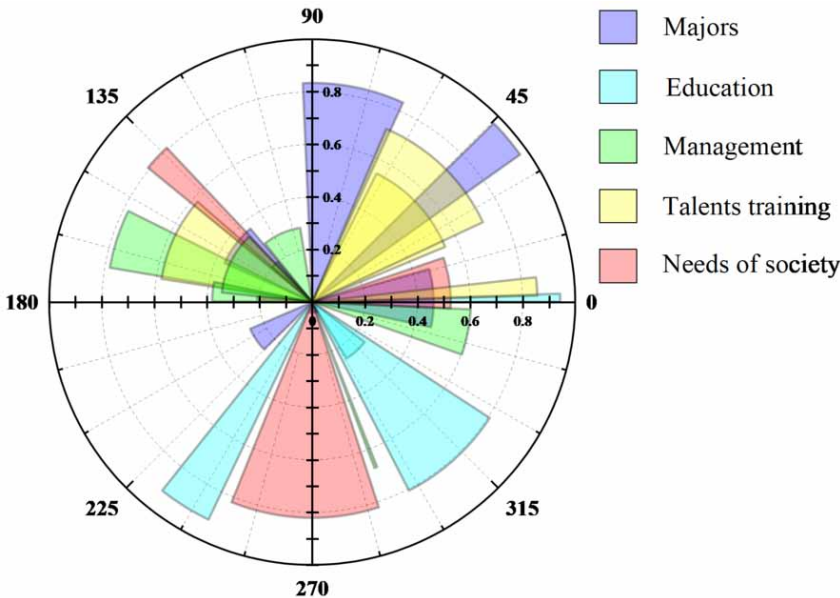$$R_i = \sum_i \left(-d_{pi}^2 \Big/ 2S_p^2 \sigma_i^2 \right) \delta \tag{1}$$

$$L = \frac{R_i}{\sum \delta} \tag{2}$$

$$L = \frac{\sum_i \left(-d_{pi}^2 \Big/ 2S_p^2 \sigma_i^2 \right) \delta}{\sum \delta} \tag{3}$$

where p is the ID of related visual communication majors, i is the ID of the key point of visual communication majors, d_{pi} denotes lack of teachers in visual communication majors between the i-th visual communication majors predicted by the p-th educational objectives, S_p denotes professional courses and basic courses, o denotes educational management, v denotes educational contents, and δ is requirements of design talents training. According to the above formula, it is easy to see that the education and training function of visual communication majors fails to fit the needs of social development. (See Figure 1.)

To address the above challenges, visual communication professionals should consider the following methods:

Figure 1. Rose Cloud of Education and Training Function of Visual Communication Specialty With the Needs of Social Development

(1) Strengthen the integration of industry and education, establish closer connections with the industry, and guide education to cultivate talents that better meet the needs of the industry.
(2) Promote innovative educational models, increase the application of practical teaching and diversified teaching methods, and improve the quality and level of education and training.
(3) Diversify training objectives, emphasizing the cultivation of interdisciplinary abilities, humanities literacy, scientific literacy, and knowledge of other fields, so that students have more comprehensive qualities and abilities.
(4) Balance the allocation of educational resources, strengthening the faculty and facility construction of visual communication education in universities, and improving the overall level of education and training.
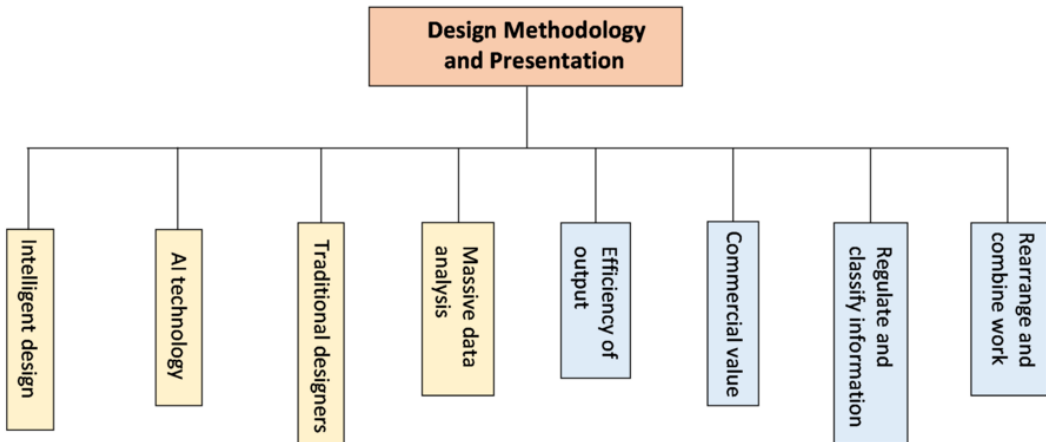
In short, the visual communication major in China needs to better adapt to the needs of social development in terms of educational and training functions. By strengthening the integration of industry and education, promoting innovative educational models, diversifying training objectives, and balancing the allocation of educational resources, we aim to achieve effective integration between talent cultivation and social needs, and make greater contributions to the development of the industry and society.

THE IMPACT OF AI ON VISUAL CORRESPONDENCE DESIGN

Changes in Design Methodology and Presentation

As illustrated in Figure 2, the intelligent design work platform uses AI technology to change the design method of traditional designers, and through massive data analysis to regulate and classify information, rearrange and combine them according to customer needs to maximize the efficiency of output, and achieve the maximum commercial value through "intelligence" and "personalization" (Shah et al., 2020). The maximum commercial value is achieved through "intelligence" and "personalization."

Figure 2. Structure Diagram of Design Methodology and Presentation

Traditional paper books utilize augmented reality technology to expand static graphics into a multi-dimensional visual and auditory presentation form, thereby achieving an interactive journey between readers and virtual images (Lee, 2018). For instance, a wide range of books have added increased reality understanding capability, readers can download the client through the gadget and sweep the QR code, and the static paper books will introduce three-layered intuitive pictures. AI brings better approaches for viewing, improving students' understanding of the intuitive impact of multi-point turn of pictures and blend of sound and video, which is more advantageous for the correspondence and learning of conceptual information (Cabero-Almenara et al., 2020).

The rapid development of artificial intelligence has made its impact in the field of design increasingly widespread. For example, AI technology can provide creative assistance and optimization functions by analyzing a large number of design cases and materials. It can help designers quickly generate diverse design solutions, providing inspiration and creative guidance. Machine learning based algorithms can automatically generate design sketches, layout suggestions, and even overall design concepts. These tools can improve the work efficiency of designers while providing new perspectives and possibilities for design. Moreover, AI can process and analyze large-scale design related data, thereby helping designers make more accurate and reliable design decisions. By mining and analyzing user behavior data, market trends, consumer preferences, and other information, AI can provide customized design suggestions and personalized product experiences. In addition, through the visualization and presentation of design data, AI can also help designers better understand and communicate design concepts. The design industry is also actively making changes in the face of the development of AI, and many large companies are re-examining design positions and placing many new requirements on them. For example, designers need to possess a certain level of technical literacy and be familiar with relevant AI technologies and tools. They need to understand the basic principles and methods of data analysis and have the ability to process and analyze large-scale design related data. In this way, designers can better apply AI technology and utilize data-driven decision-making for creativity and design work. In addition, the application of AI in design often involves the intersection of knowledge from different disciplines and professional fields. Therefore, designers need to have the ability to collaborate and communicate across disciplines and be able to collaborate with professionals such as computer scientists, data scientists, and engineers. They need to be able to effectively communicate design requirements and concepts and understand and integrate professional knowledge from other fields. Moreover, the rapid development of AI technology means

that designers need to maintain innovative thinking and adaptability, constantly learning and updating their knowledge and skills. They need to pay attention to the latest AI technology and design trends and flexibly apply new tools and methods. At the same time, they also need to think about how to combine AI technology with design principles and aesthetic values to create unique and personalized design works. Moreover, the application of AI in design has also brought about some moral and ethical issues. Designers need to pay attention to the potential issues of AI in privacy protection, data security, fairness, and actively seek solutions. They need to consider user rights and social responsibility in the design process to ensure that the application of AI complies with ethical and legal requirements (Villegas-Ch et al., 2020).

AI Technology in the Field of Visual Culture Education

Artificial intelligence has and will continue to have a considerable effect on the field of visual culture education, in particular in the following ways.

(1) Art creation and expression: AI technology can assist in art creation and expression, providing students with more diverse art creation tools and media. For example, machine learning based algorithms can generate sketches, composition suggestions, or color schemes for artistic works, helping students gain inspiration and creative guidance. In addition, through deep learning and generative adversarial networks (GANs), AI can also generate realistic virtual artworks, providing students with more opportunities for practice and expression.

(2) Image recognition and analysis: AI technology has strong capabilities in image recognition and analysis. It can help students better understand and analyze visual cultural works, thereby enhancing their aesthetic ability and cultural literacy. For example, through computer vision technology, AI can automatically identify the elements, styles, and expressive techniques of artistic works, and provide corresponding interpretation and background knowledge. This helps students to gain a deeper understanding of the artist's intentions and the meaning of the work.

(3) Cultural heritage protection: AI technology plays an important role in cultural heritage protection. Through image processing, pattern recognition, and big data analysis, AI can help detect, repair, and protect objects, paintings, sculptures, and more in cultural heritage. At the same time, AI can also achieve the creation of large-scale digital archives and cultural heritage databases, providing students with richer learning resources and research materials.

(4) Personalized learning and intelligent tutoring: AI technology can provide personalized learning and tutoring services based on students' personalities and learning characteristics. Through learning analysis and recommendation algorithms, AI can recommend visual culture education resources and learning paths that are suitable for students based on their interests and levels. At the same time, AI can also help students understand their learning progress and improvement direction through automated evaluation and feedback.

China is currently in a phase of economic transformation, and the explosion of AI technology provides a good opportunity for development. In the future, the combination of school education and AI technology is an inevitable trend, and experts and scholars are constantly thinking about how to rationally integrate AI into education in universities, secondary and elementary schools. AI enables personalization and individualization of learning, and with the support of this technology, education can be better promoted. However, at present, there are significant problems in teaching methods, teachers' professionalism, and the balance of educational resources at all stages of education. It is worthwhile to think about how to overcome these difficulties and make AI truly integrated into education and teaching.

The Combination of AI and Visual Communication Design Talent Training

In the field of visual communication, using the programming of AI, a computer can complete the design of a high-quality poster in minutes. There are already case experiments where multiple types of design solutions can be automatically generated in 10 seconds with the help of techniques such as analysis of AI data and language processing (as statistically depicted in Figure 3). Such experiments already show the disruptive shift in the future of the entire industry. The change of the industry model will surely affect the way of training talents in universities.

How to integrate the traditional curriculum and teaching methods of visual communication design majors with AI technology and the overall development of the design industry, and how to meet the needs of the times are questions worthy of consideration by educators. It is especially important to change the teaching methods of professional courses, stimulate students' creative thinking abilities, and establish the education system of "intelligence + visual design" for the cultivation of visual communication design talents. Some of the top institutions abroad pay more attention to students' ability to express their ideas and insight in the cultivation of visual culture talents. The cultivation of talents in the age of intelligence is more inclined toward personal learning, learning of personality, and cultivation of creative ability, so such cultivation is more in line with the requirements of this era. Talent training in colleges and universities should tend to train students to interpret their own design works from their own perspective and logic, and in addition, they should think in a deeper level in terms of artistic expression and expand the depth of cultural factors and social factors. In addition, in terms of faculty, AI also shows a strong application.

At present, intelligent teaching systems have been widely applied. Intelligent teaching systems can provide personalized learning paths and content based on students' learning styles, interests, and abilities. By analyzing students' learning data and behavior patterns, the system can automatically adjust teaching content and difficulty, helping students better understand and master knowledge. This personalized learning approach can improve students' learning effectiveness and motivation. The intelligent teaching system can also monitor students' learning progress and performance in real-time and provide timely feedback. The system can provide targeted suggestions and guidance based on students' answering situations and homework performance, helping them fill knowledge gaps and improve learning outcomes. At the same time, the system can automatically generate evaluation reports, allowing teachers and students to understand learning progress and identify problems.
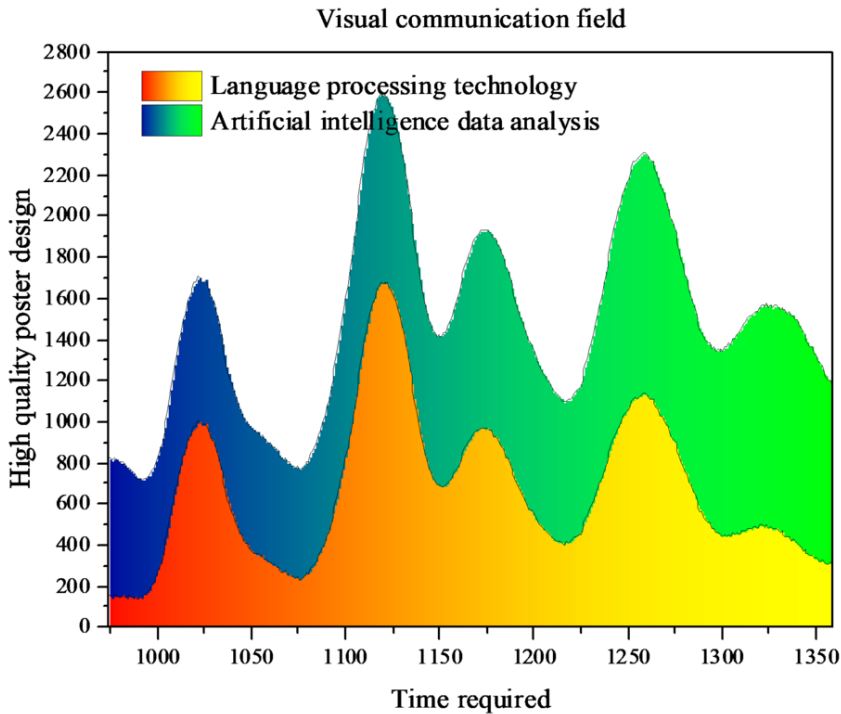
According to Villegas-Ch et al. (2020), the combination of AI and visual communication design talent training V_j is constructed to represent the traditional curriculum and teaching methods of visual communication design G to artistic expression and expand the depth of cultural factors and social factors (each factor i corresponds to a coefficient, representing the x and y of the teaching methods of professional courses), and then teachers' mechanical work F_k are fused to talent training in colleges and universities f_k from the predicted deviation h_k.

$$V_j = G\left[x_j + F_k\left(x_j\right) - x_i\right]h_k\left(x_j\right) \tag{4}$$

$$f_k\left(x_k\right) = \sum_j \frac{1}{\pi R^2} V_j \tag{5}$$

$$f_k\left(x_k\right) = \sum_j \frac{1}{\pi R^2} G\left[x_j + F_k\left(x_j\right) - x_i\right]h_k\left(x_j\right) \tag{6}$$

Figure 3. Curve Filling Diagram Comparing AI and Visual Communication Design Talent Training

AI VISUAL COMMUNICATION DESIGN TEACHING REALIZATION PATH

Under the many influences brought by AI to design, how the visual correspondence design profession can meet the needs of the times and how visual communication designers can cope with work efficiency and learning depth less than AI are problems worth considering. Therefore, it is necessary to establish the goal of cultivating emerging, cutting-edge designers and respond to the challenge by optimizing design curriculum, teaching modes, and teaching means.

Focus on Personalized Learning

In the conventional showing mode, the greater part of the classes is held in the study hall.

In the customary showing mode, the homeroom is for the most part made out of one educator and a few understudies, and the showing content is organized directly, from basic knowledge to professional knowledge, so that students can learn professional knowledge and skills from awareness to basic mastery and then proficient use. However, in the teaching mode using AI, the focus of teaching is not to divide the knowledge system and give it to all students simultaneously, but to focus on students' individuality and needs. We can find the knowledge points of each student's skill and interest in the same knowledge system and advance more deeply along the interest points to obtain the knowledge applicable to different students. Zeroing in on customized learning breaks the conventional one-way information movement model. Zeroing in on customized learning is likely to improve understudies' feeling of individual achievement and accomplish longer and more profound autonomous learning.

Increase Courses Related to AI

In the context of the rapid development of AI, visual correspondence configuration majors demonstrate cultural relevance in the coordination of workmanship and innovation, and develop marketable skills,

recommending the addition of AI-related instruction to the curriculum. The information interaction design program of Nanjing Art Institute applies AI technology in its existing professional curriculum system, and the curriculum mainly focuses on interaction design in the direction of user experience, virtual reality, and information visualization. Compared with most colleges and universities that follow the traditional visual communication curriculum, its curriculum has improved the requirements for AI and related algorithm knowledge, and no longer emphasizes the application of basic software, so that the design results are more diversified to meet societal demands.

Innovative Teaching Evaluation System

Schools should add AI-related instruction to the curriculum; because of the rapid development of AI, visual correspondence configuration majors demonstrate understanding of recent trends in the coordination of craftsmanship and innovation and develop new skills in keeping with market demands. The teaching evaluation under the concept of "AI+" education can be analyzed by collecting statistics through big data, dividing the course into stages, and involving teachers and students in each stage. In addition to the basic evaluation of the teacher's teaching contents and methods, the evaluation focuses more on the thorough and precise assessment of every student's proficiency, learning status, and viability at each stage, so as to discover the potential commonalities and individuality, fortify the effectiveness of educators and students in the education system, and structure a two-way or even multi-way precise assessment, so that teachers can make appropriate adjustments for future teaching plans and students' learning methods.

The imaginative assessment framework with regards to AI targets changing learning from information acknowledgment to dynamic information creation, according to the specific situation of students in the educational experience, and then personalizing the cultivation of students to avoid the generalized deficiencies and defects in the traditional assessment.

The creative assessment framework with regard to AI aims to shift learning from passive information acceptance to active information creation, depending on the particular circumstances of students during the educational experience, and then personalize student development to avoid the generalized shortcomings and flaws in the traditional assessment.
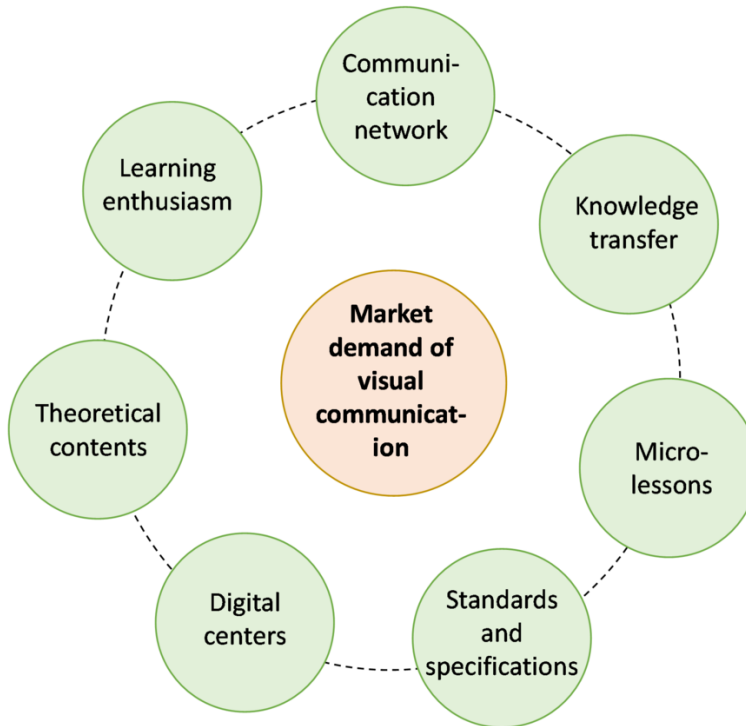
Transform and Expand Teaching Concept and Scope, Combine With Market Demand

Use of intelligent and interconnected means to interpret the content of visual communication courses in an all-round and multi-angle way can increase students' learning enthusiasm (in Figure 4). At present, the teaching of visual communication in some art and design schools and colleges remains more in the conventional educating mode, where teachers explain theoretical contents in class according to PowerPoint and assign homework for students to draw by hand or create on the computer. This requires educators to understand how to utilize the internet in an integrated manner. It also requires teachers to learn to use many kinds of digital centers on the internet, relying on the course resource base to build and share the platform, to expand the original framework of the course by means of animation, video, micro-lessons, and the like, and to change the problems of boring theoretical narration, poor quality images, and lack of targeted answers to difficult questions in daily teaching. Institutions with the technology can let students use the exclusive cloud classroom to watch short videos of relevant course content, cooperate with the classroom teacher's knowledge transfer, download course requirements online, upload homework, flexibly call the resource library granular resources, create a personalized curriculum with a unique style, change the teacher-led traditional classroom teaching model, and guide students to learn independently.

Realize Intelligent Pushing of Teaching Resources and Data of Teaching Decisions and Establish a New Hybrid Teaching Mode

The establishment of the new design disciplines created by intelligent and linked technologies will proceed at a faster rate if the present popular design disciplines, such as interaction design, interface

Figure 4. Ring Structure Diagram of Teaching Concept and Scope and Market Demand

design, and digital media design, are implemented prior to the adoption of AI. In the new service strategy design, system integration innovation design and brand image integration formed by the visual correspondence profession under the role of big data and cloud computing, the intelligent penetration of teaching resources pushed to the target students makes the interdisciplinary collaborative ability and critical thinking skill of the design profession more powerful. The data support for teaching decisions further strengthens the relevance of professional knowledge content, improves educating proficiency, and makes the educating process more scientific and well-founded. Simultaneously, the new educating mode will give birth to a new type of design talents - cross-border art and design talents in view of big data, intelligent innovation and innovative applications, who have strong learning ability, understand strategies, and can realize innovation and entrepreneurship. Future art and design education and teaching should be closely integrated with AI for the cultivation of human-machine synergy, while focusing on creativity, so that technological progress can serve the teaching of the visual communication profession.

Creativity and aesthetics are less likely to be replaced by AI, which is also a typical feature of art and design majors, but if design education remains in the current way of talent training and continues to follow the traditional closed design education concept, the gap between design education and design industry will only widen. Based on the requirements of innovation and entrepreneurship, teachers can publish competitions online, interview potential customers to publish design projects, or simulate customer needs, create scenarios, guide students to accurately classify, analyze, and discuss industry needs, and understand their design needs. Experienced teachers can work in depth with enterprise operations and product departments to engage students in the design tasks of curriculum layouts and participate in the formulation of business promotion plans and product requirements with

a problem-oriented approach. This allows students to learn by doing, with a sense of accomplishment in completing tasks, and stimulates their creative abilities.

The visual communicationis defined as a set $\chi=\{\boldsymbol{\beta}_j\}_{j=1,2,3}$, where J is a typical feature of art and design majors, and requirements of innovation and entrepreneurship (u,v) of the jth potential customers is denoted by the vector $\boldsymbol{\beta}_j \in x$. Students for the industry needs for accurate classification $\rho_t(\boldsymbol{\beta})$ at each stage providing confidence $S_{jt} \in Rw \times h$ for each typical feature j, where w and h are the gap between design education and design industry, and t denotes the tth stage. The old way of talent training and continuing to follow the traditional closed design education concept to provide confidence scores is depicted as:

$$\rho_t = \sum \left(\beta \big| \mathbf{T}\right) \tag{7}$$

$$\rho_t \rightarrow \left\{ s_1^j \left(\beta_j \subset \beta\right)\right\}_{j=1,2,3} \tag{8}$$

$$\rho_t = \sum \left(\beta \big| \mathbf{T}\right) \rightarrow \left\{ s_1^j \left(\beta_j \subset \beta\right)\right\}_{j=1,2,3} \tag{9}$$

All subsequent stages generate new confidence scores between visual communication teaching methods and academic comprehensive quality using AI technology from the previous stage:

$$\rho_t > \sum \left[\beta \big| \mathbf{T}, \psi\left(\beta, \mathbf{S}_{t-1}\right)\right] \tag{10}$$

$$\sum \left[\beta \big| \mathbf{T}, \psi\left(\beta, \mathbf{S}_{t-1}\right)\right] \rightarrow \left\{ s_t^j \left(\beta_j \subset \beta\right)\right\}_{j=1,2,3} \tag{11}$$

$$\rho_t > \sum \left[\beta \big| \mathbf{T}, \psi\left(\beta, \mathbf{S}_{t-1}\right)\right] \rightarrow \left\{ s_t^j \left(\beta_j \subset \beta\right)\right\}_{j=1,2,3} \tag{12}$$

According to the above formula, the relationship between visual communication teaching methods and improving academic comprehensive quality can be obtained as shown in Figure 5.

New Forms of Integrated Teaching Materials in Combination With AR Augmented Reality Technology

AR increased reality is another innovation that consistently coordinates true data and virtual world data, and its image recognition technology can directly recognize images and text without the help of QR codes. Its image recognition technology can directly recognize images and text, retrieve resources and present them brilliantly through the mobile terminal. At present, there are few integrated teaching materials for visual communication available in the market, and more are still in the exploration and production stage. If the textbook comes with QR code in the relevant knowledge points, students can scan and learn as they go, and update the legend in real time. Whether it is packaging design,

Figure 5. Columnar Scatter of the Relationship Between Visual Communication Teaching Methods and Improving Academic Comprehensive Quality

corporate image design, or book production, students can use AR augmented reality technology to see the actual case of three-dimensional imaging, and students will actually learn better. The new knowledge carrier expands the teaching content, perfects the teaching cases, and is easily accepted by students.

Use of Infinite Screen Projection, Pop-Up Technology, and Physical Booths

An infinite projection screen allows teachers to use their phones or tablets to enter the middle of students and engage in interactive teaching. Students can use the terminal to answer questions and display popular questions on the teacher's large screen. The teacher can answer questions in real-time and understand the student's learning process. For example, in a printing process course, the teacher demonstrates the link of the drying plate; in the packaging course, the teacher teaches the process of packaging carton design and production. In a book binding course, the specific steps and key aspects of making books can be synchronized on the classroom big screen through the physical booth function, solving the problem that the course practical training display surface is not large enough and the number of students cannot see the teacher's operation. In the process of large screen placement, students can still send pop-up questions and interact in real time, which is helpful for teaching visual communication majors who focus on hands-on skills and need to make design presentations.

A variety of intelligent applications-mixed teaching with the common sharing platform of a resource library and online open courses are used. In the face of the rapid development of information technology and AI technology, a blended teaching mode is an effective teaching strategy. This model combines multiple intelligent applications, resource libraries, and a public sharing platform for online open courses, providing a wider range of learning resources and interactive experiences, promoting the improvement of students' learning and creative abilities in the field of visual communication design. Through various intelligent applications, teachers can utilize various design software, creative tools, and auxiliary programs to help students achieve more efficient and accurate design works. For example, AI assisted design tools can provide creative inspiration, automatically generate

design elements, and accelerate the design layout process. The public sharing platform of resource libraries and online open courses provides students with rich learning materials, case studies, and practical experience, expanding their horizons and creative ideas. In blended learning, teachers can use intelligent apps and platforms to teach knowledge, explain cases, and guide practical teaching activities. Students can use these tools and platforms for practice and exploration in the classroom or during self-directed learning, and complete design projects through individual or team collaboration. In addition, intelligent apps and platforms can also provide real-time feedback and evaluation, helping teachers understand students' learning progress and problems, and provide timely guidance and guidance. The blended teaching model can also promote the cultivation of students' autonomous learning and cooperative learning abilities. Through intelligent apps and platforms, students can choose and arrange learning content based on their own learning progress and interests, improving their autonomy and self-discipline in learning. At the same time, students can also interact, exchange, and collaborate through these tools and platforms, jointly explore problems, share experiences, and improve team collaboration and communication skills.

However, when using multiple intelligent apps, resource libraries, and public sharing platforms for online open courses for blended teaching, there are also some issues that need to be noted. First, teachers need to screen and evaluate these tools and platforms to ensure the quality and applicability of their content. Second, teachers need to provide appropriate guidance and supervision to guide students to use these tools and platforms correctly, avoiding abuse and dependence. Finally, with the continuous updates and changes in technology, teachers also need to constantly learn and update their knowledge and skills to adapt to the development and changes of the information technology education environment.

CONCLUSION

With the continuous deepening of informatization, the widespread application of AI technology in the field of visual communication design has had a profound impact and triggered a positive change in educational thinking. Faced with this huge change, we need to think about how to change our way of thinking, starting from the fundamental perspective of education, understand the teaching path changes brought about by the combination of AI technology and visual communication major, and study its application to extract the most effective information-based teaching methods. This is of great significance for improving teachers' abilities, stimulating students' learning enthusiasm, and achieving proficiency and sufficiency in education and learning. Therefore, we need to strive to create an intelligent and efficient information classroom to create a better educational environment and learning outcomes. This paper examines visual correspondence configuration education and the fundamental benefits of AI and proposes an innovative education model to break through the framework of the traditional teaching model and explore a new path by taking advantage of AI, so as to make visual communication design students more suitable for the current marketplace. In order to better prepare students for the direction of modern technological advancement, this paper examines the current state of visual correspondence configuration education and the fundamentals of AI. It also suggests a novel educational model that would bypass the constraints of the conventional teaching paradigm and explore the realization path by utilizing the benefits and characteristics of AI.

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