

Internet of Things Analysis in Classroom of Visual Communication Design Specialty

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ABSTRACT

In recent years, with the rapid development of multimedia technology and the improvement of people's understanding of multimedia teaching, the application of multimedia teaching in the field of education has become a hot spot of teaching reform. The means and technology of courseware making are also constantly improving. From making simple electronic teaching plan to making multimedia courseware and network courseware integrating video, audio, animation and graphics to show teaching content, it provides a broader development space for multimedia teaching. In order to cultivate more applied visual communication design talents, this paper studies the classroom teaching of visual communication design specialty based on multimedia technology, optimizes the curriculum module, and constructs the talent training strategy of keeping pace with the times.

Keywords: Multi-Media; Visual communication; classroom teaching

1 INTRODUCTION

Visual communication design is a kind of active behavior through visual form to spread specific things. Most or part of them depend on vision, and are represented by two-dimensional images such as logo, typesetting, painting, graphic design, illustration, color and electronic equipment. In the process of visual communication design, we find a phenomenon that the image of communication, education and persuasion of the audience will have a greater impact with words. Its meaning is a process that takes a certain purpose as the guide, conveys some specific information to the conveyed object through the visual art form, and has an impact on the conveyed object. As a kind of major set up by relevant design colleges, the training goal of visual communication specialty is very clear, and it cultivates application-oriented talents with certain professional quality engaged in packaging, advertising and graphic design [1].

Multimedia is a set of computer technology, recording, video, physical display and other functions in one of the modern equipment, with the deepening of teaching reform and the continuous progress of computer technology, multimedia gradually into the classroom and has begun to take shape. It can fully mobilize the various sensory organs of the human body, expand the

classroom capacity, more fully tap the potential of students, cultivate students' ability and improve students' intelligence. The effect of multimedia classroom is incomparable with traditional teaching methods. This paper studies the classroom teaching of Visual Communication Design Major Based on multimedia technology, optimizes the course module, and aims to cultivate more applied visual communication design talents.

2 RELATED WORK

2.1 Multimedia learning

(1) Multimedia

The term multimedia has different meanings for different people. In a broader definition, multimedia refers to the presentation of materials in various forms. In the cognitive theory of multimedia learning, multimedia is limited to two forms - words and pictures, because this distinction is most relevant to the research in cognitive psychology. Therefore, multimedia is defined as words and pictures to present materials together. Words refer to the materials presented in the form of printed text or speech; Picture refers to the presentation of materials in graphic

form, such as the use of static graphics (including illustrations, charts, photos and maps) or dynamic drawings (including animation or video tapes) [2].

(2) Multimedia learning

How to use multimedia in design depends on the designer's understanding of the concept of learning. There are two opposite views on Multimedia Learning: multimedia learning is the process of obtaining information and multimedia learning is the process of constructing knowledge. If multimedia learning is regarded as the process of obtaining information, then multimedia is an information dissemination system; If multimedia learning is regarded as the process of knowledge construction, then multimedia is a kind of auxiliary tool of cognition.

①Multimedia learning is information acquisition

According to the view of information acquisition, learning is to add information to people's memory. This view must be accompanied by some assumptions about the nature of the object of learning, the nature of learners, the nature of teachers and the purpose of multimedia presentation. First, the basis of learning is information, an objective object that can move from one place to another (just like moving from the computer screen to the human brain). Second, the job of learners is to receive information. Therefore, learners are passive individuals who receive information from the outside world and store it in memory; Third, teachers' job is to present information. Fourth, the aim of media presentation is to disseminate information as effectively as possible. The fundamental metaphor is that multimedia is a delivery system. According to this metaphor, multimedia is a tool to effectively deliver information to learners, as shown in Figure 1.

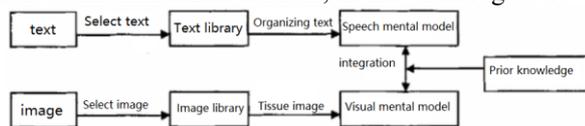


Fig. 1. Multimedia learning process

②Multimedia learning is knowledge construction

According to the view of knowledge construction, multimedia learning is a kind of activity to acquire meaning, in which learners try to establish coherent psychological representation from the presented materials. Unlike information (information is an objective thing that can be transferred from one person's brain to another person's brain), knowledge is constructed by learners themselves and cannot be transferred from one person's brain to another in an exact form. This is why presenting the same multimedia information to two learners will produce different learning results. Second, the task of the learner is to understand the meaning of the presentation materials, so the learner is an active meaning Builder: he receives

the multimedia presentation, tries to organize the presentation materials and integrate them into a coherent mental representation. Thirdly, the teacher's job is to provide help to students in the process of meaning construction. Therefore, the teacher is a cognitive guide who provides necessary guidance[3].

Cognitive theory in multimedia learning is based on three hypotheses: dual channel hypothesis, limited capacity hypothesis and active processing hypothesis. Firstly, the human information plus t system consists of two independent channels: the auditory channel for processing auditory input and speech representation, and the visual channel for processing visual input and picture representation. The dual channel hypothesis is based on Paivio's dual coding theory and Baddeley's working memory theory. Second, the processing capacity of each channel is limited. That is, only limited processing occurs in the auditory channel, while only limited processing occurs in the visual channel. This is based on Chandler and sweller's cognitive load theory and Baddeley's working memory theory. Thirdly, meaningful learning requires a lot of cognitive processing in auditory and visual channels. This is the main hypothesis of wettrock's generative learning theory and Mayer's "selection organization integration" active learning theory. These processing processes include individual attention to the presented materials, organizing the presented materials into an organized structure in the brain, and integrating the presented materials with the existing knowledge and experience in the brain, as shown in figure 2.

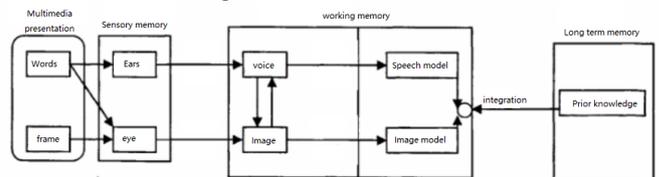


Fig. 2. Cognitive theory of multimedia learning

2.2 Classroom teaching design of visual communication design specialty based on Multimedia Technology

(1) static design

Static design refers to the static design of the information representation of content, which is how to express specific information objects in one or more media forms, such as recording, video, pictures, animation, etc. Detailed decomposition of content. Information representation design often takes the contents of textbooks or syllabus as the information object, while textbooks or syllabus are relatively complete information system and are represented in the form of words. However, not all the teaching content information needs to be presented in the form

of media. When designing information presentation, it is often necessary to refine and decompose the teaching content to determine the corresponding representation relationship between information type and media form. First, we should analyze the teaching content, define the teaching day standard, and screen out the relevant teaching information that needs to be represented by the media

(2) dynamic design
Compared with the static design of teaching information, dynamic design refers to the dynamic design of the link relationship between the representation information units and the interaction of screen pictures in the process of Representation Design of teaching information. Generally speaking, it is how to combine the static design representation information materials into the same way as to present them to the learners, and let the learners participate in the rice and actively study.

The design of the link relationship between the representation forms of teaching information. Here, the design of the link relationship between the information object representation forms refers to the design of the link mode of different information objects or the design of the link between different forms of the same information object. For different information objects, we should pay attention to the relationship when designing information representation. This can be determined according to the overall content architecture and classification teaching objectives. The information objects that need to establish direct links often have some connection. For the same information object, there may be many kinds of materials in the form of representation to support it. So how to determine the order and time of media material presentation? It is necessary to design, arrange and modern media to design the link relationship, and provide us with hypertext linking mode.

multimodal information design[4].

Multimodal information refers to the information organized and presented in various forms of information representation. Multimodal information design is the design of the form and process of using multiple media to represent the same teaching content. Psychological research shows that "multi sensory stimulation of multimedia is conducive to the long-term maintenance and acquisition of students' attention", "teaching information is presented by multi-dimensional representation, which is conducive to the construction of knowledge meaning and comprehensive understanding of knowledge. In addition, through the knowledge constructed by multi-dimensional representation (multimodal information representation), It can be better migrated to other areas. " Therefore, multimodal information design is an important aspect of teaching information media design.

3 DATA ANALYSIS

3.1 origin of specialty

Many people think that art design (Visual Communication) is "graphic design" and "graphic design", which has limitations. Although visual communication design originated from "graphic design" or "printing art design" at first, with the expansion of the scope of modern design, digital technology has penetrated into various fields of visual communication design, and the influence and participation of multimedia technology on art and design is also becoming deeper and deeper[5].

Before 2012, there was no visual communication design name in the art catalogue, and people saw more about art design. With the rapid development of science and technology, the content of design performance can not be covered - some new information communication media, visual communication design emerges.

$$\|\Delta x_{k+1}(t)\| \leq$$

$$\int_0^t e^{(pk_f+m_2+m_3)(t-\tau)} (m_1\|\Delta u_k(\tau)\| + pd) d\tau \quad (1)$$

In 2012, the new edition of the professional catalogue adjusted some specialties, and the art design specialty was divided into visual communication design, environmental design, product design and other specialties. Visual communication design has been rising early in foreign countries, and some domestic colleges have set up this major for a long time. From the name, the professional name is more scientific and rigorous, and contains the trend of future design.

$$\begin{cases} E(t)\dot{x}_d(t) = f(t, x_d(t)) + B(t)u_d(t) + d_d(t) \\ y_d(t) = C(t)x_d(t) \end{cases} \quad (2)$$

3.2 main features

Visual communication design is a design that is expressed and communicated to the audience through visual media, which reflects the characteristics of the design times and rich connotation. With the development of science and technology, the emergence of new energy and the development and application of product materials, the field of visual communication design is becoming a new field of design which is related to and cooperated with other visual media[6]. The contents include printing design, book design, display design, image design, visual environment design (i.e. logo of public life space and color design of public environment).

$$\begin{cases} E(t)\dot{x}_k(t) = f(t, x_k(t)) + B(t)u_k(t) + d_k(t) \\ y_k(t) = C(t)x_k(t) \end{cases} \quad (3)$$

Visual communication design is mostly graphic design with printing material as the medium, also known as decoration design. From the perspective of development, visual communication design is a scientific and rigorous concept name, which contains the trend of future design. According to the analysis of the design situation at present, the main content of visual communication design is still graphic design commonly known as graphic design by general professionals. There is no big difference in the design categories of visual communication design and graphic design at present. There is no contradiction and opposition between visual communication design and graphic design in concept category. Visual communication design is an art serving modern business, mainly including logo design, advertising design, packaging design, in-house environment design, enterprise image design, etc. because these designs are communicated to consumers through visual image, it is called "visual communication design", which plays a role of communication between enterprises, commodities and consumers. Visual communication design is mainly composed of characters, graphics and colors. It affects people's feelings and ideas with its unique artistic charm in the field of spiritual culture, and plays an important role in people's daily life[7].

4 EXAMPLE ANALYSIS

4.1 Application method of multimedia technology in visual communication design

(1) Follow the principle of appropriate use and reasonably distribute and sort out the elements

Firstly, in the design process, the excessive application of multimedia technologies may reduce the visual effect due to the excessive use of element symbols, which can not make the design achieve the ideal effect. Therefore, in the visual design, the designer should grasp the reasonable degree of technology application, strictly follow the principle of appropriate use, and combine the specific design requirements, Configure and process various element symbols. Appropriate use of artistic elements should be made to make the final visual effect of design works more perfect. In the work design, the designer should also highlight the key information to keep the overall coordinated layout and collocation of the work[8].

(2) Scientific application, pay attention to tailor-made for target users

Secondly, when applying multimedia technology, we should ensure the scientific degree of application and try to tailor it to the target population. For example, in life, more users are more exclusive of video advertisements in TV programs, and even have a certain exclusion psychology after seeing advertisements, which makes the advertising effect poor. In order to change this problem and improve the effect of advertising, we should try to make advertising short and powerful, short and concise, or improve the interest of advertising. At this time, the user will skip the advertisement as soon as possible after encountering the advertisement. Second, watch interesting advertisements. When the advertising design is shorter, the target group can have more effective contact with the advertising content and ensure the advertising effect. When the advertising design is more interesting, the target group can also improve the advertising, improve the impression of the advertising content and achieve the effect of advertising[9].

(3) Master the visual habits of target users to ensure scientific application

Finally, the application of multimedia should be more scientific according to the actual visual habits of the target population. Take people's material reading as an example, more people read. The principle of from top to bottom and from left to right is often followed, so that the corresponding information can be obtained smoothly. It can be seen that people's visual aggregation point is often in the upper left corner. Therefore, when designing activities, you can try to place key information content at this position, or scientifically configure patterns and colors, so that the information in the upper left corner can be more attractive, and the target population can improve their enthusiasm and interest in watching and understanding the design.

(4) Do a good job of innovation for the interactive artistic expression

In order to innovate interactive artistic expression, in the design, all personnel should fully grasp the specific development trend of interactive design in the network era, optimize the way users collect and use information to complete interaction, so that users can improve their understanding of information exchange and use, timely grasp users' feedback and solve users' problems in time. The comprehensive use of different elements of design, such as text and music, enables users to improve the level of knowledge accumulation and cognition, enables designers and design users to interact effectively, enables visual communication, and multimedia design to be continuously improved, so as to make them more meet the needs of users[10].

(5) When applying multimedia technology, we should be bound by morality

At this stage, some businesses do not abide by morality for the sake of interests, and the visual design will affect people's thoughts and social stability to a certain extent. For example, works of visual design type, which will hurt others, attack others and other types of content. In order to avoid this kind of situation, in the visual party design, every designer should understand that when applying multimedia technology, personal behavior needs to be bound by legal and moral constraints, so as to become a professional and skilled designer and make the design works more positive.

4.2 Network multimedia technology and visual communication design

The development of network multimedia technology makes the forms of visual communication design more and more diversified, which gives us a strong visual impact and sensory aesthetic impact, and the communication mode of visual communication design has also been expanded. It is mainly reflected in the following aspects: (1) The communication mode of visual communication design has changed from static communication to visual integrated communication mode combining dynamic and static[11].

Generally speaking, visual information communication is divided into two forms: static visual information communication and dynamic visual information communication. The image transmitted in the static communication form pursues more concise modeling and tries to create a highly general picture. Due to the high generalization of graphic language, it is easy to cause that the amount of information conveyed by a single picture is not enough, which makes it difficult for the audience lacking relevant knowledge background to understand the deep meaning of poster or advertising design, resulting in misunderstanding of the audience. Dynamic visual communication presents the real scene more realistically, which brings people vividness, authenticity and strong on-site impact. This kind of network multimedia communication integrates visual, auditory and other sensory elements. Dynamic visual picture is the main part of its information transmission. With the supplement of sound and other forms, the amount of information conveyed by dynamic visual communication is greater. Therefore, it will be more intuitive and labor-saving for people to obtain information from the form of dynamic visual communication. Combine static visual communication and dynamic visual communication, obtain the maximum communication effect with the lowest communication cost, and create a three-dimensional visual communication mode. The omni-directional visual impact it brings is unmatched by any - . Single form of visual media[12].

(2) The communication mode of visual communication design continues to surpass from two-dimensional and three-dimensional to four-dimensional space-time

Network multimedia not only promotes the development of diversified vision, but also indicates that the new way of visual communication will break the boundaries of traditional design categories, making visual communication design a carrier that can touch a variety of disciplines. For example, in the networked logo design application, fully showing the richness and flexibility of the appropriate dynamic and static of logo design, coupled with the interactive design communication of communication, will make the logo application system have a strong extension advantage. The transformation from static form to dynamic direction, and the combination of the advantages of dynamic and static forms of communication, is bound to promote the corporate image comprehensively, three-dimensional and interactively, with a strong communication and communication effect. For example, the logo and image promotion design of the 2000 World Expo in Hanover, Germany, further shows the strong visual impact of this visual communication design. For another example, the traditional display design is carried out under the fixed conditions of space and time, but we can use the characteristics of real-time and network transmission of virtual display design, and use the new medium of digital network virtual reality display design to simulate the real three-dimensional environment, so that the audience can be immersive and watch the three-dimensional scene, You can change the visual observation points according to your needs to find the information you want[13].

(3) The communication mode of visual communication design has made a leap from one-way linear communication to interactive communication

Compared with traditional text, printing, film and television and other media, the greatest uniqueness of interactive media lies in its interactivity. From the original image expression to text expression, and then to the hyper-text expression of the combination of sound, image, image and text, the information transmission is more and more accurate, rich and complete. People are no longer satisfied with the arrangement of passively accepting information. People are required to actively participate in the process of information exchange and acceptance, which has created people's pursuit of interactivity. This feature of interactivity allows the design interface itself to have real-time communication and dialogue with the audience. The interface changes or improves intelligently with the feedback of the audience, and feeds back to the audience in real time. This also makes interactive design an interesting and personalized art design form[14].

5 CONCLUSION

In the context of the transformation of colleges and universities to application-oriented colleges and universities, the teaching reform of visual communication design should be based on the actual needs and seek a new path. Only by constantly optimizing the allocation of teaching resources, actively exploring the talent training mode under the new situation, updating teachers' teaching philosophy, and realizing complementary advantages and resource sharing, can we ensure the rationality of the existing curriculum of visual communication design and cultivate applied design talents to meet the needs of the times.

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