

Application Analysis of Computer Digital Media Technology in Advertising Art

Zhinong Liu*

Hangzhou Polytechnic, Hangzhou, Zhejiang, China

*Corresponding author

Abstract:

The role of CDM (computer digital media) technology in advertising art is becoming increasingly apparent. New media and network technology come into our lives unknowingly, laying the foundation for the development of the knowledge economy industry. The rapid development of digital media art has greatly enriched the content and form of the modern information industry. The diversification of computer technology has brought a huge impact to the traditional advertising industry. The traditional advertising model has not adapted to the needs of this era. With applications such as Weibo, WeChat, and Douyin, it has greatly occupied the channels for people to obtain information. The modern AD (advertising design) industry urgently needs to make changes and apply computer media technology to advertising art. The application of CDM technology in advertising art is the focus of this article. The analysis of the current situation of the advertising industry shows that the domestic advertising industry is in a steady and positive development trend, and advertising with TV and the Internet as the main media is more popular. In 2000, the total revenue of the advertising industry was 134.2 billion yuan. By 2020, this value is as high as 910.5 billion yuan, a total increase of about 780 billion yuan. The effect of DMT (digital media technology) in advertising art is analyzed. 41% of the surveyed believe that DMT can help AD to achieve the integration of virtual and reality, 27% and 22% think that DMT can enrich the expression of advertising art and promote the diversified development of AD.

Keywords: Digital Media; Technology; Advertising; DMT; mediums; Application

I. INTRODUCTION

CDM technology has gradually penetrated into people's production and life. Digital media such as digital TV and the Internet have developed rapidly around the world, greatly enriching the content and form of the advertising industry. The traditional advertising industry is difficult to meet the diverse needs of people. DMT promotes the innovation of AD and better interprets the energy of advertising. In order to achieve a more in-depth development of CDM technology and bring convenience to people's production and life, in-depth study of the combination of digital media art and AD is the focus of this article.

There are less researches on the application of CDM technology in advertising art. Nie S pointed out that with the rapid development of computer technology and the wide application of DMT in the field of AD, AD has changed from the most primitive hand-painted production to modern high-tech computer

software production [1]. Yang C believes that art has a broader space for improvement with the development of Internet technology. Non-linear changes in computer hardware and software have made DMT one of the widely used technologies in digital film and television [2]. Kong W elaborated on the various functions and uses of DMT in various artistic fields [3]. Based on previous research results, this article aims to combine existing research on the combination of digital media art and advertising design to put forward new views and insights, aiming to contribute to the development of the advertising industry.

This article mainly investigates the application of CDM technology in advertising art. The literature survey method and questionnaire survey method are employed to carry out the following analysis. First of all, the development status of the advertising industry is analyzed to demonstrate the increasing market scale of the domestic advertising industry year by year, and the advertising with TV and the Internet as the main medium is becoming more and more popular. Secondly, the effect of DMT in advertising art is specifically investigated.

II. APPLICATION OF COMPUTER DIGITAL MEDIA TECHNOLOGY IN ADVERTISING ART

2.1 Digital Media Technology

DMT is a streaming media technology that is widely used in digital media transmission networks through digital compression information technology and information transmission technology [4]. Digital media is the integration of digital technology and media. But in a broad sense, digital media refers to the sum of sensory media, presentation media, and physical media, not just sensory media. They mainly affect the behavior of the public in the form of animation, film and television, and music. Digital media has the characteristics of information digitization and diversity in form of expression. The foundation of DMT is computers. Use the hardware or software in it to integrate digital information processing science, computer science, digital communication and network science, and extensively collect digital, text, image or sound content for processing to achieve realization of some functions related to digital media. Digital technology is using its advantages to change people's lifestyles. DMT is widely used in advertisements that are closely related to the lives of the general public. Although traditional advertising forms are endless, such as prints, bus bodies, outdoor light boxes, online advertisements, and mobile phone advertisements, all kinds of advertisements are dazzling. The form of advertising is nothing more than allowing the public to be affected in a subtle way. The development of digital technology allows these advertisements to be brought to life with dynamic expressions, and then adopt visual effects that conform to the public's aesthetics, attract the attention of the audience, deepen the audience's memory, and finally produce a multiplier effect compared with traditional media [5, 6].

2.2 Advertising Art

As a kind of practical art, advertising affects people's daily life in a unique way. Everyone may see advertisements, and advertisements have become an inevitable thing in people's daily lives [7]. It can be seen in all kinds of mass media, or in the streets, high-rise buildings and every corner of social life. There are also many differences between advertising art and pure art. Pure art has considerable authenticity, and

advertising art is usually practical and profitable [8]. Pure art is often super-utilitarian, advertising is designed to trigger, stimulate or enhance the public's desire to shop and promote their buying behavior. In other words, the basic purpose of all advertising is to promote products. At the end of the 20th century and the beginning of the 21st century, color TVs began to be popularized in China. Therefore, TV dramas can completely affect the habits and lives of Chinese residents. TV series can integrate light, shadow, sound, and electricity, and have super expressive power, which can show the structure, use and effect of products one by one. Some familiar ones are the early advertisements of Nescafe in China, which mainly show the scene of the male protagonist drinking coffee. This advertisement is simple and straightforward, telling people directly about the characteristics of coffee as a product. After the gradual popularity of online media, the traditional advertising model was broken. The old-style advertising model is a unidirectional communication in an accurate sense, and the information mainly flows from the communicator to the receiver. Receiving staff can't play a big role in this process, they just passively accept information. After the rise of online media, this unidirectional spread was completely broken. Advertising has a two-way interactive effect, and the accepting staff gains more initiative in this process, and no longer passively accepts information [9, 10].

2.3 The role of Digital Media Technology in Advertising

The purpose of advertising is to promote products. With the advancement of society, product types and functions have become more abundant, advertising planners realize that advertising design must not only meet the physiological needs of the public, but also meet the psychological needs of the public [11]. Artistic and aesthetic advertising art design can better meet the needs of the current era [12]. Applying DMT to the role of advertising, not only relying on celebrity promotion can achieve good results. Advertisements do not rely on preaching to impress the audience. Advertisements should be a process of mutual understanding. The design of an advertisement can only be considered successful if it truly meets the aesthetic needs of the audience. In the AD process, the aesthetic needs of the audience should be considered. First, we must understand the characteristics of the audience. Potential advertising audience is anyone who comes into contact with advertising, and everyone in life may become an advertising audience. The preferences of advertising audiences are not static, their preferences are affected by many factors. Some people may abandon the products they previously liked and choose new products. Therefore, it is of great practical significance to understand the factors that affect the audience's preferences in the advertising design process. A good designer must observe his words and opinions, and understand the psychology of consumers in the society. Nowadays, people will actively choose to receive advertisements they are interested in, and are willing to share their views on specific advertisements with others. A good advertisement will make the audience have a good impression of the advertised product, and then choose to buy the product. Therefore, when designing an advertisement, it is necessary to consider how to meet the aesthetic needs of the audience. The aesthetics of the advertising audience has some characteristics, such as utilitarianism, which is different from pure art, the aesthetics of pure art cares more about the experience of the inner spirit. When people are immersed in pure art, they can often throw away their worries. The aesthetic feelings of advertising audiences are short-lived. People often come into contact with print advertisements and TV commercials inadvertently. These advertisements will suddenly surprise people, but most of this process is extremely short-lived. Therefore, the aesthetic sense of the audience is

often fleeting. DMT is conducive to enhancing the expressiveness of advertisements, and the integration of FLASH and video clips enhances the sensory experience of the audience [13, 14].

III. APPLICATION OF COMPUTER DIGITAL MEDIA TECHNOLOGY IN ADVERTISING ART

3.1 Experimental Background

Today, when DMT has gradually penetrated into people's lives, DMT has also begun to be widely used in advertising art, through the digital processing of the text and pictures in the media, the personality of the advertisement is enhanced, and the method of advertising production is enriched. In the traditional advertising model, people are just passive recipients of information and cannot choose what they are interested in. The application of CMT in advertising art makes advertising have a two-way interactive effect, people can freely choose to browse the advertising content that they are interested in on the web, and view products. Based on this, this article briefly describes the application of CDM technology in advertising art, hoping to provide a theoretical basis for the development of domestic advertising art design.

3.2 Experimental Process Steps

The experiment designed this time is mainly divided into two parts. The first half of the experiment adopts the literature research method that comprehensively reflects the overall development status of the domestic advertising industry from two different aspects: the total scale of the advertising industry and the proportion of different media forms of advertising. In the second half of the experiment, a questionnaire survey method was used to investigate the effect of DMT in advertising art. The subject of the questionnaire survey was 100 advertising designers from all over the country.

The following formulas are mainly used when calculating the total scale of the advertising industry. By delimiting a fixed sampling space, the generated sampling value is determined according to whether a failure occurs within a time period.

$$f(x) = \sum_{i=1}^{n-1} \left[100(x_{i+1} - x_i)^2 + (x_i - 1)^2 \right] \tag{1}$$

In formula 1, $x \in [-10, 10]$, the above formula has a minimum $f(x) = 0$

$$f(x) = \sum_{i=1}^n \left[y_i^2 - 10 \cos(2\pi y) \right] \tag{2}$$

In formula 2, $x \in [-5, 5]$, the above formula has a minimum value.

IV. EXPERIMENTAL ANALYSIS OF THE APPLICATION OF COMPUTER DIGITAL MEDIA TECHNOLOGY IN ADVERTISING ART

4.1. The Status Quo of The Advertising Industry

This article mainly reflects the development status of the advertising industry from two aspects: the total scale of the advertising industry in recent years and the proportion of different media forms of advertising. After consulting the relevant information, the data results are displayed as follows:

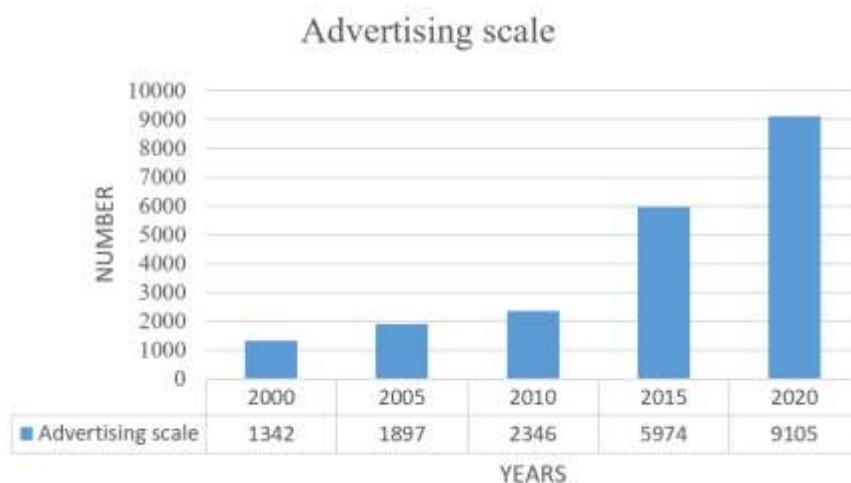


Figure 1. The total scale of the advertising industry in recent years

It can be seen from Figure 1 that in recent years, the market scale of the domestic advertising industry has shown an increasing trend year by year. According to data, the scale of advertising in my country has continued to grow from 2000 to 2020. In 2000, the total revenue of the advertising industry was 134.2 billion yuan. By 2020, this value is as high as 910.5 billion yuan, a total increase of about 780 billion yuan. Between 2000 and 2010, the scale of advertising grew slowly. It only increased by nearly 100 billion in ten years. After 2010, the growth rate of advertising scale has increased significantly. In 2015, the scale of the domestic advertising market was 597.4 billion yuan, a year-on-year increase of 154.6% compared to 2010.

Taking 2020 as an example, the total revenue of the advertising industry is 910.5 billion yuan. The following table shows the proportion of various media advertising revenues in total revenue.

TABLE I. The proportion of five different media advertising revenues in total revenue

	Income	Proportion
Television	3368.85	37%
Internet	2731.5	30%
Magazine	1821	20%
Newspaper	819.45	9%
Other	364.2	4%

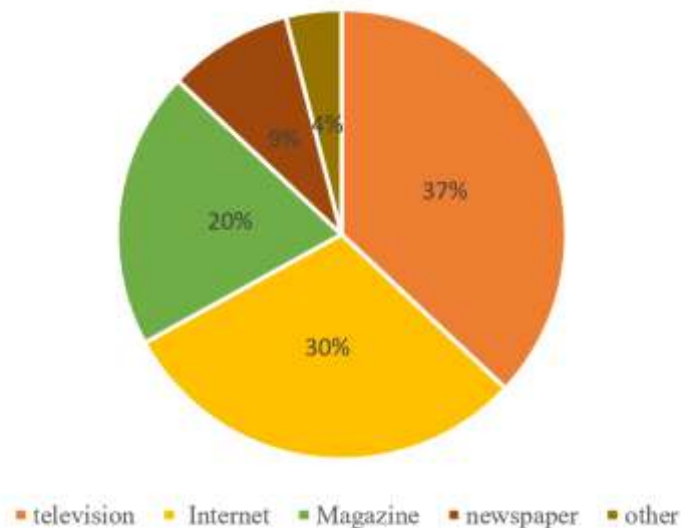


Figure 2. The proportion of various media advertising revenues in total revenue

As can be seen from Table I and Figure 2, TV advertising and online advertising have outstanding advantages. TV advertising revenue in 2020 reaches 336.885 billion yuan, accounting for 37% of the national advertising turnover. The online advertising revenue is 273.15 billion, accounting for 30% of the total national advertising revenue. Compared with traditional advertisements, it can be seen that TV advertisements and online advertisements are still the priority media for advertisers in my country. The income of newspapers and periodicals accounted for 9% and 20% of the total income, respectively. On the whole, the domestic advertising industry is in a steady and positive development trend, and advertising with television and the Internet as the main media is more popular.

4.2. Analysis of the Effect of Digital Media Technology in Advertising Art

In the first half of the experiment, it can be found that the advertising industry in my country is developing better and better with TV dramas and the Internet as the main media. DMT can digitally process the numbers and pictures in TV and the Internet, improve the ability of information dissemination, and also enhance the effect of advertising art. The specific survey results are shown in Table II and Figure 3.

TABLE II. The role of digital media technology in advertising art

	Number	Proportion
Fusion of virtual and reality	41	41%
Diversification	22	22%
Enriched the form of expression	27	27%
Improve advertising personality	10	10%

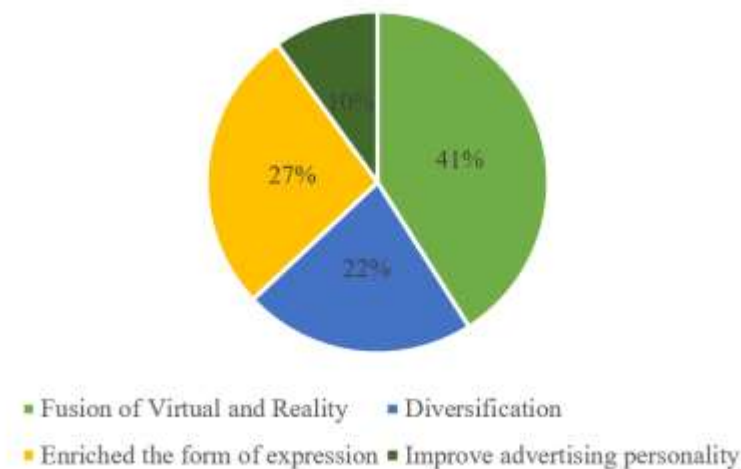


Figure 3. The role of digital media technology in advertising art

The effective application of computer digital media technology plays a very important role in promoting the vigorous development of the advertising industry. It can be seen from Table 2 and Figure 3 that 41% of the surveyed believe that DMT can help advertising design to achieve the integration of virtual and reality. Designers can use DMT such as graphics processing technology and special effects processing technology to expand the language of expression of AD, and achieve the perfect integration of reality and virtuality. 27% agree that DMT can enrich the expression of advertising art and bring strong visual impact to the audience. 22% admit that DMT can promote the diversified development of AD. The remaining 10% believe that this technology can also improve the personality of advertisements.

V. CONCLUSION

Today's world has entered the era of DMT, and the improvement of the art of AD is inseparable from the use of DMT. DMT has played a positive role in promoting the development of advertising design. After the application of digital media technology in advertising art design, its content and forms of expression have been enriched. DMT has also promoted the diversified development of AD. Therefore, this article focuses on the current status of the advertising industry and to the application of DMT to advertising art design. It is hoped that the sustainable development of advertising design industry can be promoted in the future through the in-depth research on the application of DMT in advertising art design.

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REFERENCES

- [1] Nie S, Yan L. Analysis of application of digital media arts. *Advanced Materials Research*, 2014, 989-994:4223-4225.
- [2] Yang C. Research on application of digital media art in modern exhibition design based on computer information technology. *Journal of Physics Conference Series*, 2020, 1648:032147.
- [3] Kong W. Digital media art design based on human-computer interaction technology in the background of big data. *Revista de la Facultad de Ingenieria*, 2017, 32(14):485-489.
- [4] Chen H. Research on the application of digital media art in animation control based on Maya MEL language. *Acta Technica CSAV (Ceskoslovensk Akademie Ved)*, 2017, 62(1):499-507.
- [5] Huang W. Comparison of the applications of digital media technology in public art design in China and the US. *Agro Food Industry Hi Tech*, 2017, 28(1):2981-2983.
- [6] Li W. Application analysis of VR virtual technology in environmental art design teaching. *Journal of Physics Conference Series*, 2021, 1744(4):042222.
- [7] Pryshchenko S. Prospects for development of advertising graphics in the traditional and digital media. *Research and Methodological Works of the National Academy of Visual Arts and Architecture*, 2020(29):54-59.
- [8] Sugiarto E, Kurniawati D W, Febriani M, et al. Computer-based art in folklore illustration: development of mixed media digital painting in education context. *IOP Conference Series: Materials Science and Engineering*, 2021, 1098(3):032017 (7pp).
- [9] Zeng R. Research on the application of computer digital animation technology in film and television. *Journal of Physics: Conference Series*, 2021, 1915(3):032047 (6pp).
- [10] Min X, Gong B. Application analysis of computer information science and technology in logo design of digital era. *Journal of Physics: Conference Series*, 2021, 1881(3):032078 (7pp).
- [11] Burkhardt H, Zwerger G. Use of digital media and technology in the Ries Geopark and their limits in practice. *Schriftenreihe der Deutschen Gesellschaft für Geowissenschaften*, 2019, 94:36-39.
- [12] Zhang H. Analysis of influence of digital media technology on Chinese traditional music development. *Agro Food Industry Hi Tech*, 2017, 28(1):3121-3123.
- [13] Erdt, Mojisola, Sin, et al. Altmetrics: an analysis of the state-of-the-art in measuring research impact on social media. *Scientometrics: An International Journal for All Quantitative Aspects of the Science of Science Policy*, 2016, 109(2):1117-1166.
- [14] Girija S. A case study of production practices and user participation in an advertising-free digital news media organisation. *Triplec*, 2019, 17(1):38-55.