

Research Article

Design and Production of Visual Image of Print Advertisement Based on Mobile Media

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With the rapid development of science and technology, various fields (such as information and multimedia) have been combined with each other into a complete field of print advertising design. The visual image is the main part of showing the expressive power of graphic advertising, which intuitively explains the design creativity of the advertisement. It uses visual expression to attract the audience's first attention and stimulate consumer emotions. However, with the continuous change of people's aesthetic art and aesthetic needs, ordinary print advertisements can no longer meet the needs of consumers. The continuous development of science and technology has promoted the spread of mobile media. Mobile media applications not only integrate with people's daily life but also bring people various mobile media advertisements. It realizes the multimedia and diversification of advertising. To meet the ever-changing visual aesthetic needs of users, it is necessary to use mobile media technology to innovate the visual image of print advertisements and provide consumers with a unique visual experience. Therefore, this paper will study the design and production of print advertisement visual image based on mobile media. This paper takes the design process of mobile media as the research process and summarizes the visual image design method of print advertising that meets the needs of users, conforms to the development of the times and aesthetic trends, and has high cultural information dissemination efficiency. It then tests the proposed theoretical method through the comparison of works and finally realizes the second leap of design theory. Experiments show that the visual image of mobile media advertising is more in line with consumers' aesthetics and can increase product sales. The highest sales of its products increased by 9.26% compared with ordinary products.

1. Introduction

As a new type of art service industry, print advertising plays an important role in social development. Advertising design originated in Western countries. The history of early design development is the development process of Western design. With the rapid development of the global economy and culture, the term print advertising design is well known to the public. The outdated concept of art design can no longer meet the growing aesthetic needs of consumers. With the emergence of new technologies and new information dissemination methods, visual image design has been paid more and more attention by people. The continuous development of mobile media technology enables more new technologies to be developed and applied in mobile media advertising design. How to use the mobile media technology

to design the visual image of the print advertisement is a problem worth studying.

In today's high-speed political and economic development, the research on the design of print advertisements is relatively extensive. Myers and Jung examines advertising rhetorical skills—the use of visual metaphors and their persuasive effects from the perspective of the characteristics of consumers' cultural and personality tendencies in processing visually relevant information. The results show that visual delivery technology significantly improves consumers' evaluation of brands through advertising messages [1]. Kim et al. selected a random sample of 484 nonstudent research participants to study the co-regulation of narrative (relative to non-narrative) advertising attitudes towards advertising (Aad) and positive effects of brand attitudes. The study consisted of 25 narrative and 25 non-narrative TV

commercials [2]. Ayaz examined how and why nostalgic themes are used in marketing and advertising through a semantic analysis of Candida-themed and non-Nostalgia-themed advertisements. In this context, he explained the nostalgic and non-nostalgic themed print advertisements through semiotic analysis [3]. Peltekoglu et al. looked at print advertisements by Tiffany, Cartier, and Bulgari for their iconic jewellery pieces, including techniques used such as symbolism, intertextuality and ambiguity, and provided a brief analysis of each advertisement [4]. Jiang and Yao analyzes and studies the meaning and specific forms of symbolic language in graphic design and expands the design ideas and ideas of graphic designers [5]. Although the design of print advertisements has developed rapidly, there is still room for improvement in the visual image design of print advertisements.

At present, mobile media applications are becoming more and more mature. It meets various demands of users and becomes a multimedia application that users are willing to choose. Wang and Liu conducts research on the digital design of comics, making comic strips keep up with the trend of the times and re-enter people's attention [6]. Lorenzo et al. revisits the structural use of natural bamboo stalks in the context of the digital age and proposes a new design and fabrication framework to support the construction of high-quality, sustainable, and resilient bamboo structures [7]. Zhou et al. mainly discuss the development and trend of font digital design from the aspects of multicultural integration, fun, nationalization, emotionalization, personalization, and digitization of fonts [8]. Fashion design models based on big data and digitization are being developed. Zhao et al. reviewed the fashion design models proposed in recent years and thought about the future development direction of fashion design [9]. Ball et al. discuss the application of computer-aided design software in textile design and discusses the artistic beauty of computer-aided design enhancing textile design from three aspects: color beauty, form beauty, and space beauty [10]. The application of mobile media technology to the design of print advertisements can enhance the viewing of print advertisements. It mobilizes people's senses of sight, hearing, touch, and so on. Therefore, this paper uses the mobile media technology to design and produce the visual image of the print advertisement.

In this paper, through the research on the application of mobile media and the related content of the visual image of the print advertisement, fully combining its concept, content, and characteristics, it summarizes the design method of the visual image of the print advertisement based on the mobile media technology. It compares ordinary print advertisements and print advertisements after applying mobile media technology from five aspects: viewing, innovation, interactivity, purchasing desire and actual product sales, and analyzes the advantages and innovations brought by mobile media technology to print advertisements.

The innovations of this paper are as follows:

- (1) The basic elements of the visual image of print advertisements are summarized, and the characteristics of mobile media advertisements are expounded.

- (2) Combine the visual image design of print advertising with mobile media, study the visual design process of mobile media print advertising, and the application elements in the design process, including font application, shape application, color application, and layout application.
- (3) The innovative research of print advertising in mobile media is discussed, including three aspects: emotional level, virtual reality, and dynamic effects.

2. Visual Image Design Technology of Mobile Media Print Advertising

2.1. Visual Image. Humans complete the cognitive activities of the world through sight, hearing, taste, smell, and touch. Among them, vision and hearing are called the higher senses in the five senses, and vision is the main way to recognize external things. Humans normally process information according to the type and level of perception, which in turn affects memory. Among them, visual language is the language that is most easily recognized by human perception organs, so visual communication is very important for advertising effect [11]. The cognitive process of the subject to the visual image is shown in Figure 1.

The visual picture stimulates the eyes, the rod cells in the eye perceive the light and shade of the color, and the cone cells perceive the hue. Then the eyes transmit the stimuli to the brain and the brain perceives, imagines, emotionally, and understands the visual image, thereby transforming it into cognition of the visual image.

2.2. Visual Image of Print Advertisement. It uses human visual senses to convey advertising information to the public through the media, aiming to influence or change the public's understanding of the advertiser's company or the image of the advertised brand. The image created by this type of advertising is the visual advertising image. The visual image of a print advertisement is the visual image of the advertisement rendered through 2D media. The visual appearance first grabs the viewer's attention, evoking the consumer's emotions with visual expressiveness. The basic elements of visual appearance in print advertisements are mainly graphics, copywriting, color, and layout [1, 12].

2.2.1. Graphics. Graphics are the most important part of the visual communication performance of print advertising, which intuitively interprets the advertising creativity. It first grabs the public's attention and uses visual expressiveness to evoke the emotions of consumers. In the design of the visual image of the print advertisement, there are two modes of expression: photographic pictures and drawings. Photographic images are characterized by realistic effects, high reliability, and impressive impressions, giving the impression of authenticity and reliability. The advantage of drawing is the personalization and richness of artistic expression that can be achieved with photographic images.

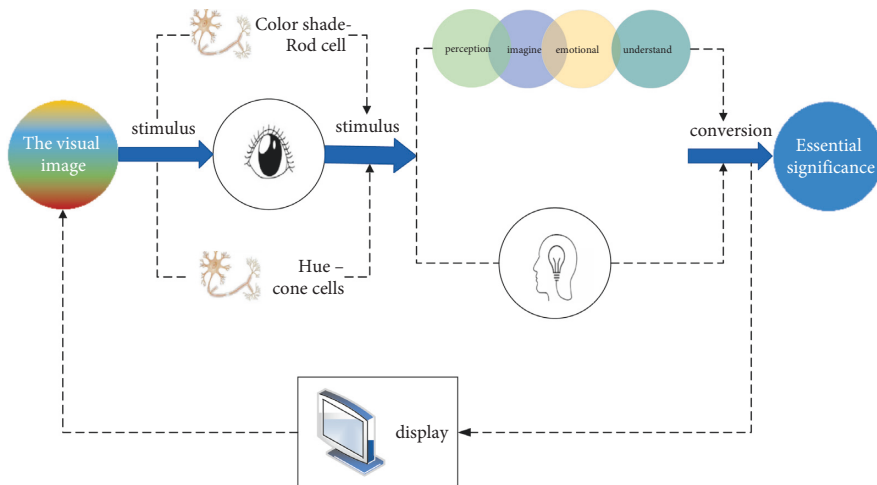


FIGURE 1: The cognitive process of the subject to visual image.

2.2.2. *Copywriting.* The job of the copywriter is to communicate the content of the ad and put the finishing touches on it. The text generally includes the headline of the ad, the slogan of the ad, the text of the ad, and information about the product or business. The main forms are painting, comics, computer graphics, and so on.

2.2.3. *Color.* Copywriting is usually the first step in the design of print advertisements because other elements such as graphics are designed according to the appeal points and style characteristics conveyed by the copywriting. Color can directly stimulate the audience psychologically. Therefore, designers combine product characteristics, advertising color image, and audience aesthetics to provide a visual psychological interpretation of culture. The color of the advertisement is based on the visual aesthetic characteristics of the person in the design to illustrate the difference between the different effects of different colors. The level of color mood is shown in Figure 2.

Color artistic conception includes three levels of visual impression of perceptual feeling, existence value of essential meaning, and color artistic conception. The visual impression of perceptual sensation is the overall impression left by people on the color interface through decoration. The existence value of the essential meaning is the imagination that people make in their minds when they come into contact with the picture. Color mood is people’s understanding of the whole color picture after imagining. It enables a consensus between subject understanding and color representation.

2.2.4. *Layout.* Layout is also commonly referred to as layout design, which integrates the three elements of graphics, text, and color. It is the decisive factor that makes up the visual style. The placement of different positions, size settings, etc. can directly affect the audience’s understanding of advertising information. It uses attractive text or pictures to attract consumers, which plays an important role in advertising visual communication. In the process of visual perception, the brain obtains information by moving the eye’s gaze to the

contrasting point of the object and focusing the gaze on the image at the gaze point. The visual flow process is easily guided by the directionality of the layout information. The human brain receives various information based on the observed movement of objects. Therefore, eye movements are considered to be the most efficient way to process visual information. The scope of the human visual field is shown in Figure 3.

Eye movements are divided into two categories. One is the voluntary movement of the line of sight, and the other is the passive movement of following the object. The study of the visual image design of print advertisement is to guide the attention through the visual works, and the viewer’s eyes move spontaneously, so as to achieve the purpose of attracting the viewer’s attention [13].

2.3. *Mobile Media Technology.* The form of media in the modern sense has gone through the transformation process of newspapers, magazines, radio, television, and the Internet. Its continuous integration and development with media technology has finally formed today’s mobile media as the “fifth media.” With the development of mobile media technologies, mobile media terminals have gradually evolved into portable electronic assistants that assist users in their daily life, work, and entertainment. The evolution of modern media is shown in Figure 4 [14].

Mobile media applications have the characteristics of wide content and audience, instant consumption and update, and open interaction and payment. Mobile media application content spans all aspects of life, including life service applications, game applications, etc. It is aimed at applicable user groups across different ages, occupations, cultures, nationalities and languages, and truly realizes the movement and interconnection of media and cultural information. Application developers can continuously extend the life cycle of their products through instant application updates. Users only need to purchase the right to use one time to obtain the updated content of the software continuously and instantly. It is precisely because of the above

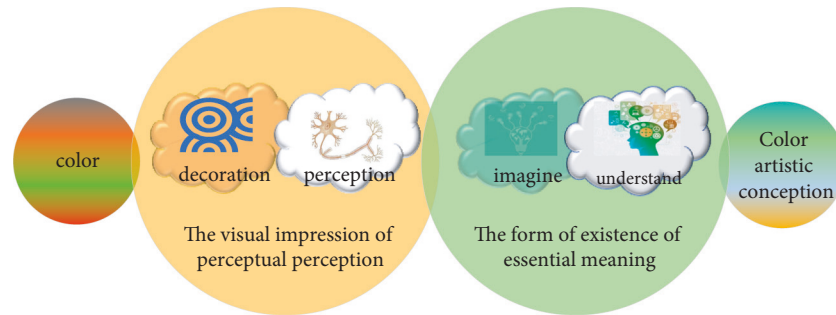


FIGURE 2: The level of color artistic conception.

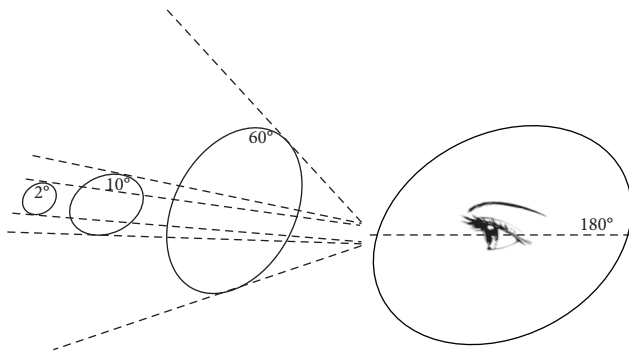


FIGURE 3: Scope of human vision.

characteristics that compared with the Internet and traditional computer-based advertising, mobile media advertising is a more effective way of feedback, which provides a good communication environment for the spread of advertisements. In addition, the development of mobile media has lowered the threshold for advertising design and production, and more people can participate in advertising production, which can enhance the user's sense of intimacy, identity, and interaction.

Mobile media advertising has the following characteristics [15]:

2.3.1. Interactive Content Design. The core of mobile media advertising is interactivity, and the audience can have more choices when facing a variety of complex advertisements. In the process of dissemination of advertising information, advertisers and audiences, audiences and audiences, audiences and advertising carriers have formed an intimate connection and a new structure with more interactive forms. The subjective consciousness of the audience is continuously enhanced, and they no longer passively receive information. In the process of dissemination of advertising information, advertisers and audiences, audiences and audiences, audiences and advertising carriers have formed an intimate connection and a new structure with more interactive forms. The subjective consciousness of the audience is continuously enhanced, and they no longer passively receive information.

2.3.2. Digital Technology Support. Mobile media advertising is a form in which digital information technology and

network technology are integrated into the design and dissemination of print advertising and are constantly integrated into people's lives. The emergence of mobile media advertisements makes up for some disadvantages of traditional advertisements in communication and information transmission and maximizes the interests of advertisers. Mobile media advertisements abound, and while the audience feels the convenience it brings to their lives, they also gradually rely on this new communication medium.

2.3.3. Personalized Creative Space. The dissemination of information in the era of mobile media is determined by market segmentation and classification of consumer groups. On this basis, mobile media advertisements that conform to the consumer market and target consumers are designed. This is not only conducive to maximizing the satisfaction of consumers' personalized needs but also making the advertising effect more popular.

2.4. Visual Image Design of Mobile Media Print Advertisements. The visual image design process of mobile media print advertisement is shown in Figure 5.

First, it analyzes the needs of target objects through interviews, observations, etc., then establishes a demand framework according to demand expectations, and then designs a mobile media design process according to user expectations. It then determines the specific script and slogan of the advertisement and finally communicates and revises according to the visual presentation of the advertisement, and the visual image design of the mobile media print advertisement is completed [16].

The application elements of visual image design of mobile media print advertising are as follows [17, 18]:

2.4.1. Font Application. Without specific requirements, the most widely used element of print advertising in the mobile terminal medium is text. How to use fonts perfectly in the dynamic plane is the primary focus of research. For Chinese characters, the complexity is much higher than the twenty-six characters in English, so when the effect is dynamic, the difference in fonts will also affect the transformation method of dynamic vision. From one word to another, it is necessary to find the appropriate entry point and node, so that the desired effect and purpose can be achieved in the process of

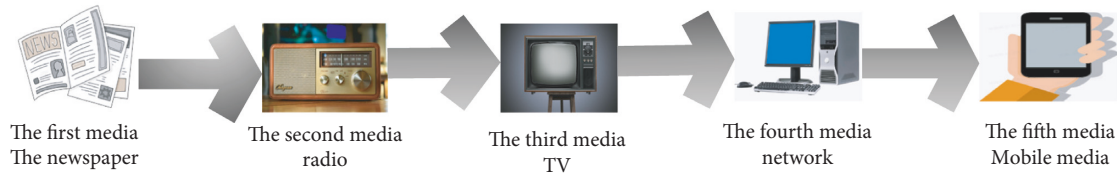


FIGURE 4: Evolution of modern media.

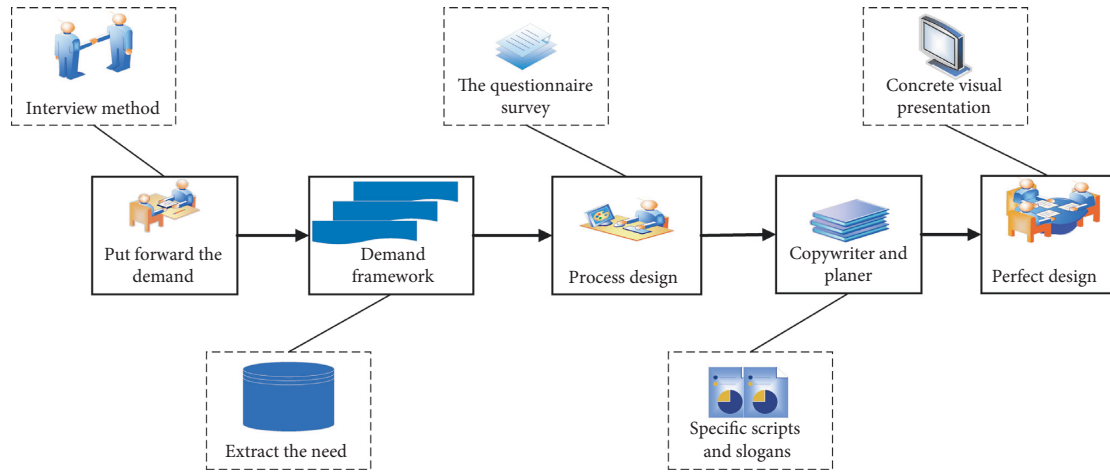


FIGURE 5: Mobile media graphic advertising visual image design process.

font dynamic. If the advertising itself is not very expressive, it needs to use exaggeration.

2.4.2. Styling Application. Styling is a crucial element in any design, and text can also appear as a separate styling element. The most basic expression mode of modeling dynamic is the conversion between graphics, such as “circle” to “square” and so on. It can be said that all seemingly complex graphic modeling transformations can be summed up in this principle. The connection between points, lines, and surfaces is also the most basic modeling node of dynamic graphic design. In application, in order to produce perfect and rich changes, it is often necessary to reflect changes at different levels on the time axis through multiple graphics. For example, the popular dynamic logo design seen in the app is a dynamic graphic design. Many large brands will use the demo of the deformed dynamic LOGO in the opening interface of their app.

2.4.3. Color Application. In graphic design, color as a basic element is very special, because in fonts, shapes, and many other design elements, color often appears as an additional attribute at the same time. Design elements, panels, etc., will be given a specific color. Color cannot appear independently, and it must be a dependency of other elements. Conversely, all fonts or styling elements that contain color attributes can be visually stimulating through color. In the terminal medium, the contacted interface area is very small, and the importance of color is reflected at this time. Among the basic elements of color, color elements such as lightness, purity, and hue can be presented in dynamic vision. This composition method should be followed when designing, so that

the dynamic color mode can make people more clear and pleasing to the eye. In the design, it is necessary not only to let the color realize the dynamic effect alone in the terminal interface but also to complete the visual form expression through the color and other elements and give full play to the perfect visual experience brought by the color.

2.4.4. Typography Application. The most special thing in dynamic graphic design is layout design, because in the terminal medium, there must be a way of switching between horizontal and vertical layouts. In the implementation of unpredictable changes, this unspecified form of change will also give the audience a more and better visual experience. The important thing is the sense of rhythm and fluidity in the change, which is the primary task of dynamic graphic design. The fundamental of dynamic graphic design is the basis of graphic design. No matter how the dynamic effect is presented, or how much new content is included, it all evolves from the basis of graphic design.

2.5. Innovative Research on Print Advertisements in Mobile Media

2.5.1. Emotional Level. Dynamic graphic design, one is to use abstract graphics and language to exaggerate the interpretation of existing images, and the other is to use the audience’s shared memory of existing images to build a new moment. Now it is possible to perceive the emotions of the works through the feedback of sound and light, and the works can also use technology to create new momentary points through the viewer’s thoughts or actions, which is an

interactive emotional experience. When extracting different characteristic materials such as modeling, text, motion law, rhythm, material, sound, etc. in the multidimensional platform, it will be found that the prescribed actions brought by these elements can be projected on human emotional cognition through vision. In the design, the designer controls these attributes, that is, from the root of the design to extract the mapping of emotion to the work.

2.5.2. Virtual Reality. With the needs of the audience and the development of the society, the interaction design of multimedia terminal media is not only concerned with hot spots but also a new pursuit of immersing in the real-life experience of network interaction. In science fiction movies, virtual operating platforms, virtual character settings, virtual environmental media, and brand-new BD holographic projection technology all build a brand-new visual world, where people are both participants and creators. In order to achieve this, the terminal platform is no longer an entity, but a state that changes anytime and anywhere. Dynamic graphic design is not fixed in virtual reality, but is mobile, dynamic and free. The uniqueness of this innovation is that it reinvents itself with every moment of knowledge. Among the virtual reality products that have appeared today, VR eyes, somatosensory games, and terminal interactive systems have shown the application and development prospects of virtual reality technology to the society.

2.5.3. Dynamic Effect. Innovative research is enduring, it includes design, research, and development methods and composition modes, among which design innovation is an important basis for dynamic design in mobile terminal interfaces. When designing and producing dynamic effects, designers should first consider the audience's visual aesthetics and the acceptance of interaction methods, and secondly, various image technologies will be unfolded in turn in space, time, and even invisible boundaries. The dynamic graphic design in the mobile terminal shows ever-changing designs and endless interactive ways. In such a dynamic environment, designers need to use new interactive forms to make advertisements appear from static to dynamic, from simple to rich. [19].

3. Visual Image Design Experiment of Mobile Media Print Advertisement

3.1. Experimental Method. As shown in Figure 6, the left is an ordinary flat juice advertisement, and the right is a dynamic juice advertisement designed with a visual image of mobile media. This article will compare the five aspects of viewing, innovation, interactivity, purchasing desire, and actual product sales through online research.

3.2. Data Analysis

3.2.1. Ad Viewing. It extracts keywords from online comments related to two advertisements, summarizes the evaluations on the ad viewing, and conducts data analysis, as shown in Table 1 and Figure 7.

According to network data tracking and collection, it can be seen that in the comments related to ordinary juice advertisements, the comments about the ad viewing value account for 15% of the total comments. Among them, 8% of the comments said that the ad was highly appreciated, and 5% of the comments believed that the visual image design of the ad was relatively common. Compared with ordinary juice advertisements, the overall data of juice advertisements designed using mobile media technology are higher. Twenty-five percent of all comments mentioned the word viewability, and 18% thought the ad was visually pleasing. From the above data, it can be seen that a single static advertisement has caused consumers' aesthetic fatigue, and dynamic advertisements using mobile media technology are more in line with the audience's aesthetics. It has more visual impact for the audience.

3.2.2. Advertising Innovation. It extracts keywords from online reviews related to two advertisements, summarizes the evaluations on the innovativeness of advertisements, and conducts data analysis, as shown in Table 2 and Figure 8.

As for the innovativeness of the ad, the word was mentioned in 10% of the comments on the average juice ad, with a similar number of comments of approval and criticism. It shows that traditional advertising has been unable to attract the attention of most consumers. The dynamic effect of mobile media advertisements is more attractive to customers. Thirty percent of the comments discuss the innovation of the advertisement, and 24% think that the advertisement is more innovative. The overall advertising design is relatively successful. It conveys novel and wonderful ideas to consumers in advertising works. Mobile media technology can break through the limitations of traditional formats and make advertising memorable in the minds of consumers.

3.2.3. Advertising Interactivity. It extracts keywords from online comments related to two advertisements, summarizes the evaluations on the interactivity of advertisements, and performs data analysis, as shown in Table 3 and Figure 9.

Twelve percent of comments about interactivity in common products, but 7% of them think that the product lacks interactivity. After combining juice advertising with mobile media technology, it completes the promotion of the entire advertising media by changing the timeline. During this process, it clicks the mouse and drags the timeline to display a series of actions of an apple from washing, peeling, juicing, and filling. This allows consumers to consciously complete the understanding of the product and increase the interactivity of advertising. It also played a more effective role in the promotion of product information. As a result, 35% of reviews discussed interactivity and approved the design.

3.2.4. Product Purchase Desire. It extracts keywords from online reviews related to two advertisements, summarizes the evaluations on consumers' purchase intentions, and conducts data analysis, as shown in Table 4 and Figure 10.



FIGURE 6: Juice advertising.

TABLE 1: AD viewing data sheet.

Category	Ordinary advertising	Mobile media advertising
Review of (%)	15	25
Favorable rate (%)	8	18
Bad review rate (%)	5	3

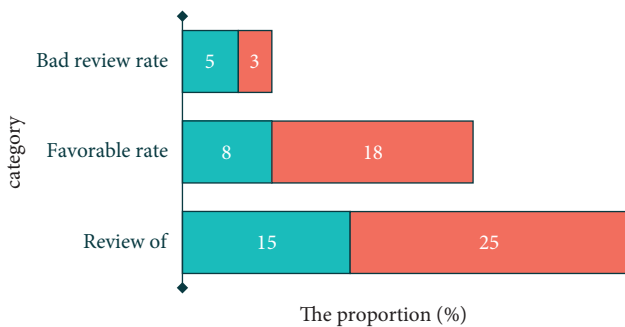


FIGURE 7: AD ornamental data graph.

TABLE 2: Advertising innovation data sheet.

Category	Ordinary advertising	Mobile media advertising
Review of (%)	10	30
Favorable rate (%)	5	24
Bad review rate (%)	4	2

Among ordinary ad reviews, 12% of reviews expressed purchase intentions, which is a low figure. And once the dynamic juice ad was released, 27% of the reviews expressed their love and purchase intent for the product. It can be seen that mobile media advertisements are more fresh to

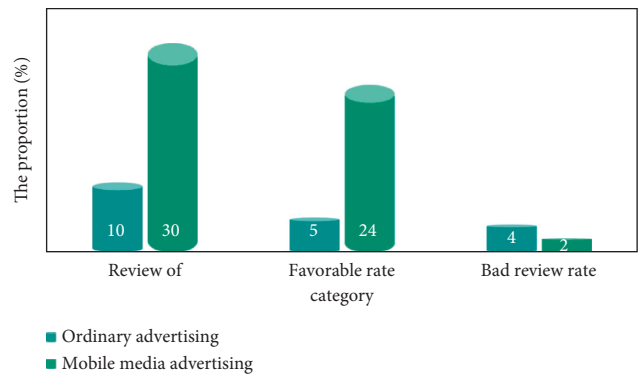


FIGURE 8: Advertising innovation data graph.

TABLE 3: AD interactivity data sheet.

Category	Ordinary advertising	Mobile media advertising
Review of (%)	12	35
Favorable rate (%)	4	30
Bad review rate (%)	7	4

consumers, and the visual image design of advertisements can greatly affect consumers' desire to purchase the product.

3.2.5. *Actual Product Sales.* It performs data analysis on the real sales volume of the two advertisements, as shown in Table 5 and Figure 11.

The data are taken from the year the mobile media juice ad was launched, and the product was launched in the second quarter. It explores the impact of products with mobile media advertising on traditional advertising products by comparing sales across the four quarters of the year. It is not difficult to see from the data that in the first quarter

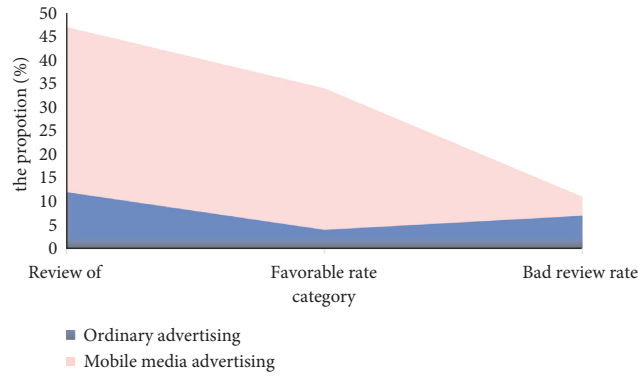


FIGURE 9: AD interactivity data graph.

TABLE 4: Consumer purchase intention data sheet.

Category	Ordinary advertising	Mobile media advertising
Review of (%)	15	29
Want to buy (%)	12	27
Don't want to buy (%)	2	1

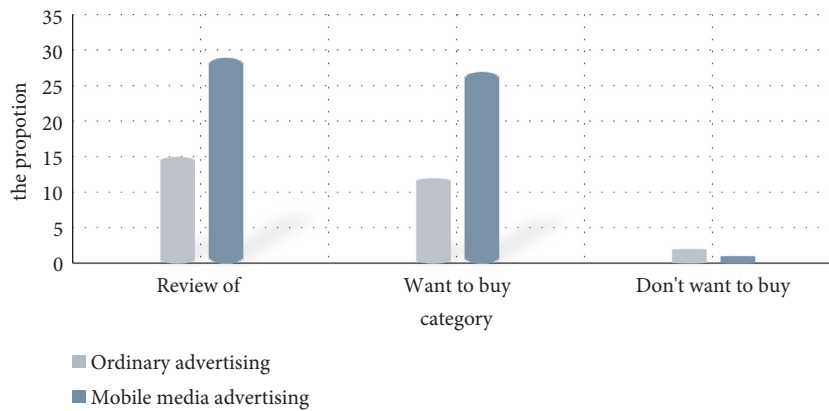


FIGURE 10: Consumer purchase intention data graph.

TABLE 5: Actual product sales data sheet.

Category	Ordinary advertising	Mobile media advertising
Quarter 1(bottle)	5400	0
Quarter 2(bottle)	4200	5000
Quarter 3(bottle)	4000	5700
Quarter 4(bottle)	3900	5900

before mobile media advertising products were released, the sales data of traditional juice products were relatively good. After the launch of new products in the second quarter, the sales volume of ordinary advertising decreased by 22%, and there was a sharp decline, while the sales volume of new products was better. Then in the third and fourth quarters, sales of new products continued to rise, while sales of common products continued to decline. It can be seen that new products have a greater impact on ordinary advertising products, and the visual design of mobile media advertising

can attract more potential customers for products and increase product sales. The highest sales of mobile media advertising products increased by 9.26% compared with the highest sales of ordinary products.

4. Discussion on Visual Image Design of Mobile Media Print Advertising

This paper takes the visual image design of print advertisement as the research object and studies the application of mobile media technology in this aspect. Its main research methods are literature research method, research method, and comparative research method. First of all, it is necessary to read a lot of relevant literature, analyze the needs of the target object, and build a demand framework. Then it is necessary to design the visual image of the mobile media print advertisement and make further adjustments according to the design effect. Finally, it is necessary to collect data for comparative analysis to demonstrate the

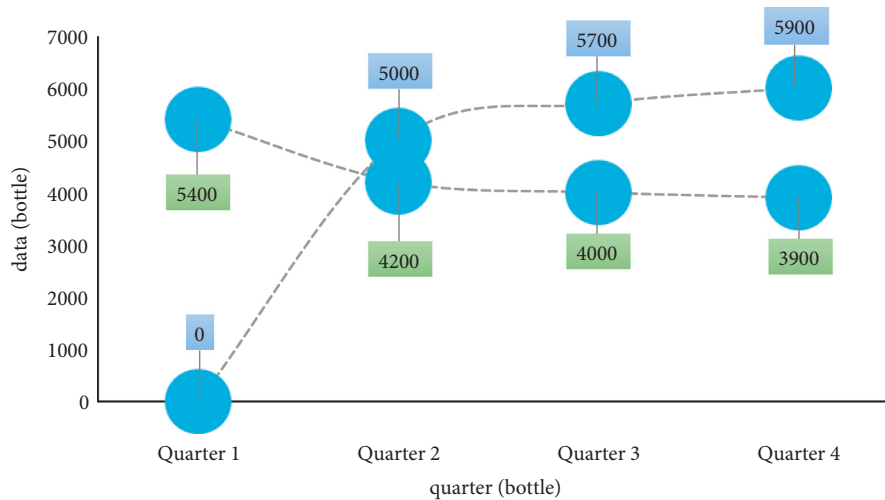


FIGURE 11: Actual product sales data graph.

feasibility of the design scheme. The main contents of this article are as follows:

- (1) It comprehensively and systematically understands the concepts and research status of “print visual advertising” and “mobile media” by reading and analyzing relevant important journals and expert articles, which lays a theoretical foundation for the study of design thinking and design methods.
- (2) It collects relevant data through network research, analyzes, synthesizes, compares, and summarizes the collected data, which proves the sufficiency of the research results and the value of the research. It can be seen from the experimental results that, compared with traditional print advertisements, mobile media advertisements are more recognized by consumers in terms of viewing, innovation and interactivity, and their desire to purchase the product is higher. The actual sales confirmed that mobile media advertising can attract more consumers. It shows the necessity and practical significance of the research on the visual image design of mobile media print advertisements.

5. Conclusion

Traditional print advertisements have caused visual fatigue to consumers and cannot meet consumers’ ever-improving aesthetic requirements. The addition of mobile media technology to the design of print advertisements can enhance the spread of advertisements, realize the interaction between people and advertisements, and attract consumers’ attention. This paper studies the visual image design of print advertisements based on mobile media and finds that mobile media advertisements are better than ordinary print advertisements in terms of viewing, innovation and interactivity, and can also effectively increase product sales. The highest sales of mobile media advertising products increased by 9.26% compared with the highest sales of ordinary advertising products. It shows that the visual image of mobile

media advertisements is more in line with consumers’ aesthetics and can stimulate consumers’ desire to buy.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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