Research on the Interactivity of Poster Design under the Concept of Sustainability

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Abstract: We are now living in an era of sustainability. Sustainable does not only refer to the sustainable development of ecological environment, but also includes many aspects, such as the sustainable development of economy and culture. This paper argues that the concept of sustainability can also be applied to posters, focusing on how posters can achieve a continuous effect on audience, so as to avoid the temporary effect of posters on audience and then become visual garbage. The content discussed in this paper will focus on the theme of improving the interactivity of posters to achieve the sustainability value of posters.

Keywords: Poster design, Sustainability, Interactivity, Technology innovation, Form innovation

1. Introduction

Graphic design is an integrated science involving elements of visual art and knowledge from cognitive psychology, philosophy, and sociology. However, eliciting a sense of novelty and curiosity from viewers without losing the communicative of a graphic design creation has been a concern for designers [1]. In terms of poster design, as Joseph Ansell and James Thorpe pointed out, Posters were generally displayed in the streets, and this demanded certain characteristics of them. To function in a fast-moving society, they had to attract attention and convey the sponsors' message quickly. Whether it was a simple, bold rendering of a product, an expressive drawing of people in a cafe, or an abstract design, the best poster was one that captured the essence of the subject so that the image, and therefore the message, would remain in the viewers' minds [2]. In recent years, most posters do not arouse the audience's sense of novelty and curiosity, and lack some innovation and interactivity. This phenomenon leads to posters being to one-off posters instead of posters that can leave a deep impression and have a lasting influence on the audience. Next, this paper will take "poster sustainability" as the theme to discuss how to attract the audience.

2. Data survey

Traditional posters are distributed and displayed in a large area without any target.Such blind behavior is not only detrimental to the interests of users, but also inconsistent with the concept of "green design". To sum up, the author believes that it is necessary to make some improvements around the interactivity of traditional posters.The author conducted a questionnaire survey on "the interactivity of poster design in the new media era"and a series of results were found. First, 63.16% of the audience expressed that it was difficult to see dynamic posters in daily life, so the audience thought that traditional posters were difficult to attract their attention. Second, regarding the application of HTML5 (H5), the feedback of the audience is slightly optimistic and they are willing to accept this design form, but it is shocking that many people still say that they know nothing about H5. Third, in addition to dynamic posters and H5, audiences said that sensory interactive posters and situational interactive posters were very rare in their lives, and many audiences said they had hardly seen them. The above results show that the awareness of poster innovation is slightly weak, and the whole field of posters has been in a dangerous form. Besides, we need to make good use of the advanced technologies that this era has brought us. If the poster design uses a variety of media technologies comprehensively, it can not only convey information comprehensively and accurately, but also provide good user experience.

3. The common two-dimensional interactive posters of today

Posters have always been a very useful visual tool for conveying information, and they enable people

to get information quickly by observation. According to Margit Weinberg Staber,The visual persuasion of poster art is an ideal instrument for insight, gained simply by looking and comparing [3]. However, at present, some posters focus too much on the beauty of the poster itself, which leads to the low effectiveness of the poster and eventually become visual garbage. Jorge Frascara stated that aesthetics should not be the only criterion to determine the quality of a design. Aesthetics should be one of several requirements we attend to. In addition, rather than looking at aesthetic structures as demonstrations of a designer's creativity, I proposed looking at them in terms of their appropriateness for people being addressed, specific domain and context, as well the project's purpose [4]. In this light, poster design should not only focus on whether the poster looks good, but should find ways to improve the effectiveness, interactivity and sustainability of posters. At present, some 2D posters are sustainable. Designers interact with copywriting, patterns and colors to achieve sustainable goals by improving interactivity. For example, in terms of color, designers can also use techniques to achieve interactivity, such as the use of "color optical illusion", a red pattern on a blue background will look brighter than a yellow background, and a small area of gray placed on a large area of black background will make people think that the gray part is moving. This is one of the ways for the audience to participate in the poster and have visual and psychological interaction with it in terms of color [5]. These improvements in interactivity can improve the sustainability of the poster, so that the poster can continue to appear in the eyes and minds of the audience. However, in addition to two-dimensional interactive posters, this paper will focuses on analyzing other design methods that can improve the sustainability of posters.

4. Innovative posters with new technology

The use of new technology is a highly feasible way to achieve poster interactivity, which can well meet the needs of poster sustainability. As Jenny Grigg stated "by finding that graphic designers are not autonomous during ideation, it is possible to assert that exposure to diverse technologies is crucial if practitioners are to fully explore the bounds of their discipline [6]."

4.1 Application of dynamic image in posters

Dynamic image is a way of interaction that is widely used nowadays, which makes stationary pictures move to enhance their interest and interactivity. In addition, psychological experiments and life experience have proved that static objects are always less attractive than dynamic things [7]. Dynamic image technology is simple and low cost and has been around for many years, some designers are trying to use it, but this form of poster doesn't appear in the life of the audience often enough. The author believes that this technology can be widely used to improve the interactivity and sustainability of posters, and leave a lasting impression on the audience.

4.2 Application of Autostereoscopy technology in posters

The next technology I will discuss is a new and emerging technology with high difficulty and cost. Autostereoscopy technology takes advantage of the parallax feature of human eyes to obtain realistic three-dimensional images with space and depth without any auxiliary equipment such as 3D glasses and helmets.

For posters, when the Autostereoscopy technology is mature, it is a good choice to use the posters made by the Autostereoscopy technology in the shop door and exhibition booth. In this virtual space, the audience can participate in the poster and realize the transformation of real and virtual psychological space during the viewing process. In another aspect, excessive use of this technology is not conducive to the scientific control of advertising costs, and this disadvantage may restrict the wide application of Autostereoscopy technology in advertising in the future. The solution to this disadvantage may depend more on technology developers. In conclusion, in the future, people may be able to directly view the real three-dimensional images on the mobile phone with the naked eye, which is a good opportunity for posters to improve the interactivity and sustainability.

4.3 Application of HTML5 technology in posters

In terms of H5, H5 is HTML5, which is a commonly used way of interaction at present, and its application is very strong. H5 can bring the audience into the screen and make the audience interact with the screen vision, but it's not one technology. It's a catch-all for many technologies. Specifically, H5 includes pre-loading technology for page materials, loading and playing technology for music, sliding

and smearing pages, etc. If H5 is applied to the poster, the poster can be swiped and smeared with background music, so that the interaction of the poster will be higher than traditional static poster.

4.4 Application of biological art in posters

In the aspect of bio-art form, it is a kind of creation form gradually rising in recent years. Biological media refers to artists using creatures as an intermediary means to communicate with their works. In the book "Signs of Life: Biological Art and the Future", Katz defined the term biological art as a new trend that can manipulate life in contemporary art [8]. Therefore, the author believes that designers can also combine the form of biological art in the design of contemporary posters. Juxtapositions of art and biology have serendipitously stimulated scientific discovery. In the 1920s, Alexander Fleming, discoverer of penicillin, created 'germ paintings' on paper, illustrating stick figures, soldiers, and houses [9] (Figure 1). Fleming's bacterial paintings became noteworthy for the discovery of penicillin on his art. Fleming found that fungi killed bacteria in paper artwork, contributing to the discovery of antibiotics [10]. From this point of view, the application of Alexander Fleming's creative methods in the design of posters with appropriate themes may be a way to try in the future. At present, there is no good case of combining biological art with posters, but this does not mean that it is not feasible. The author believes that designers can bravely try this way in the future.
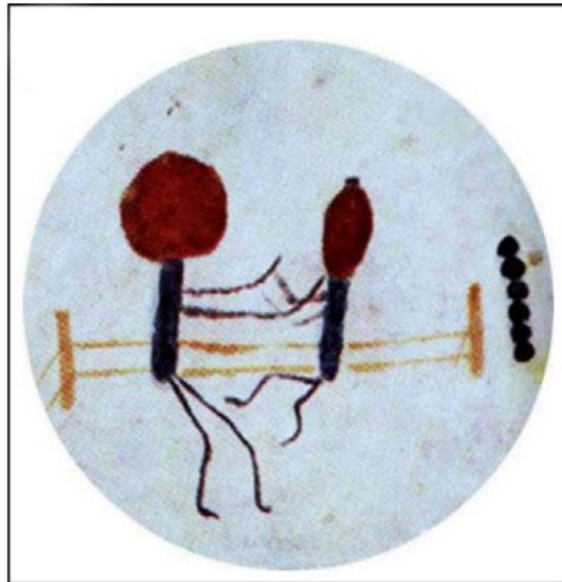

Figure 1: Germ paintings on paper by Alexander Fleming. Courtesy of Kevin Brown of the Alexander Fleming Laboratory Museum.

5. Application of innovative forms in posters

5.1 The application of sensory interaction in posters

The senses are the organs to feel the stimulation of external things, which have brought great convenience to our life, mainly including vision, hearing, touch, smell and taste. These five senses are important for communication, while communication is the most important thing for posters. To sum up, designers should make good use of the "five senses", instead of simply limiting the poster to the visual scope. In terms of practice, how to use the five senses to realize the interaction of posters? Next the author will be around the "hearing" for example to illustrate. The author thinks that the simplest practical method may be to add the sound device that light control or magnetic control core to the paper posters on the street, so that the poster will emit sound effect when someone passes by. For example, the designer can make the posters posted outside the barbecue shop emit the attractive barbecue sound; Make the posters outside the fruit store shout for selling fruit, which not only highlights the enthusiasm of the store but also saves the labor cost of people hawking in person. Of course, in this example, we should pay attention to the fact that if the volume is too high, it may cause the audience's aversion.

5.2 The application of scene interaction in posters

Situational interactive poster refers to a way to realize information dissemination when the poster participates with the environment and objects. The most distinct advantage of situational interactive poster is that it can assist the audience to participate in the poster naturally, rather than being forced to participate in it. Situational interactive posters can be subdivided into three specific ways: using carrier interaction, using environment interaction, and using space and time interaction. The literal meaning of using carrier interaction is relatively clear, which is to use a carrier to convey information. When the carrier becomes a part of the poster information transmission, the poster leaves much more imagination space for the audience, and the interactive relationship between the poster and the audience is further developed [7]. Here is a case to help us deepen our understanding of situational interaction using carriers. For example, as shown in Figure 2, the designer uses the tissue box as the carrier of the poster, and the tissue box is also involved in the interaction with the audience. When people take paper towels, let people realize that saving paper is very necessary, and then notice that they need to take less paper at the moment to protect the earth's ecological environment. This kind of interaction greatly deepens the impression of the poster in the minds of the audience, which is a desirable creative way.

Figure 2: The environmental public service advertisement of WWF. https://poshyk.info/video-ecology/ecology-poster/

The situational interaction using the environment is similar to that using the carrier mentioned above. The performance effect can be well achieved and the communication efficiency can be improved if the environment cleverly matches the content of the poster. For example, the case of BMW MINI CABRIO poster is shown in Figure 3. Combining the image of the car with the underground entrance, people look like entering the car on the side when entering the underground entrance, and the overall picture of the continuous flow of people entering the underground entrance shows the huge space inside the car. This case clearly demonstrates the advantages of situational interaction using the environment. Let the audience naturally participate in the environment and happily accept the brand publicity has better publicity and communication effect than the traditional spoon-feeding publicity.

Another specific way of scene interaction is the use of time and space transformation to complete the poster work. This way changes the traditional poster design way through the interaction of time and space, and also refreshes people's knowledge and understanding of poster design. For example, McDonald's coffee promotion poster is shown in Figure 4. The coffee beans in the poster will decrease over time. The audience will first be attracted by this novel poster form, and then increase the favorable degree of McDonald's brand. Later, when audiences carefully look at the specific content of the poster, they find that coffee beans are constantly decreasing, and they will have the feeling that the promotion is coming to an end, so as to encourage consumers to consume. This creative way plays an important role in the psychological interaction of the audience. For the poster, it helps the brand to achieve a series of goals and is a way for the poster to follow.

Figure 3: The case of BMW MINI CABRIO poster. https://rddiy.com/chuangyisheji/shijue/9yen8.html

https://www.sj33.cn/article/ggsjll/outdoor/201003/22495.html

Figure 4: McDonald's coffee promotion poster.

6. Some factors to be considered for innovative poster creation

6.1 The process of posters communication

The purpose of poster design is to convey the content to the audience. If we do not consider the correct communication process and directly design based on subjective assumptions, it may lead to poor communication effect. Here is an analysis of Sol Worth's view on the cognitive aspect of order in visual communication. The process of ransmission is like this: First, the designer needs to have a "Feeling Concern" (FC), then develop a "Story Organism" (SO), and then form an "Image Events" (IE) to show the audience. If consider with poster, we can understand it as follows: Firstly, designer need to have an "Feeling Concern", such as expressing a safe skin care product with natural materials (FC) [11]. Then designer need to develop a "Story Organism", such as a farmer picking a lot of plant materials and processing them into skin care products (SO). Next, designer need to generate this "Story Organism" into a "Image Events". Designer can combine natural plant materials and skin care products and display them in the center of the poster (IE). To sum up, this is the sequence of the communication process. In the future, designers should seriously consider this sequence when making designs. Only by knowing these theories can we design posters with better communication effects.

6.2 The reception degree of the audience

There is no doubt that it is good to use innovative forms in the creation process of posters, but it is necessary to consider whether the audience can receive the message conveyed by innovative posters. Robert M. Travers (1964) holds that exactly the opposite effect may result when too much information is presented through two channels simultaneously, unless the density of information and rate of

presentation is sufficiently low to compensate for the overloading by which relevant information may be lost [12]. For example, an innovative poster using sensory interaction combines vision and hearing in the design, so when the poster is presented to the audience, it must be considered whether the sound will affect the audience's viewing of the text and pattern. In this case, we can try to reduce the volume of the sound and the speed of the sound, etc. All in all, it is innovative for designers to use multiple channels to design posters, which will promote the development of poster design, but it should be emphasized that attention should be paid to the reception degree of the poster by the audience in the process of innovation.

6.3 Cost control of posters

In most cases, the designer's main task is to design a poster that meets the needs of consumers and business managers, and to ensure that the poster is functional, quality and artistic, however, some designers today pay more attention to the work itself in the creation process, and do not consider its economic benefits too much. Compared with posters using some technological means, traditional paper posters have low production cost and short printing time. n addition, traditional paper posters can be read at any time and anywhere without the help of any machines. Another advantage is that paper posters have great flexibility. If users want to change the place where the poster is displayed, they can remove the poster and put it on another place, which is very convenient for adjustment. In terms of the cost of some innovative posters, it may not be so optimistic. Some of the design forms can make the posters still be completed at a low cost, but some of the design forms may cost more. In a word, the final choice of which form to design requires effective communication between the designer and the user, and the designer makes a reasonable design according to the user's budget. In addition to production costs, designers should also consider maintenance costs, demolition costs and other costs.

7. Conclusion

Based on the data obtained from the questionnaire, this paper discusses the defects of current posters, and makes a series of discussions around the "interactivity" and "sustainability" of posters. The author believes that the premise of poster sustainability is to make the poster innovative, and a key factor to make the audience think the poster is innovative is to make the poster interact with the audience. On this basis, the author discusses a series of design methods to increase the interactivity of posters and some problems that should be paid attention to in the design process. All in all, I hope this article can bring inspiration to readers, and help designers accelerate the pace of innovation and seek ways to better meet the spiritual needs of the audience, so as to improve the interactivity and sustainability of poster design.

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