The Research and Creation of Projection Mapping on Motion Poster Design

Liao Chun Lo, National Yunlin University of Science and Technology, Taiwan
Chen Guang Dah, National Yunlin University of Science and Technology, Taiwan

Abstract
Posters have been used as advertising media for a long time. However, the effect of printed posters are limited since the development of technology and widespread of internet. Motion posters are used more often nowadays. Moreover, more designers are trying to break the stereotypes by combining projection mapping technology and outdoor poster form to create advertising effect. The purpose of the research is to discuss whether projection mapping combining with motion poster is productive or not. The process of the research was from information collecting to developing the poster design direction. The study was conducted by an exhibition and analyzed by questionnaires from visitors. There are three main purposes of this study. First is to set a suitable direction for future poster design and motion poster design. Second is to analyze the advantages and disadvantages of the combination of projection mapping and motion poster. Lastly, developing different kinds of presentment and visual effect of poster design.

Keywords: Poster, Motion Poster, Projection Mapping

1. Introduction

Still images and pictures are no longer sufficient for visual sensory stimulation. Therefore, increasing the vibrancy of the webpage does have a visual and psychological impact on the visual psychology of the viewers (Wu Yin Shu, 2003) In the past, the source of our information was mainly through traditional media such as newspapers, leaflets and posters. And communication activities are necessary for human survival and development. However, with the development of science and technology, the media has also faced a cross-century transformation to promote the birth of new media (Lee Shing Hwee, 2003) As one of the most common information carriers, poster is an effective communication media. However, in the digital age, the information industry and network platform are booming. The source of information acceptance has changed. The effect of printed posters are limited because of the development of technology and widespread of internet.

With the rapid development of the Internet, the traditional way of spreading print ads, is not enough to attract more consumers' attention. Therefore, how to effectively convey information to consumers in a novel and interesting interactive way has become an important issue. (Yang Su Kai, 2017) In recent years, there have been many motion posters in the form of GIF on the Internet. Divide, reorganize, and animate the design elements, or use the original posters with Post-production to spread on the Internet. Achieve a different publicity effects. Furthermore, motion posters can show stronger tension and visual impact than traditional posters. There is also a larger information space to carry out messages. Its form is closer to a short film than a static image, in additional, it is different from the film in the flexibility of communication, it is easier to convey with more simple information content.

In these years, some creators have tried to explore the possibility of posters through the application of projection technology. The original flat poster presents the special effect of the motion poster under the illumination of the projector. This allows the viewers to observe the different performances between the flat posters during normal and projection, and combine the advantages of posters and motion posters.

Summarizing the current practical application of projection technology in poster creation, there are two items that can be discuss:
1. Projection mapping is familiar to the general public because of its wide application nowadays. However, the combination of projection and poster is not often used in advertising.
2. There are many features in different types of projection mapping, and there is a lot of space for its further development.

The main research direction of this paper is to explore the development of projection application in poster creation. In addition to the analysis of past cases, the experiment also compares the differences in information transmission effects under different factors. It is hoped that through analysis and experimentation, we will help the development of relevant fields in the future. The emphasis of this study is briefly as follows:
1. Analyze the previous application cases and relevant literature.
2. Experimenting the effect of different factors on the practice of combining projection with poster.

3. Apply the research results to create a series of poster works.

2. Literature Review

In recent years, in the fields of media design and commercial design, we have been seeking cross-disciplinary and media integration, and the integration of different media techniques has emerged one after another. With this trend, there are many marketing cases that use cross-disciplinary professional resources to package in practice. One of them is the use of projection mapping technology combined with posters. In this chapter, we will focus on the differences between different types of projection mapping. After that, organize and analyze the cases in which using projection technique on the poster creation in these years.

2.1 Projection Mapping

2.1.1 Fogscreen Projection

The fog is sent out through the fog machine, and the screen formed by the fog replaces the general projection screen. Further, fogscreen projection allows viewers to freely shuttle through the project image, and you can walk right through Fogscreen without getting wet. Which means the less requirements of spaces. That is, it is usually used in activities that use indoor environments, such as product presentations and museum exhibitions.

Figure 2.1: Fogscreen projection work from Simp4live Records.

2.1.2 Water Projection

Water projection is to make a water curtain into the air by water emitter, and the curtain is turning into a fan shape is used as the projection screen. Used in large-scale activities, it is necessary to use the water surface as a stage. So it has been frequently used in projection performances in adjacent rivers.

Figure 2.2: Water projection work from Simp4live Records.

2.1.3 Hologram Projection

Hologram projection is by using a permeable gauze or a one-way mirror as a projection screen. And it creates the floating effect by controlling lights. The more common presentation is a pyramidal hologram projection. The characteristic of the pyramid-type hologram projection is that the projected surface is a pyramid shape, and different projection views are given for different faces, so that the audience can enjoy the projection content at 360 degrees (Fan Jhao Qi, 2003)
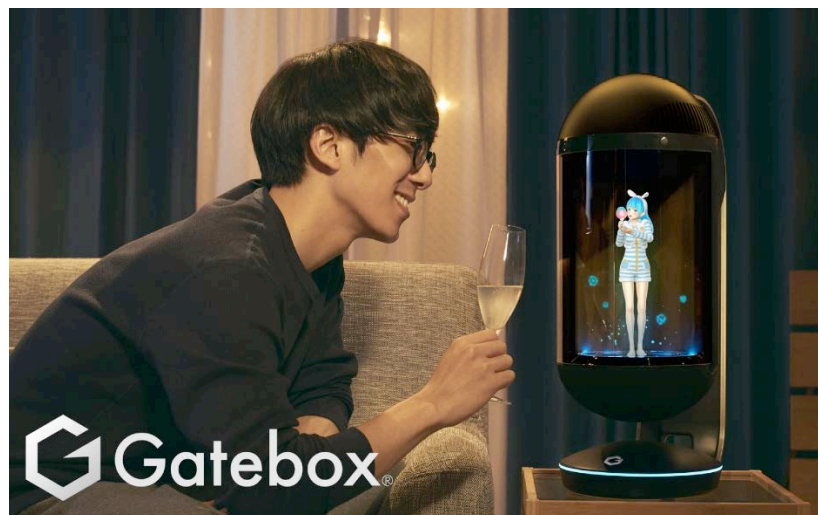

Figure 2.3: Hologram projection product from GATEBOX INC.

2.1.4 Holo Gauze

A translucent curtain made of cotton or synthetic material is used as a projection screen. Its shape looks like a traditional curtain with more transmittance. That is, Holo Gauze is frequently used in stage performances. When projecting an image on a translucent screen, it would create special effects with the performers behind the screen.

Figure 2.4: Holo gauze work on Shinkai Makoto's exhibition

2.1.5　Building Projection

The most distinctive feature of a building projection is its structural style. Therefore, the building structure is the most important thing of the building projection performance. It is also the most distinguishing feature between the general projection and the building projection (Huang Tien Hsin, 2003) Building projection uses high-power, high-lumenity equipment to project the image onto the wall of the building. With the appearance and material characteristics of the building, the image and the wall are fused together to present a very strong performance. In addition to being used in event performances, building projection is often used in brand and product advertising.

Figure 2.5: Building projection work on National Taichung Theater

2.2 Case study

2.2.1　Samsung mobile advertising

In 2016, in Milan, Samsung used a large advertising billboard to combine projection effects, and to create two different expressions in the day and night. In the daytime, the billboard only presented the product photos and advertising slogans. As for nights, the mobile phone on billboard was made to play the movie through projection effect.
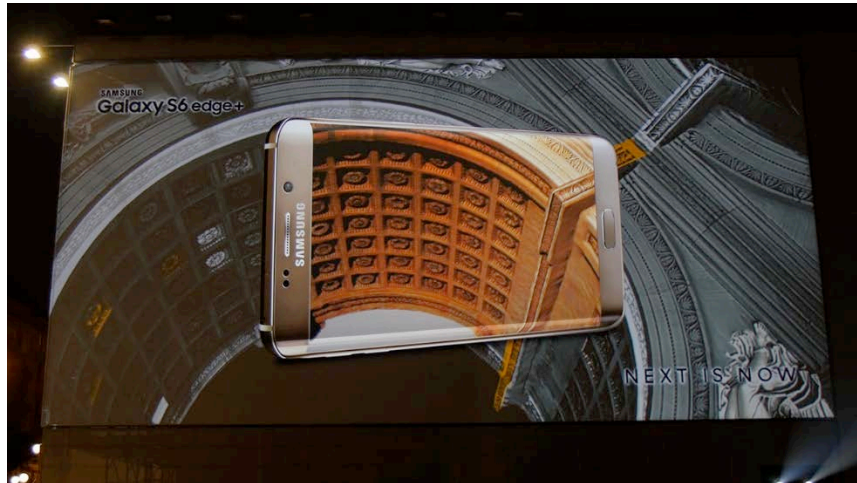
Figure 2.6: Samsung mobile advertising

2.2.2 Sensodyne advertising

In 2016, Sensodyne posted a toothpaste ad in the room, with the projector, it can make the original poster change its appearance. When the projector was played, it makes the poster look like a three-dimensional area, as if the poster extends an extra space.

Figure 2.7: Sensodyne advertising

2.2.3 UEFA Champions League poster

The example was about the advertising poster of the UEFA Champions League placed on the high-rise next to the football stadium in England. At night, through the use of projection equipment, it makes the poster more plentiful. Additionally, viewers can also send messages to the websites, to interact with poster.

Figure 2.8: UEFA Champions League poster

2.3 Summary

Among the different types of projection mapping, each has its limitations and effects. Although Building projection were frequently used large-area walls as projection screen, it has less area restriction. On the contrary, the water projection is limited in the use of area, because of its particular material and the clarity of the project image. Besides, because of the special medium of Water Projection and Fog Projection, they can be penetrated by object. Furthermore, they are the same as Hologram Projection and Holo Gauze, all of them have good light penetration. Conversely, Building Projection cannot be penetrated by light, and that makes it much suitable for matching the effect and its appearance. The following table shows the simple comparison of the different types, based on the suitability of the media:

Projection types	Fogscreen Projection	Water projection	Hologram Projection	Holo Gauze	Building Projection
Transmittance	high	high	high	high	low
Area restrictions	no	yes	no	no	no
Object penetration	yes	yes	yes	no	no

Table 2.1: Differences between different types of projection

From the previous cases, it can be found that the general cases were presented in the form like Building Projection, making the poster vivid or three-dimensioned by matching the images on the poster. However, some of the effects of Building Projections were not applied in the case, such as surface material and the screen structure.

3. Research Methodology

Using experimental research as the main method of this investigation, the advantage is able to separately discuss the influences of individual variables from the research results, and it is suitable to set different variables by using the previously compiled

data. The restriction of the method is that the analysis of the experiment requires objective observation. Therefore, the researcher needs to carry out the analysis with an objective view.

Experimental research method refers to a research method that explores whether there is a causal relationship between independent variables and dependent variables under the control of irrelevant interference variables that can affect the experimental results. The main purpose of this research method is to explore the causal relationship between independent variables and dependent variables by manipulating independent variables and then reviewing their effects on dependent variables (National Academy for Educational Research, 2000)

After the case study, there are a few key points in the experiment:
1. Experiment can be aimed at the existing elements from poster to enlarge the differences between using the projection and not using it.
2. Try to use the surface material or the appearance of the poster.
3. Apply additional features such as interactive function.

The purpose of this experiment, is to discuss the relevance between the application differences of the following three projects and the experiment results:
1. Printing material
2. Projection types
3. Poster content

Each of the three projects will extend several small projects downwards. The small project is used as Independent variable, and the result of random combination is used as dependent variable. Printing materials are divided into inkjet paper, transparency film, tracing paper. Projection types is divided into fogscreen projection, hologram, holo gauze, building projection. Poster content divides the ratio of text and image to the picture into three levels.

The experiment will initially set up assumptions based on the previous chapters and organize the experimental tools. After the establishment of three different types of item content, the allocation of the project is carried out. The ratio and content of the individual variables are adjusted in the Pilot test. The following is the experimental chart:
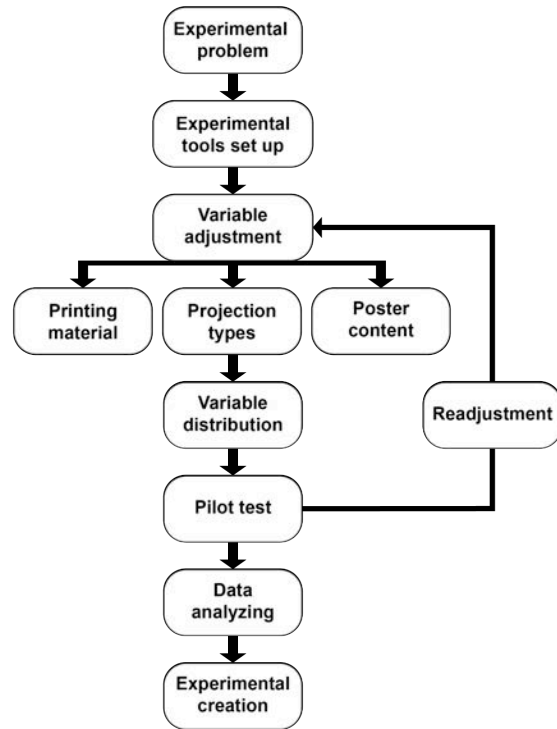
Table 3.1: experimental chart

4. Conclusion

Previous chapter has been described the method used in this investigation. Moreover, based on the previously data, the variable of further experiment was designed. The experiment progress will be based on the experimental flow chart, to describe synthesis and evaluation of the results. Finally, the experiment results will be applied in the subsequent works and expected to make contributions for the future researchers.

References

Chang, T. C. (2000, December). *Experimental Research*. [Internet Database].
Retrieved from http://terms.naer.edu.tw/detail/1313074/

CHEN, H. (2019). *Microenvironment and Mankind — Narrative Theory Applied in the Creation of Projection Mapping*. Retrieved from
https://hdl.handle.net/11296/t88atz

Fan, J. q. (2017). *Design of Projection Mapping on Objects*. Retrieved from
https://hdl.handle.net/11296/4v3b2k

HUANG, T.H. (2018). *Exploring Attractive Factors of Building Projection Mapping*.
Retrieved from https://hdl.handle.net/11296/5dwf2j

Lee, S. H. (2016). *A Study on the Application of Motion Graphics Design*. Retrieved
from https://hdl.handle.net/11296/s2c4tt

Wu, Y. C. (2003). *Motion Graphics Design in Internet Media-A case study of Macromedia Flash*. Retrieved from https://hdl.handle.net/11296/7r8em4

Yang, S. K. (2018). *"Dynamic Visual Acuity":The Research and Design of Interactive Poster*. Retrieved from https://hdl.handle.net/11296/uqexa7

Contact email: jces4115@gmail.com