

# Attention Value of Motion Graphics on Digital Signages

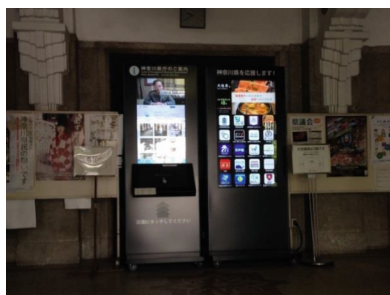
Tsubasa Kato and Nahomi Maki<sup>(✉)</sup>

Kanagawa Institute of Technology,  
1030 Shimo-ogino, Atsugi-Shi, Kanagawa 243-0292, Japan  
maki@ic.kanagawa-it.ac.jp

**Abstract.** In recent years, movie advertisements in digital signages have been shown at various places, such as train stations and street corners. Digital signages are installed in busy environments where people come and go. Therefore, people watch advertisements in digital signages in a shorter time than they do on TV commercials at home. Accordingly, movie advertisements shown in digital signages should attract attention the moment people look at them. In this study, we discuss the attention value of colors, which is mainly utilized in still media, and combine this concept with motion graphics elements.

## 1 Introduction

In recent years, movie advertisements in digital signages have been shown at various places, such as train stations and street corners. Digital signages are installed in busy environments where people come and go. Therefore, people watch advertisements in digital signages in a shorter time than they do on TV commercials at home. Accordingly, movie advertisements shown in digital signages should attract attention the moment people look at them. In this study, we discuss attention value of colors, which is mainly utilized in still media, and combine this concept with elements of motion graphics elements. We propose a method for effectively attracting attention, create original advertisements using the method, and conduct experiments on a digital signage in the Kanagawa Prefecture Office (Fig. 1).



**Fig. 1.** Digital signage in the Kanagawa Prefecture Office

## 2 Attention Value of Motion Graphics in Digital Signages

### 2.1 Attention Value of Motion

Human beings have a peripheral visual field used for taking in the first impression and the entire view before gazing at a target and adjusting the focus. In the peripheral visual field, the sight is not sharp and the resolution is low. The ability to recognize the details is inferior, but one can see more than 90% of the view. Through this peripheral visual field, people have excellent ability to sense movement and have a high possibility of instinctively noticing faint movements at the edge of the field of vision (Hayafuku et al.).

The direction of human eyes tends to move naturally. The eyes move from top to bottom naturally because people are used to reading characters and from left to right because of a sense of gravity. The eyes also move naturally from the upper left to the lower right because they are accustomed to reading characters and because of a sense of gravity.

### 2.2 Psychological Effect of Motion

Sijll [1] argued that movements could make people feel either comfortable or uncomfortable. People generally feel comfortable when seeing movement from left to right. On the contrary, people feel uncomfortable when seeing the movement from right to left (Fig. 2). With regard to diagonal motion, people feel comfortable when seeing the motion from upper left to bottom right and slightly comfortable from upper right to bottom left. By contrast, people feel uncomfortable when seeing the motion from bottom right to upper left and slightly uncomfortable from bottom left to upper right (Fig. 3).

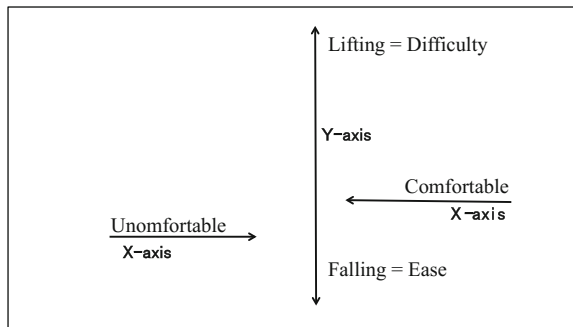


Fig. 2. Comfortable and uncomfortable horizontal motions

### 2.3 Motion Graphics that Attracts Attention

Based on an investigation of visual attraction and a psychological action to a motion, we explored the direction of motion graphics to be used for a movie advertisement for display in a digital signage. A study showed that human eyes have a natural movement that could be felt as either comfortable or uncomfortable. Moreover, people receive a

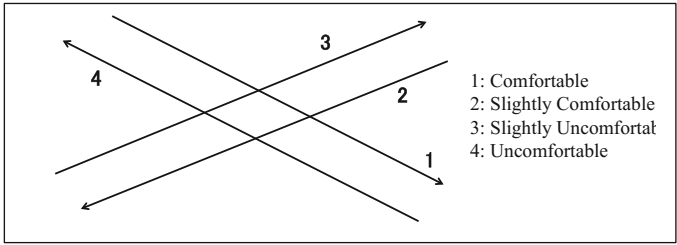


Fig. 3. Comfortable and uncomfortable diagonal motions

strong impression from the movement that makes them feel uneasy. Therefore, using the eye direction that is not natural and an uncomfortable movement in motion graphics can attract attention and make the audience feel uncomfortable. However, making an uncomfortable motion become noticeable from a movie produced only with an unnatural eye movement and uncomfortable motion was difficult. Thus, we combined them with the natural eye movement and comfortable motion to be noticeable.

### 3 Movie Production for the Experiment

In this study, we created movie advertisements for the Kanagawa Prefecture TV program shown daily from Monday to Friday. We combined the rules and determined which movement would attract attention.

#### 3.1 Motion Graphics Through the Transformable Animation of Figures (Movie 1)

When a motion is sensed in the peripheral visual field, humans tend to try to see it in the center visual field. Taking advantage of this feature, clear transformable motion graphics was used for the balloon shape in the movie. In this study, we produced an advertisement movie that draws visual attraction and that audiences can watch without getting tired by changing the shape of the balloon and expanding the TV program title on the screen. For the motion graphics for the characters of the TV program title, the motion in which the characters appear and expand from the back and line up in front quickly was created.



Fig. 4. Motion graphics process of the TV program title expansion



Fig. 5. Process of the balloon shape transformation

For the transformable animation of shapes, the motion of a polygon’s changing vertex position was created.

Figures 4 and 5 illustrate the processes of the motion graphics for a TV program title expansion and balloon shape transformation, respectively.

### 3.2 Motion Graphics Using Comfortable and Uncomfortable Directions (Movie 2)

In the advertisements, we showed TV programs and applied effective movie transitions between each program to attract attention using the proposed method. We made the audience feel uneasy by introducing complicated, pleasant, and uncomfortable movements and changing up their combinations to attract attention. We hypothesized that repeating comfortable and uncomfortable motions creates the effect of attracting attention. Two kinds of movie transitions were used: a transition that combines a slightly uncomfortable motion that moves from the lower left to the upper right and a comfortable motion that moves from the upper right to the lower right and then to the



Fig. 6. Example of a movie transition in the experiment

upper left, and a transition that combines an uncomfortable motion that moves from the lower right to the upper left and a slightly comfortable motion that moves from the upper right to the lower left.

Figure 6 shows an example of a movie transition from the cut. The program title is presented to the cut, which shows the introduction sentences.

### 4 Experiment

We conducted an experiment to determine whether or not the produced Movie1 and Movie2 could attract attention. The movies were displayed on the digital signage in the Kanagawa Institute of Technology, which had a similar environment to the Kanagawa Prefecture Office.

As comparative targets in the broadcasting experiment, the Movie1-A and Movie2-A versions, the effective motions of which had been taken from Movie1 and Movie2, respectively, were prepared. In the broadcasting experiment, Movie1, Movie1-A, Movie2, and Movie2-A were repeatedly broadcast for 1 h for five days.

The result of the five-day experiment showed that while Movie1 was showing, 277 pedestrians walked by the digital signage and 33 (12%) actually watched the movie.

While Movie1-A was showing, 339 pedestrians walked by the digital signage and 35 (10%) actually watched the movie.

While Movie2 was showing, 519 pedestrians walked by the digital signage and 65 (13%) actually watched the movie were 65.

While Movie2-A was showing, 525 pedestrians walked by the digital signage and 48 (9%) actually watched the movie.

The result of the broadcasting experiment is illustrated in Fig. 7.

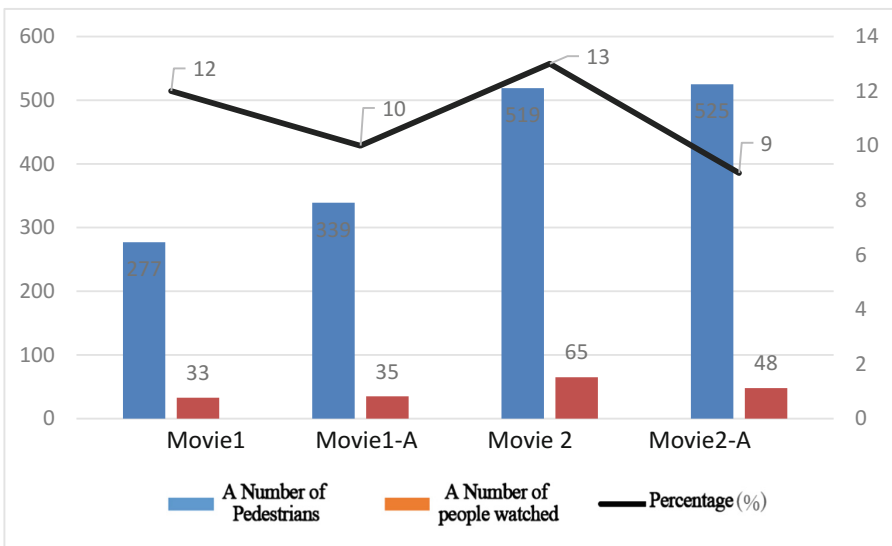


Fig. 7. Result of the broadcasting experiment

Overall, the percentage of people who watched Movie1 and Movie2 was higher than that of those who watched Movie1-A and Movie2-A. Motion graphics was able to successfully attract attention.

## 5 Conclusion

In this study, two advertisement movies of the Kanagawa Prefecture were created for showing in a digital signage in the Kanagawa Prefecture Office. The result showed that more people could be attracted to watch advertisement movies in digital signages installed in an environment where people come and go by using effective visual attraction.

However, when visual attraction is emphasized too much, decreased visibility becomes a problem. Moreover, understanding the contents of the movie becomes difficult because of excessive use of complicated colors, motions, and shapes. Visual attraction sometimes defeats its own purpose. In future research, the appropriate balance of colors, motions, and shapes should be determined to explore more effective motion graphics for digital signages.

## Reference

1. Van Sijll, J.: Cinematic Storytelling, Ubiquitous Learning: Michael Wiese Film Productions (2005)