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Study on Blend Coding System and Accordance of Animated Symbols and Text Content

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Abstract

A typical application of animation is combined with text content to represent knowledge, as known as MG(Motion Graphic). So MG is a blended coding system of two types of symbols, animation always play the role of "dynamic illustration" to support text comment. However, people have been used to understand and operate dynamic graphics via digital devices, so text is not the only source of meaning. Animation has become independent symbol to produce more efficient recognition. How does the consistency between animation and text settle, and how to evaluate this effects has become an important issue in the production of animation. This study adopts experimental method to let sampled students watch different progressing bar animation clips and answer the questionnaire. The result indicates how different bias between animated shape and dynamic texts affects visual comfort and logical understanding. With comparison, further research suggests how visual elements of animation is encoded to represent logical meaning and types of bad blend coding with other symbols that should be avoided.

Key words: Animation, Motion Graphic, Blend Coding, Animated Symbol

Introduction

When animation performs as logical symbol, a key issue is how its animated visual elements are designed and organized to correspond to the logic content. Such kind of process is seen as coding of animation.

The application of animation to indicate serious information mainly focuses on teaching, public information announcement, and data visualization. A kind of animated short video on Internet indicating information is called "MG animation", in which "MG" refers to "Motion Graphic". Typical MG animation is characterized as blended animation code. It mixes traditional language tools such as voice and text with animated graphics to express the same logical content together.

In China, more and more researches have noticed MG animation's application and potential on spreading and easing contents on serious topics, such as The National People's Congress of PRC and the Chinese people's political consultative conference, government file report, incident scene reappearance, etc. Most of such topics usually give people a stereotyped and boring impression. Some research attributes MG's value to the mobilization and retention of attention (Ma Chuangxin, Chen Xiaohe 2017), emphasis on the advantages of blended coding of MG animations in visual elements organization. (Sui Guisong, 2018) Some research tried to adopt animation as a standard visual method for data journalism, but also noticed shortcoming (Li Wei, Dai Mengyu, 2017). Another issue attributes MG's wide acceptance to post-modern spiritual and psychological needs, for people have begun to reject preaching or "chicken soup" style texts. (Jian Yan, 2017)

Experimental

To test blended coding feature and methods of MG animation that indicate logical contents, we design this experiment.

(1) Participants

Animated questionnaire test selected 50 youths between 20 and 30, including 32 students, 2 teachers and 16 company staffs. All participants are familiar with dynamic graphical smart devices, and information encoded in animated form. They also have experience in using graphical tools such as emoji and photo editing app.

(2) Material

In this experiment, progress bar animation was selected as material, for almost every viewer knows the meaning of this animation, the visual encoding rule is explicit. To simplify the animation, different parts are distinguished by lightness. Black part indicates the loading progress, the white part indicates blank, and the background is 50% gray. Also as it always appears, progress bar has a number to indicate percentage of loaded, in the center and on top of the bar, as shown in Figure 1: The animation is made by Flash, and the Action Script programming is used to ensure necessary interaction and data gathering. The animation is played in full screen with a Microsoft Surface laptop.

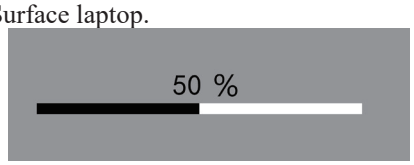

Fig.1 Basic progress bar animation

we break the original blended coding structure in different ways, trying to figure out which dynamic features of the coding visual elements play the essential role in cognitive progress. First, we let the participant watch the original progress bar animation clip for two cycles. After a short interval, we provide six similar but visual elements destructive encoded animation clips. For each clip, the re-coding of animation only happens in either text or graph. During the process, how each clip performs

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comfortable vision and how it make sense logically are evaluated in two 5-point format questionnaire. The six animation clips are: (1) decreasing number with normal progress bar, (2) reverse motion of the progress bar with normal number, (3) random change of numbers, (4) random jitter of the progress bar, (5) the animation of progress bar and text are not synchronized, (6) black and white in reverse. Six animation segments are displayed simultaneously for comparison. Based on the initial opinion, the final material includes a playback control and a hiding button for each animation clips.

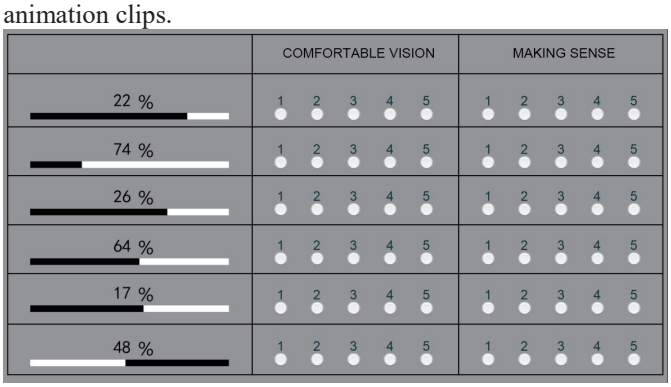

Fig.2 Re-coded progress bar animation and questionnaires

Results

We use the "test 2_1a" to "test 2_6a" 6 variables to represent the scores of six animation clips on comfortable vision, and use the "test 2_1b" to "test 2_6b" to represent making sense. In all the valid 50 questionnaires, after analysis, Fig.3 gives a comparison of the average scores for each question.

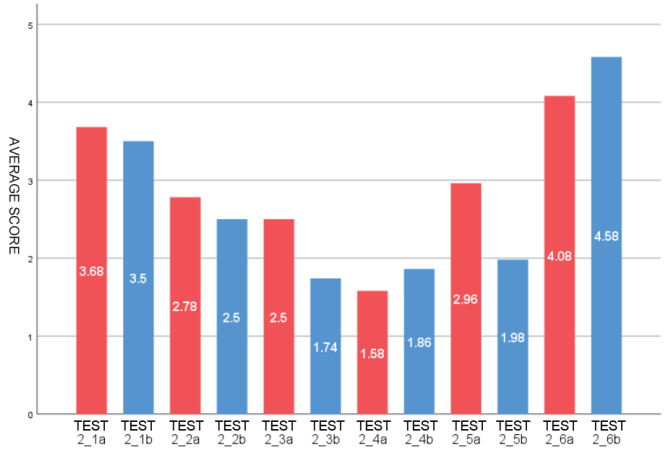

Fig.3 Column chart of results

(1) Both scores of animation clip 6 are significantly higher than other clips, with an average of over 4 points. This reflects that when the coding rules are clear, unchanged motion and text ensure the viewer's visual experience and understanding. The reverse of color (lightness) information of animated object can easily be accepted.

(2) The lowest visual comfort score appeared for clip 4. It is obvious that the flicker of the progress bar caused significant visual discomfort. On the other hand, clip 3 got the lowest logic score. Compared with clip 4, the destruction of visual encoding in clip 3 lies in text, which is less obvious. However, due to the directness and precision of literal symbol, the recognition of text does not require extra decoding process.So flicker of text in MG can cause greater harm to understanding of the logical meaning.

(3) The two average scores of clip 5 differed most. It can be seen that with unchanged basic motion, asynchrony of graphic and text greatly harms the logic meaning understanding.

(4) Comparing clip 1 and 2, we will find that when visual features of animation remain, graphic affects vision and understanding more than text. Due to obscured by the graphical cognitive habits, the reverse of the percentage number does not affect obviously.

Conclusion

In blended encoded animation, the higher the popularity of coding rules of an animation type, the more viewer pays attention to the graphics, ignoring text annotation. The quality of animation, such as fluency and continuity can not be ignored during cognition and understanding. When the animation can not establish the visual persistence phenomenon and turns into flicker, its indication on process will be obviously damaged.

The experiment uses an already accepted form of animation as the material. The coding rules retain the visual habits of reading. More common blended coding rules of animation and text needs further research.

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