Advanced Science and Technology Letters
Vol.54 (Multimedia 2014), pp.1-5
http://dx.doi.org/10.14257/astl.2014.54.01

Increasing in sense of Immersion in Interactive Media Artworks

ChangYong Jung[1], Woncheol Lee[1], Hyunggi Kim[1]

[1] The graduate school of Advanded Imaging Science, Multimedia & Film Chung-Ang University, 221 Huksuk-dong, Dongjak-ku, Seoul 156-756, Korea
mywood@naver.com, pantyup@naver.com, unzi@nate.com

Abstract. We get lots of information in our daily life and identify and perceive things naturally through relationship between them. We receive information from environment through several sensory systems because we recognize the object in a various way depending on psychological factors or physical state. The purpose of this paper is to find out an increase in sense of immersion depending on contents of movement of interactive artwork using projector and sensor by defining visual elements and analyzing components that can influence immersion and amusement when the audience handles contents in work.

Keywords: Interactive art, Artworks, Immersion, Media art, Installation.

1 Introduction

Interactive has become new standard of media art which led communication with audiences in art to widely expand. Communication between artwork and audiences cannot be disregarded. Interaction in media artwork using media not only helps audiences to communicate artwork better but it also shows central role of audiences in art through interaction by hearing and touch.

The artwork in this paper is interactive one which leads audiences to artwork by using a projector and an infrared sensor and produces sense of immersion through movement of contents. This paper studies elements that increase sense of immersion which audiences recognize when they handle contents as if they handle tools. The elements that increase sense of immersion are components of visual perception theory and expresses strong immersion and depth by making good use of law of proximity and law of closure.

In some cases, it is the Contact Volume Editor that checks all the pdfs. In such cases, the authors are not involved in the checking phase.

ISSN: 2287-1233 ASTL

2 Interactive artworks

2.1 Artworks Idea

<Inside>, and <Dr. Fish>, artworks handle contents by using a projector and an infrared sensor which allows audiences to be immersed in artwork. <Inside> places image at the center on a screen with black background to produce closure of space which causes strong sense of immersion and curiosity of audiences.

<Dr. Fish> leads audiences to take part in artwork by using aquarium which presents behavioral pattern of audiences. When a audiences tries to catch a fish which is made out of typography by putting a hand into aquarium, infrared sensor detects movement of a hand and moves fish in an area where there is no hand.

Both <Inside>and <Dr. Fish> have their own interactive elements and lead audiences to artworks through space which projection provides and fantasy and increase sense of immersion and amusement by allowing audiences to communicate with contents in artwork. 3D text fish which are projected in aquarium expand space and leads continuous behavior of audiences through closure of space and expresses perceptual characteristics of expanded space through closed space of rectangular screen gives and visual perception that light and color give.

3 Technical description and the element of Immersion

3.1 Interactive design

Dr. Fish

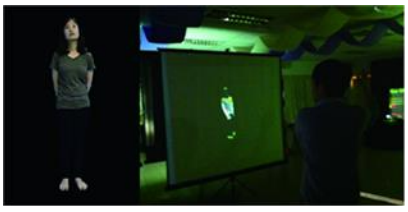

Fig. 1. Dr. Fish

<Dr. Fish> leads behavior of audiences by making good use of aquarium and beam projector which presents limited behavioral pattern. In <Dr. Fish>, there is a projector at the bottom of aquarium and there is infrared sensor. In <Dr. Fish>, when a spectator attempts to put a hand into aquarium, sensor detects it and moves fish into an area where there is no hand.

Inside

Fig. 2. Inside

<Inside> places contents at the center on a screen with black background. In <Inside>, a person on a screen disappears into a screen gradually through audiences' movement and when there are no spectators in front of sensor, a person on a screen makes an appearance from darkness and looks as if he(she) waits for somebody endlessly. <Inside> expresses a waiting of modern times paradoxically by building playful relationship between audiences and a person in the artwork.

3.2 Technicality

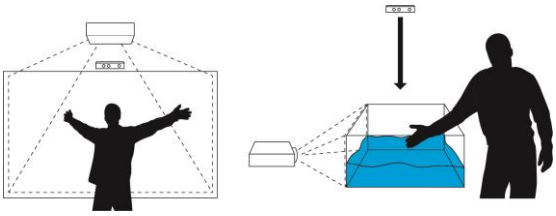

Fig. 3. Conception Diagram of Inside and Dr.Fish

<Inside> was produced by using a computer, kinect sensor and adobe flash program. Image contents are composed of eight positions. Image is played depending on position value of a audiences coming from a sensor. When an audiences is in front of a screen for over two minutes, event image is printed out. <Dr. Fish> was produced by using vvvv program and kinect sensor. Water tank is composed of thirty six spaces and prepared image contents are played when there is hand's movement in each position. <Inside> and <Dr. Fish> are different in software but they have the same algorism of software.

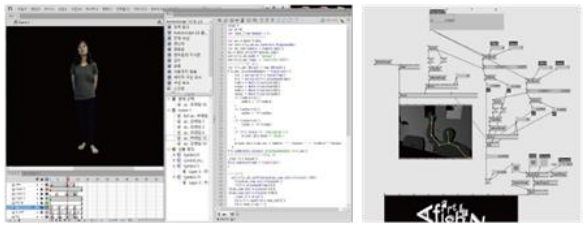

Fig. 4. Adobe flash script and vvvv algorithm

3.3 The elements of increasing immersion

Visual perception theory is applied to various fields of art such as fine art, design and picture in recent times. Visual perception principle takes the whole important and is based on simplicity which is the basic attribute of perception. As far as visual perception is concerned, each object is perceived as a shape that has similar common ground after going through a series of perceptions. Visual perception theory has five components and among the components, in this paper, Law of proximity and Law of closure are applied to analyze visual perception elements that influence sense of immersion and amusement when spectators handle contents in artworks.

Law of proximity

Law of proximity is based on the fact that two or more visual elements that are located nearer are more likely to seem a pattern or a group, In other words, Law of proximity is to see various shapes as the whole when they are located in a space

Law of closure

Law of closure is to create collectivity and simplicity of visual sensation based on human ability that tries to make imperfect image complete. Law of closure refers to a tendency to understand associated parts of certain shape in terms of visual sensation as the complete shape.

4 Conclusion

Contents in the artworks expressed based on visual perception theory are able to deliver what artists mean through the artworks to audiences in an effective manner. It was revealed that effective and various communication is made because audiences perceive overall characteristics such as sight, hearing and environment when they handle contents in artworks. Further research to find out whether immersion of audiences can increase and psychological stability can be gained when audiences communicate with various contents which visual perception components can be expressed is needed.

References

1. Arnheim, R.: Art and Visual Perception: A Psychology of the Creative Eye (Berkeley, CA: Univ. of California Press, 1954; revised 1974)
2. Shin, J. W.: A study on media-facade applying the visual perception theory of Gestalt, Korea Digital Design Council Vol.12 No.3 (2012)
3. Kim, H. M.: Inquiry for the visual based on the cognitive and Gestalt psychology, The Graduate School of Design, Ewha Woman's University, Republic of Korea [2002]
4. Lee, Y. J: A Study on Expression of motion graphic with Gestalt theory, Korea Digital Design Council Vol.11 No.1 (2010)

5. Jennett, C.: Measuring and Defining the Experience of Immersion in Games. International Journal of Hu-man Computer Studies, Vol.66, No. 9, pp.641-661, 2008
6. Zakia, R.: perception and Imaging, chapter 2

