

A Study for the Experiential Media Art Contents Guideline for Education in Play Focused on Playing- based Interaction ‘Smart Big Board’ Project

Yoonje Chang¹, Sun Song¹, Hyunggi Kim¹

¹The Graduate school of Advanced Imaging Science,
Multimedia & Film Chung-Ang University
naugulp@naver.com, songsun1999@hotmail.com, unzi@nate.com

Abstract. Many educational programs through the media have been spread these days. It is because the media can make up for the part that unsatisfied by the existing analog education media. The interactive media meets the needs for the multimedia education, considering the children’s characteristic feature that feeling and experiencing are more important than any other ages. Even though there is a lot of controversy over the effects of using the interactive media as education method, the experiential media has a lot of strengths at experiential and acting aspect. This study is aimed at searching considerations so that the experiential media art contents may be used as efficient educational method.

Keywords: New Media Art, Experience, Education

1 Introduction

The increasing concerns about the children’s education and the development of technologies have made the educational media for children evolving. As Clements(1987) said, computer works can stimulate the interaction more than any other educational activities. It is said that children learn and apply the functions of computer to share opinions with peers and this interaction leads them to foster their sociality.¹

The interactive media meets the requirements for the multimedia education, considering the children’s characteristic feature that feeling and experiencing are more important than any other ages. Even if there is a lot of controversy over the effects of using the media as education method, the experiential media has a lot of strengths with experiential aspect and acting aspect.

This study is aimed at searching considerations so that the experiential media art contents may be used as efficient educational method. We have studied

¹ Eunjeong Kim, the study about applying interactive storytelling in educational multimedia contents, Ewha woman’s university information science graduate school M.A. thesis, p23. Republic of Korea (2002)

the theory about the experiential media contents and children's characteristic and divided it into the section of contents and the section of technology and design to draw evaluation items. We have analyzed the level of satisfaction and made Prototype through in-depth interviews with the teachers. We have also drawn quantitative data from the survey of the children who participated in Pre test and updated it to the efficient UX guideline through the suitability verification end user's needs.

2 Children and experiential media

Children's experiential media art exhibition is an game where children's cognitive development can be encouraged through the activities using five senses in a virtual space of the digital media.² Experience consists of Entertainment Experience, Educational Experience, Escapist Experience and Aesthetic Experience that is the 4 parts of visitor's experience by Josephine II and James Gillmore.³

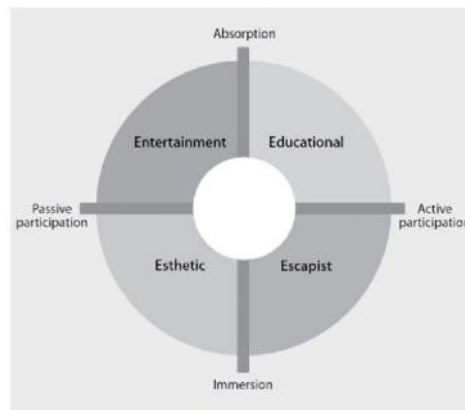


Fig. 1. The Four Realms of an Experience

2.1 Aesthetic experience and education

To deal with how art activities by Wadeson and Kniazze help treat children, it can relieve negative feelings as positive refresher and then help communicate feelings and emotion. It can also make the children fulfill themselves through

2 SunhwaBae, the features of visitor's type of experiential exhibition of the museum of natural history, Korea interior design academy collected papers, the 13th book no. 4 whole volume number the 45th, p.148. Republic of Korea (2004)

3 Yuri Chae, the study about the child media art display plan: focused on the experiential education through the interactive media, Chonnam national university M.A. thesis, p37. Republic of Korea (2011)

self-initiated working and recognize and strengthen their self-conceptions. It develops cognitive ability and physical ability as well by using a variety of art materials and observation about surrounding and relationship with others.⁴ The aesthetic experience, letting the children draw on the Smart Big Board doesn't only raise their sense of accomplishment but also helps express what is in their mind to make it easy to find out.

2.2 Play and Education

Play has a strong influence on children's developments of cognition, language, sociality and emotion. As they play, they release all their bad feelings, while making good feelings like joy, pleasure and happiness so that they can express their thoughts in proper words and acquire concepts about new things and knowledge about new technologies.

It can also help arrange thoughts and behavior together to enhance problem solving skill and physical development and sociality through the cooperative play.

As a result, play has such various educational functions above over childhood.

2.3 User Interface Usability evaluation Theory

Nielsen(1993) insisted that usability is the feature of the system that is available after satisfying the requirements of 'easiness to study', 'efficiency to use'.⁵ Each respect of usability is called usability factor and that is different from each researchers.⁶ Concerning usability evaluation, Nielsen(1994)'s evaluation has been the most widespread and that is following.

3 Evaluation item Deduction

On the basis of the theoretical background through the documentary survey, it is largely parted into the content's aspect and the physical aspect. Focused on UI usability evaluation basis considering expert's interview test and children's features for experience, play and education, the details are drawn that UX strengthening policy is applied to.

The experts who are 7 more than 3 years-experienced preschool teachers were interviewed mainly about the important keywords per each evaluation item.

4 Yujeong Kim, the study about the educational effects of child psychological therapy through picture play, Incheon national university of education graduate school of education M.A. thesis, p22. Republic of Korea (2000)

5 Nielsen, J. 1993. Usability Engineering . San Diego, Nielsen 1993. Usability engineering, San Diego (1993)

6 Changho Park, 1998, interface design and usability, Korea psychology academy, Republic of Korea (1998)

Table 1. Experiential Media Art Contents Evaluation Items

	Evaluation items	Detailed items
Contents	a.physical play	a1.Use of Body a2.Fun
	b.research activity	b1.Satisfaction b2.Level of difficulty
	c.artistic	c1.Diversity of Tool c2.Aesthetic
	d.social relationship	d1.Self Expression d2.Sympathy
	E new experiences	e1.Imagination e2.Creativity
User Interface	f.efficiency	f1.Appropriate feedback time f2.Visibility between information and control area
	g.accuracy	g1.Exact Accessibility by User behavior g2.Occurrence of Errors
	h.meaningfulness	h1.Accuracy of Visual Information h2.Accuracy of Sensory Information
	i.flexibility	i1.Enough using time i2.Convenient Control
	j.consistency	j1.Control Method j2.Menu Architecture

4 Pretest

The pretest prototype which will be used here is a Smart Big Board contents developed through Industrial fusion original technology development project supported by the Ministry of Trade, Industry, and Energy. That is large multi touch screen is play wall system which is available to recognize multi users simultaneously in order to enjoy drawing and interaction play.

The Smart Big Board uses 'scribble drawing technology' 'scribble display technology' 'intellectual environment and hands free interface technology' for multi users to be able to play with the drawing things which is the feature of smart interaction board. The scribble display technology' is based on the UX which offer the eidetic and comfortable scribble creation, edition interface as well as drawing work and management.

The Smart Big Board is available for multi users simultaneously, saves and displays the scribbles that users drew and even offers interaction play for the drawers to play with his or her own scribbles.

4.1 Question investigation

The prototype is composed of touch interface and non-touch interface type of contents. The substance of the contents is ocean tour which was the 1st year service contents. The pretest was performed for 43 kindergarten students aged between 5~7 for 3 days in May 9th, 13th and 14th 2013, dividing group 1(10:30-12:00 am) and group 2(2:00-3:30 pm). Right after the test, question investigation was given to them according to the evaluation item.

The questionnaire was designed 1 question for each evaluation item to answer yes, no, or no response about the importance of each items for quantitative evaluation. The evaluation is not aimed at deduct the accurate numerical value data but find out the relative importance on the guideline suggested by this thesis.



Fig. 2. Smart Big Board Pretest

5 Conclusion

This thesis suggests the guideline for the design of the heuristic media contents development. The existing researches are only focused on the child contents using websites so that it was hard to find the heuristic media contents available sharing with the peer groups. That's what this research is for. This research suggested detailed items dividing contents aspects and User interface aspect of the heuristic media.

And through the question investigation, the research deducted the relative importance of the detailed items. For the contents targeting children, there are more needs for the physical activities with play rather than educational contents, the important factor was the clear connectivity among the visible clarity, user's action and contents feedback. This research is not able to prove more variety of heuristic media cases. However its significance lies on the suggestion for the important factors for the designing of the heuristic media contents.

References

1. Kim E.: The study about applying interactive storytelling in educational multimedia contents. Ewha woman's university information science graduate school M.A. thesis, p23. Republic of Korea. (2002).
2. Bae S.: The features of visitor's type of experiential exhibition of the museum of natural history. Korea interior design academy collected papers, the 13th book no. 4 whole volume number the 45th, p.148. Republic of Korea (2004).
3. Chae Y.: The study about the child media art display plan: focused on the experiential education through the interactive media. Chonnam national university M.A. thesis, pp. 37. Republic of Korea, (2011).
4. Kim Y.: The study about the educational effects of child psychological therapy through picture play Incheon national university of education graduate school of education M.A. thesis, p22. Republic of Korea, (2000).
5. Nielsen, J.: Usability Engineering . San Diego, Neilsen 1993. Usability engineering, San Diago (1993).
6. Changho P.: Interface design and usability, Korea psychology academy, Republic of Korea (1998).