

User Interface of Interactive Media Art Works using Five senses as Play Therapy

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Abstract

The pleasure and interaction offered by interactive media art could be fully facilitated as play tool for children, not just for its contribution to physical development but also for emotional and cognitive development as well. Media art works which stimulate five senses and induce physical exercise can overcome the side effects of digital game devices and can be useful as a play therapy that brings out sound emotion and allows cognitive development. Ingredients such as sand and bell used for such art, therefore, deserves recognition as a 'User Interface' for play therapy that stimulates five senses.

Keywords: *Interactive Media Art, Play Therapy through Five Senses, New Media Art*

1. Introduction

Humans that exist as a playing being, is defined through the term "Homo Ludens" and as Schiller put it, playing is one of the most fundamental acts of life and at the same time an action that lets man to feel the wholesome-ness of life to the fullest. Children in particular, can most definitely be described as a pure 'play-beings' given their physical development going on in full gear and the way they grow up and mature by playing. Through playing children not only go through physical, linguistical, cognitive and emotional development but also get assistance in developing creativity and social skills. As it became a widely known fact that interaction through play is a good way to build up children's cognitive and emotional development 'playing' itself has become the focus of attention as a tool for children's emotional development.

In the modern society, unfortunately, due to emergence of nuclear family and development of digital devices, various merits of children's traditional play have been reduced nowadays to result into side effects such as intensified isolation between individuals. Rather than going for play activities that attain cognitive activity or movement through stimulating five senses and inducing body movement, many chose to get absorbed into individualistic, extremely addictive and inactive games provided by digital devices. Therefore, due to online game addiction and others, it has become difficult for one to expect sound social skills or balanced mental and physical development what with the kind of play culture that is on widespread nowadays.

Due to this reason, if children get to be freed from individualistic and isolated place to have their senses — their sight, hearing and touching, *etc.* — stimulated or get to play a game that encourages vibrant body movement, it would not only considerably offset side effects

that come from the existing games that center heavily on digital devices but also resolve the problems coming from lack of sociality by learning to mix with others naturally.

The characteristics of installation art that facilitates interactive media art by creating a virtual space based on digital technology and inducing viewers to interact with art works by encouraging them to pose various gestures can maintain children's interest just like digital games but at the same time can also command movements such as moving hands or feet and provides an environment in which a number of people can enjoy together in the same space. Such aspect shows that media art can take on the role of a play therapy that can considerably alleviate side effects of the existing digital game.

The following research will look into interactive media art as a play therapy that could stimulate sight, hearing or touching and require movement and reveal its effectiveness as user interface through sand and bells that have been used in those interactive media art. Such art works are useful as a play therapy that can help stimulate children's five senses and exert physical control and good concentration.

2. Play Therapy and Interactive Media Art

Play therapy is widely used to treat children's emotional and behavioral problems because of its responsiveness to their unique and varied developmental needs. Most children below the age of 11 lack a fully developed capacity for abstract thought, which is a prerequisite to meaningful verbal expression and understanding of complex issues, motives, and feelings. Play therapy has evolved over its 100-year history to include a cluster of treatment methodologies and theoretical schools of thought. Though these may differ philosophically and technically, they all embrace the therapeutic and developmental properties of play "to help [children] prevent or resolve psychological difficulties and achieve optimal growth and development".

Children's formation of logical thinking is accelerated by various types of plays. It is through playing games that children get to observe and perceive all kinds of representations in life and develop their own way of thinking. Reed, through his book 'Education through Art' pointed out that variety within children's play correspond to four basic psychological function known as perception, sense, intuition and reason and when those characteristics gently combine into one through play, that is how one forms a single unified character that can develop with harmony. Therefore we can see that it would be quite desirable if children's education be realized into a comprehensive education through natural playing.

This is especially true during the stage of infancy when only through an appropriate stimulus in senses at appropriate time can babies develop intelligence related to their senses, learn about concept of conservation for objects, differentiate ambiguous and complex stimulus accurately, thus able to organize things logically and structuralize their perception. This shows how important it is to experience surroundings with five senses during the infancy.

Therefore, when providing children with the type of play that could stimulate their five senses, exert concentration, move their bodies with sense of control and on top of it, make it a pleasant sight to view in aesthetic sense, that would be make be what we call an achievement of a good education through a desirable playing as claimed by Reed earlier. Children, by letting out their inner frustration through such playing, will save their mental health, experience aesthetic beauty, receive help in their emotional activity, develop their perceptive functions in five senses that include sight, hearing and touching and also movement capacity through training in physical control. If a child is allowed to enjoy such play not by oneself but with several people at the same time in the same space, letting one to enjoy with others that would be another addition to the child's education in the area of social skills where one learns

how to interact with others. Due to these findings in recent years, the development of innovative play therapy techniques has matched the significant gains made in play therapy theory and research.

The playing activity in the play therapy which is spontaneous and with an intrinsic motivation can be a way to relieve stress or other psychological conflict. The development of digital game shows that online game which makes it possible to interact with others can be facilitated for play therapy as well. In accordance, if one can approach the patient using certain elements of interactive media art that is similar in form to an existing digital game it would reduce the patient's possible repulsion to the new therapy and encourage voluntary participation. The method is likely to prove more effective to children addicted to things such as Internet games. Thus when it comes to art work, by taking full advantage of interactive media installation art work, one would be able to expect some progress in a patient's healing process similar to that shown in the existing analogue type art therapy, only with more playfulness and spontaneity with the latest version.

Meanwhile interactive media art is an art work that heightens the significance and degree of completeness for the art itself by prompting viewers to take part and interact with it, thus create a personal encounter and experience in various levels. The development of digital technology has further diversified viewer's manner of participation in varying degrees as well as its effects, boosting the number of participants as well as their response and satisfaction. The conceptual characteristics of interactive media art is shown through participation, interaction, playfulness, improvisation, non-bindingness, surroundings and coincidence. Such can be explained in connection with the characteristics of digital medium and also that of digital game.

Therefore, interactive media art and games are very similar in form, influencing each other and copying each other's format back and forth. The playfulness of interactive media art is portrayed as very concept of play and viewers' expectation for fun stemming from their interaction with digital technology further adds to their participation to the art. This is quite similar to the nature of play given that the action itself is voluntary and in pursuit of fun. In this sense, it has become possible for installation art which facilitated interactive media art to take on a role as a play tool for children.

As described above, art therapy which uses interactive media art possesses a character of 'play therapy' that focuses on the effectiveness of playing and try to realize curative effect through it. In other words, we can understand that through 'playing' which is a natural medium for children's communication, we can use interactive media art as a play therapy that can help the patient explore one's emotions, thoughts, experiences and actions and assist in establishing a sound and healthy relationship with others..

3. Analysis of Example

The art works below as shown in Table 1 are part of interactive media art viewed as examples for play therapy done by the writer. The writer's works which basically made use of camera and projector, perceives the movement of the viewers via camera and creates various virtual creatures on a projector according to people's movement and that is how the system works. Or one can also speak through the mike and see how the sound alters the image in the video. Such is what the media art installation work is all about, responding to the movement or sound made by the viewers and changing the video image. Aside from camera or mike, one can also use bell or sand as an input to provoke hearing or touching.

You can see the sample images of such art works created based on such system through following pictures. Also, Table 1 shows the respective user interface and its related senses organized in a row.

Table 1. The sample images of interactive media art works as play therapy






Title	Exhibition Title (Year, Place)	Exhibition Image
Color Xylophone	MBC Trick Arts Exhibition (2010, KINTEX)	
Ghost Bell	Spooky World Exhibition (2013, Hanwon Museum)	
Memorial Bell	Jeonju Photo Festival (2013, Sori Arts Center)	
Light Table	Busan Port Lighting Festival (2010, Busan Port)	
Bubble Bubble	Ceramic Art & Technology Exhibition (2010, AT Center)	

Figure 2. Several Examples of Interactive media art works as play therapy and the senses stimulated by their user interfaces of those works

Title	Predominant Sense	User Interface
Color Xylophone	Sight, Hearing, Movement, Self-Perception	Web Cam
Ghost Bell	Hearing, Self-Perception	Web Cam, Microphone, Bell
Memorial Bell	Sight, Hearing	Microphone, Bell
Light Table	Touching, Sight	sand, lighting sensor
Bubble Bubble	Sight, Movement, Self-Perception	IR camera

3.1. Color Xylophone: Sight, Hearing, Movement, Self-Perception

Description: This is an art work in which, next to the screen that provide mirror reflection of the viewers, virtual balls of all colors fall from ceiling to floors and making explode with the sound of xylophone whenever those balls make contact with the user interface. Balls that fall to the floor without any contact with visitor's body will repeat bouncing back until it touches human body and burst.

Desired effect: Children will stretch their hands and jump around anticipating the chance to burst the ball of their favorite colors as they keep falling. During the process they get to perceive visual stimulus that is various colors of the ball, an auditory stimulus that is various sounds of xylophone (hearing) and also a stimulus from body movement. Also, seeing oneself reflected in the screen can remind one of looking into the mirror and holds a meaning of self-perception.

3.2. Ghost Bell: Hearing, Self-Perception

Description: A wave pattern appears on the screen that reflects visitors' image like a mirror. The screen will respond when a visitor that approached the screen rings a bell on the table. When the bell rings, virtual ghost will make its presence known to the visitors while virtual spiders on the ceiling will crawl across the screen and all the way down. The color of the ghost and spiders will differ every time. When the sound of the bell fades, ghosts and spiders will disappear with only the mirror reflection of the visitors remaining on the screen once again.

Desired effect: Children will receive auditory stimulus through ringing of the bell followed by visual stimulus through ghosts and spiders that appear in different colors. Also, their own reflection on the screen will guide them to self-perception.

3.3. Memorial Bell: Hearing, sight

Description: In front the screen that conjures up various war images visitors could try ringing the bell. Upon the sound white petals of chrysanthemums that revere the victims of the war will fall from the screen like a snow.

Desired effect: Children will receive auditory stimulus listening to the pure ringing of the bell echoing throughout the place followed by visual stimulus coming from the magnificent scene of beautiful flowers falling all over the place in various sizes.

3.4. Light Table: Touching, Sight

Description: A visitor will draw a picture on the sand piled up on the table. In response the screen on the front will show the exact image on the table, only conjured with light.

Desired effect: Children will receive tactile stimulus touching the sand in order to draw whatever they want and visual stimulus by change in the light according to the change in sand picture. They also receive additional stimulus in imagination while drawing various pictures to their likes.

3.5. Bubble Bubble: Sight, Movement, Self-Perception

Description: Various shades of bubbles that has incorporated the face of visitors would be floating along the exhibition floor. If someone steps on the water bubble reflected on the floor the bubble would be scooped up to disappear. A new bubble will appear to replace its place.

Desired effect: Children would enjoy seeing their faces within the water bubble and feel a sense of achievement while running around the burst all the bubbles. They would receive visual stimulus through rich colors of the bubble and stimulus for physical control and movement while stepping on the bubbles. Looking into their own face reflected in the bubble can evoke sense of self-perception.

4. User Interface that Provokes Five Senses

Digital games that most children play with are associated with mobile devices like smartphone or computer that allows one to sit through the game all along, while most of the actions are done through pressing input button such as a mouse or a keyboard. The input system which offers standardized, mechanical feel fails to give any other stimulus aside from coldness and dullness. In contrast, as shown from above, when using things like sand, sand alone offers various tactile stimulus to the skin. In particular even babies can play with sand without any difficulty or restraint and without a care about any game rules as it has no shape to begin with and thus, triggers even more creativity and vibrant activity. The sand itself, while offering all kinds of feel through its color and texture, also manages to maintain interest and curiosity of young children while, contributing to their emotional development.

Also when interacting with the art work by ringing the bell, children can obtain auditory stimulus through its clear and pure sound which is unlike the general noises of daily life, and at the same time, get stimulated with an analogue-type emotion, therefore have much of their mechanical and dull sentiment coming from digital devices diluted within. Separately, by seeing one's own reflection through part of the art work, visitors can get a good look at themselves as part of the exhibition and get in touch with various emotions emerging within themselves. Children, especially, will find themselves absorbed into the art work while gaining new interest in themselves, resulting into heightened perception toward oneself. Therefore when composing an art work through medium that could stimulate five senses, unlike the existing user interface that is standardized and mechanical such media art work will be able to heighten its efficiency for a play therapy.

5. Conclusion

Playing is an essential part of life and its role in developing a sound and healthy body and mind for children is highly important. However currently play culture which is heavily dependent on digital technology revealed side effects such as isolation and even anti-social character instead of well-rounded value that play should have within. In order to overcome this problem we can bring in interactive nature and playfulness of interactive media art instead to be applied for play therapy. By stimulating five senses and movement capacity especially, we can revive the true value of a sound and healthy playing. We can use devices such as sand or bell as user interface to stimulate five senses. We can also use camera to allow viewers to watch themselves within the art work and that should help children to boost their self-perception as well. When conducting a play therapy making use of interactive media art, it is important one chooses a user interface that could stimulate five senses and we need to come up with more examples to study various medium.

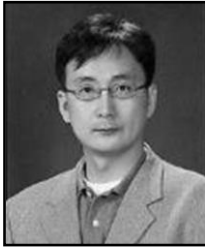
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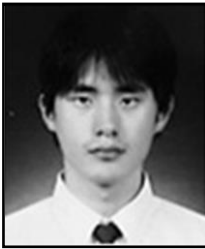
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