

Sustainable Seattle Steering Committee: March 2005, *Indicator Criteria*, (<http://www.sustainableseattle.org/Programs/RegionalIndicators/IndCriteria> (accessed 15/1/06)).

Weinstein, J. March 1997, *Art in Residence*, Artforum, New York.

Wadsworth, Y. 1997, *Everyday Evaluation on the Run*, Allen and Unwin, St Leonards, NSW.

The reflective practitioner: in creation of a presence based experience

Sarah Moss

This paper will discuss audience as participants and reflect on why interactive artworks require 'safe' environments for exhibition. A pilot study was developed in order to ascertain the artists' conceptualisation of a presence component within a networked system. The study of the interactive artwork The Element of 'Luck' was devised to gauge a participant's presence experience in terms of human computer interaction (HCI). It is the first in a series of works that will develop sequentially during the next three years; each layer of new work informed by the progress of the last. This study facilitates a dialogue in relation to the following criteria: 1) presence and facilitating engagement; 2) the audience as participants; and 3) environments for exhibiting interactive art systems.

1. Introduction

This paper discusses in detail the exhibition of a pilot study titled The Element of 'Luck' produced in 2006. It provides discourse about how a presence engagement is manifested with audiences through an interactive artwork and its' environment. This paper examines the experiences audiences had with this artwork in the context of its exhibition environment and the processes involved in exhibiting an interactive art system to the general public. The study relied on observation of audiences who provided feedback regarding their experience via a questionnaire. This paper provides reflections on the process and outcomes of developing and exhibiting new work in public spaces. It examines the example led by Creativity and Cognition Studios (CCS), University of Technology Sydney (UTS), in its collaboration with The Powerhouse Museum in creating Beta_Space: a 'safe' environment for displaying interactive works to the general public ([creativityand cognition.com](http://creativityandcognition.com),2006, Powerhousemuseum.com,2006, Beta_Space 2006). Furthermore, this paper offers examples of successful practise procedures for creating interactive artworks and examines the creative process in respect to audience engagement.

2. Presence and facilitating engagement

Presence as a concept is determined here by its application to entertainment devices or systems. The pilot study The Element of 'Luck'

was developed to explore aspects of presence with audiences, to see whether a participant could experience a perception that does not "...correspond to the true nature of the physical world" (ISPR). The work provided an immersive experience that facilitated the participant in experiencing a sense of the space they were looking into; a new place, a place in space not too far from earth.

The Element of 'Luck' aimed to explore presence in the context of audience engagement and to provide a background for early exploration into facilitating a presence experience. It was situated around concepts explored through research into the nature of interactive art systems, presence and audience engagement (Candy & Edmonds 2002, Floridi, L. 2005, Fels, S. 2001). Time, place and space, life and death, experience as an individual journey and the nature of play and engagement (Kane 2004) all contributed towards the framework that sustains it.

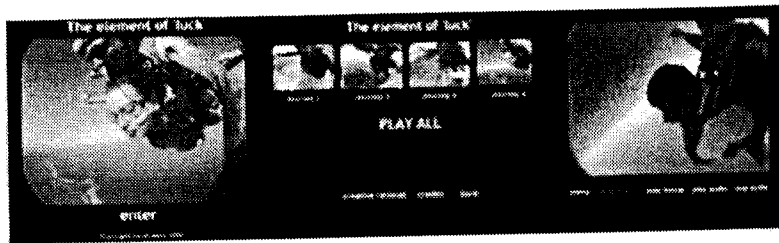


Figure 1: Screen stills x 3 from The Element of 'Luck'.

2.1 A Pilot Study: The Element of 'Luck'

There is an element of 'luck' in undertaking parachuting over which the provider does not have control. (2p (iii) Parachuting Contract. 2006)

Built in Flash MX (adobe.com) The Element of 'Luck' is a dynamic-passive interactive installation (Candy & Edmonds 2002). Presented in a stand-alone touch screen display unit with attached headphones The Element of 'Luck' was the only computer-generated artwork in the exhibition Northern Exposure - Art from the Northern Illawarra at Clifton School of Arts Innovation Week 2006 (Clifton, 2006). Positioned in a corner of the Clifton School of Arts Gallery the kiosk stood where no direct light would fall upon the screen obstructing vision and in its turn it posed no threat as an obstruction itself. Headphones were attached to the kiosk in order that the participant might access an immersive engagement while ensuring the sound elements could be accessed without disturbing the galleries atmosphere.

Computer technology was used to create all facets of development and display including a touch screen kiosk and headphones. The content of the work is sourced from four individual skydiving experiences. As the skydiver engages in a unique experience, the Tandem Master is documenting the skydive onto a hand strapped mini DV camera. Approximately 66 stills were cut from this footage (approximate duration of real time footage is 7 minutes) and played back at 10 seconds per frame.

Four 'Journeys' (a plane ride, a freefall and a canopy ride) were produced utilizing still images that are cut chronologically. What becomes most apparent is the engagement that both players have with the technology during this unusual experience. The technology is both acknowledged and yet irrelevant to the skydivers experience. The artwork participant's presence experience is generated by engagement with this unusual perspective of the world and the visual story as it unfolds. The 'characters' in these 'movies' are engaging in 'real life' action; spontaneous, unknowable and dangerous.

Participants as voyeurs of the passenger and the Tandem Master witness the journey in still frames rather than video at 24 frames per second. The decision to work with stills cut from the original digital footage came from experimentation with compressing video and the technical obstructions that arose. Compressing video reduced clarity of the image and degenerated the video quality. This work weighs heavily on precision of image in order to maximise the 'being there' attribute of presence, which was sought after. The image had to be crystal clear in order to facilitate a dependable immersive environment. For a demonstration of the work please follow the link from <http://www.smashinghouseproductions.com/shpdatabase/animations.html>.

3. Audience as Participants

In the pilot study participants of the work were able to interact with the system by activating, through touch, various linked elements. The 'splash' page encouraged initial engagement through a combination of visual motion and a playful interface design. Participants 'entered' the work through a link that gave them access to: four 'movies', a 'PlayAll' screen, an explanatory grid, creative rationale, and a credits listing (see fig.1). The individual 'movies' once activated displayed simple navigation tools facilitating full control of the experience. These 'movies' could be paused and then re-activated, the sound likewise. The 'PlayAll' screen activated movement within all four 'movies' simultaneously and hidden buttons accessed audio from a variety of soundtracks. This allowed for a creative engagement as participants were not restricted to a neat music

/ image synchronisation but could facilitate their own experience. Music clips could be activated at random/ different places or stages of the visual story as it unfolds. By choosing from an assortment of musical genres the experience differed depending on the rhythm, tempo and delivery of these pieces. The act of watching something and listening to it with a classical, pop or an experimental sound track provided the participant with an assortment of temporal experiences. As participants the audience were able to navigate the system choosing whichever various sound and visual elements they felt like piecing together in a non-linear way. Thus each participatory interaction potentially provided a unique experience based on the players developed tastes and preferences. Computer-based interactive art systems assist audiences in becoming artistic members of the creative process. Enhancing the general public's creativity facilitates a relationship that potentially draws audience members into a new paradigm. Audiences have by the very nature of interactivity become participants in the exchange of information and engagement with new media experiences.

4. Enhancing Audience Creativity

The audience are no longer guaranteed a purely observational relationship when it comes to interactivity as exhibited in some galleries and museum environments. Audiences are invited to become participants as they engage physically and mentally in artist and technologist collaborations. Therefore gallery and museum environments need to cater for audience development and education in terms of contemporary audience experiences and providing new engagements for them. Exhibition spaces that facilitate these types of relationships transform the spectator-viewer-observer-reader-audience member into a participant-facilitator-inter-actor-engager or player in a two-way interaction between the work and themselves.

Active watching and active understanding as prescribed by Takashima et al. A Model and a Tool for Active Watching: Knowledge Construction through Interacting with Video, prescribe action as an integral component in acquiring information and constructing knowledge (Takashima, Yamamoto et al. 2004). In order for audiences to become participants it is important that they understand what is required of them, in order that they experience the interactive process as created, at its best.

In a growing number of interactive art systems modes of consciousness are activated by various triggers or sensors (Edmonds 2005) or they rely on biotechnological functions (Khut and Muller 2005). Audiences as participants (Fels 2001; Yu-Chuan Tseng 2005) are experiencing their own body functions in new ways giving birth to novel concepts in art constructions like Keith Armstrong's Intimate Transactions (Armstrong

2006). Audiences are now being asked to engage in the practice of art creation by involving their own 'being' in the equilibrium. They become a part of the process of the creative practice as much as the artist and technologist who invented the work. Audiences as participants are vital in the lifespan of computer-based interactive artworks.

5. Engaging Audiences

Involving audiences in time-based activities relies on an element of providing new, playful or fun engagements. The desire to participate is triggered by an inquiry on behalf of the audience member, a probing curiosity that propels them to explore this new terrain.

Audiences can be drawn into engagement by works that produce interesting sounds, rely on stimulating visuals, allow for personal expression, or capture something unique transferring the data into matter. Computer-based interactive art systems contain within their structure a dynamic element, one that produces a new result with each application. The dynamism imposed therefore assists in engaging audiences because each experience proves to be unique, each engagement allows for private disclosure and interaction for the individual within a networked system. Computer-based interactive art systems assist audiences in becoming artistic members of the creative process. Enhancing the general public's creativity facilitates a relationship that both draws audience members into a new paradigm and provides opportunities for artists to work with technologists and audiences in 'safe' environments. The manifestation of these art systems relies significantly on user participation. Without human exploration the work ceases to express its true nature.

Currently there are a number of methods that indicate a measure of this exchange and an awareness of these techniques could assist in the developmental process of new works viability.

In Levels of Engagement artist Sidney Fels has determined interactivity between audience member and object into four types: Response, Control, Contemplation, and Belonging (Fels 2001). In a search for an engagement with pleasurable outcomes, Fels recommends that artists consider these modes as examined by him, in the creative process of new work for heightened audience engagement.

Another consideration would be Levels of Interactivity as proposed by Candy and Edmonds in their book Explorations in Art and Technology. Candy revises Cornock and Edmonds core categories for characterising, ...the relationship between the artwork, artist, viewer and environment."(Candy & Edmonds 2002). These are: Static, Dynamic-Passive and Dynamic-Interactive, each type providing artistic

collaborators with guidelines for successful creative processes in engaging audiences.

6. Exhibiting Interactive Art Systems

Long-established galleries and museum spaces retain the tradition of providing an environment that encourages the act of looking and discourages the act of interacting with their "don't-touch" mentality, creating unstable environments for exhibiting computer-based interactive art works. The pilot study discussed provides examples that validate this argument. This section will discuss why environments that consider technological advancements as creative endeavours are favourable for the exhibition of interactive new media over more traditional style art exhibition spaces.

Although artists using new media technologies are increasingly finding themselves drawn into the contemporary art world, it seems many galleries shy away from incorporating computer-based artworks on the grounds that curators and volunteer staff do not have enough technical knowledge to assist the artist or the artwork should a technical failure develop. This view is supported by Dixon (Dixon 1997). This means that new media artists exhibiting work in galleries are often required to be present during opening hours or at least be accessible and on call during these times.

The pilot study indicated supports this theory. Obviously this can be a very time consuming endeavor for artists as the process of producing a new work (giving birth) then leans towards an extended period of babysitting. Volunteers left in charge of a group exhibition are often daunted by the technology used to create the interactive work; many find the simple operation of switching on a DVD player and screen a challenging task.

Exhibiting artists in Northern Exposure (The Element of 'Luck' 2006) became gallery volunteers and the request for them to activate the seemingly complicated process involved in turning the kiosk on and then activating the software to run the work, left a majority of volunteers fearful. Furthermore smaller galleries have not yet acquired the technology to display multimedia works, leaving the artist responsible for providing items such as computers and display systems. Multimedia artists then become responsible for not only the creation and installation of the work but also the supervision and technical authority of the work in situ. Therefore when artists are not present audiences are not always being offered the interactive experience as the artist intended it to be understood.

6.1 Beta_Space

In offering a solution to the aforementioned issues the Creativity and Cognition Studios (CCS) and The Powerhouse Museum (Powerhouse, 2006) have created Beta_Space.

In November 2004, the Creativity and Cognition Studios at the University of Technology, Sydney (CCS) and the Powerhouse Museum, Sydney launched an initiative that sought to realise the concept of a research studio in a public place in a very particular way, through the participatory qualities of interactive computer-based art. Beta_Space is an experimental exhibition area within the Powerhouse, which extends the interactive-art research studios of CCS into the public context. (Edmonds & Muller 2006)

The Creativity and Cognition Studios (CCS), was established at UTS in 2003. It was formed to continue the work of the Creativity and Cognition Research Studios (C&CRS) set in Loughborough University, UK.

The aim of C&CRS is to make art practice the central focus of the work and provide an environment where artists and technologists could work as collaborators. Artists and technologists are developing systems for creative exploration through virtual and physical interactivity and are extending both the technology and the art on several fronts. (Edmonds, 2004)

Beta_Space as an exhibition space gives consideration specifically to the usability and accessibility of technologically supported interactive artworks, for prime audience engagement.

First, and most importantly, it (Beta_Space) is focused on audience experience rather than technology. Beta_Space is about interaction, and issues such as robustness, usability and audience satisfaction are therefore central to its research aims. Secondly, Beta_Space does not provide a fixed technological exhibit, or even a fixed technological delivery system but rather a research rationale and a shared commitment backed up by flexible resources. (Edmonds & Muller 2006)

Technologically challenging works are welcome to display in contemporary art spaces where curators see dynamic interactive art as an integral component of the art world at large (Lally 2006). As mentioned previously collaborative engagements that foster creative environments like Beta_Space assist in the development of new relationships between audience and art. Making the work is one deliverable, presenting the work is quite another. In order that audiences can assess new work media rich environments need to be

fostered and encouraged. Audiences can then become even more integral to the creative process as they assist artists and curators by interacting with prototypes and relaying feedback about that experience. Beta_Space fulfils this role splendidly and sets a good example for other museums in regard to interactive exhibition spaces.

7. Discussion: design issues

A questionnaire was developed to gain an understanding of the experience of The Element of 'Luck' through qualitative data gathering and analysis, which can also be compared to data and analysis gathered about other interactive artworks. This research forms part of the reflective action process involved in gathering data from users to determine best practises for interaction and engagement. The results assisted in determining the accessibility of the content in relation to audiences who are more inclined to take the traditional approach of gallery etiquette, which is to look and not touch. The content exposes the user to a view of the world from a skydivers perspective, this new way of seeing could be interpreted as a presence engagement - the significance of data collated determined if this is true.

In order to calculate a participant's experience of the work the questionnaire contained six sections and a place for comments about: 1) the participant; 2) presence; 3) the work; 4) the 'PlayAll' section; 5) interactivity and finally; 6) general questions. It was an anonymous, non-intrusive questionnaire that the participants choose to complete. 10 participants filled in the questionnaire.

The results indicated that 90 per cent of participants experienced a sense of 'being there' (2a) and 50 per cent reported a sense of 'falling through space' (2d) thus some sense of spatial presence was confirmed. Spatial presence is informed by a participants experience of the physical world, it includes perceptual immersion, transportation of participant, a sense of physical space that ultimately creates a sense of 'being there' (ISPR, 2006).

The questionnaire revealed that participants overwhelmingly concurred that the interface created with which to navigate the work was not signposted correctly. The navigation relied on simple word instructions rather than symbols. This seemed to cause confusion for some players. The navigation facilitated access to four Journeys or 'PlayAll'. Play Movie, Stop Movie, Play Sound, Stop Sound text lay at the base of each image. The questionnaire revealed that some participants were confused by these interactive elements (5c). Feedback revealed the use of classic digital symbols; for example using the symbol > to indicate play, would have been easier to 'read' than the text itself.

The questionnaire also revealed that although only 30 per cent of participants utilised all the interactive options, 60 per cent said they would like to access more interactive components (5b). The conclusion drawn from this data indicates that a majority of participants did not fully explore all the interactive options on offer. Problems related to interface design obstructed the 'flow' of the engagement. There were technical issues with sound also as the availability of headphones did not ensure that each participant chose to wear them; whilst 60 per cent reported that wearing headphones was not a deterrent the remainder of the participants who filled in a questionnaire chose not to wear them, thereby radically reducing the possibilities for full interaction and engagement.

The realisation that so few people were ready to 'play' was, as prescribed by L. Floridi in his discourse on The Philosophy of Presence: From Epistemic Failure to Successful Observation (Floridi 2005). Observation of the gallery audience revealed that they failed to understand what was required of them. It might have served the work better to display a poster inviting audiences to touch and explore. As observed, some visitors to the gallery did not take enough time to get past the introductory level. They watched the opening images and then walked away. When these people were questioned as to why they did not pursue the engagement they generally responded that they were not sure that they should touch, they thought it better not to touch and so chose not to. Observation from a distance provided feedback about audiences, which contributes towards the work in practice.

In exploring the attributes of presence, results indicated that participants of this study experienced both perceptual realism of sensory presence and spatial presence (ISPR, 2006). Presence is generated by human sensory experiences through technologies that enhance the interaction between humans and computers facilitating a virtual experience. Thus a sense of 'being there' was reported by participants of the interaction in respect to their immersion (Lee 2004).

8. Conclusion

Questionnaire data and observation of audiences concluded that it was possible to both create and measure a presence experience. Some participants of the study did experience a sense of 'being there' thus the pilot study was successful. Exhibition of The Element of 'Luck' as a pilot study facilitates a conclusion that predesignates computer-based interactive art systems as being vulnerable to display in traditional gallery settings. The lack of curative assistance, equipment (and comprehension of the work by many audience members) indicates that more supportive structures are required in exhibiting this type of playful

engagement. Beta_Space, as discussed above, facilitates an ideal relationship between artist, audience and interactive art systems. Exhibition spaces that provide structures for creating and assisting a dialogue between the audience and the work also ease an audience member into becoming a participant where in addition their experience engages them as contributors of the work at hand.

9. Notes

Thank you to Ernest Edmonds, Linda Candy, Deborah Turnbull, Judy Bourke and David Moss.

Please allow for each page to download fully when accessing The Element of 'Luck' From the website - this make take a considerable time, sorry.

<http://www.smashinghouseproductions.com/shpdatabase/animations.html>.

Beta_Space
<http://www.betaspace.net.au/> /accessed 20th July 2006

Creativity and Cognition Studios
<http://www.creativityandcognition.com/> / accessed 2nd June 2006

Clifton School of Arts
<http://www.schoolofarts.clifton.net.au/> / accessed 28th July 2006

International Society for Presence Research (ISPR)
<http://www.temple.edu/ispr/index.htm> / accessed Feb 2006

Intimate Transactions (Transmute Collective)
<http://www.intimatetransactions.com/> / accessed July 2006

The Powerhouse Museum
<http://www.powerhousemuseum.com/home.php/> / accessed 15th June 2006

Macromedia Flash
<http://www.adobe.com>

Skydive the Beach
<http://www.skydivethebeach.com/> / accessed June 2006

10. References

Armstrong, K. (2006). *Intimate Transactions: Towards a Connective, Ecosophical, New Media Art Practice* Brisbane, ACID Press, Brisbane, Australia.

Candy, L. and E. A. Edmonds (2002). *Explorations in Art and Technology*. London, Springer-Verlag, London.

Dixon, R. (1997). *Other Spaces: The Marketing, Distribution and Exhibition of Interactive Art*. Sydney, Australian Film Commission.

Edmonds, E. A. (2005). *White Noise*. Melbourne, Australian Centre for The Moving Image.

Edmonds, E. A. and L. Muller (2006). "On Creative Engagement." *Visual Communication* Vol 5 (3).

Fels, S. (2001). *Intimacy and Embodiment: Implications for Art and Technology*. IEEE, International Conference on Multimedia and Expo. Vancouver.

Floridi, L. (2005). *The Philosophy of Presence: From Epistemic Failure to Successful Observation*. *Presence: Teleoperators & Virtual Environments*,. Volume 14:656-667(12).

Kane, P. (2004). *The Play Ethic. A manifesto for a different way of living*. London, Macmillan.

Khut, G. P. and L. Muller (2005). *Evolving Creative Practice: A Reflection on Working with Audience Experience in Cardiomorphologies*. Melbourne, RMIT Publishing.

Lally, E. D. (2006). *New Media Art Scoping Study*. Discussion Paper. A. C. f. T. Arts, Australia Council for The Arts: pp 28.

Lee, K. M. (2004). "Presence, Explicated." *Communication Theory* Fourteen(One), pp 27-50.

Takashima, A., Y. Yamamoto, et al., Eds. (2004). *A Model and a Tool for Active Watching: Knowledge Construction through Interacting with Video*.

Interaction: Systems, Practice and Theory. Sydney, Creativity and Cognition Studio Press, UTS.

Yu-Chuan Tseng , C.-H. L. (2005). *Immersing ME*, 2005 Soizen Art Lab, Taipei, Taiwan, R.O.C.

ENGAGE: Interaction, Art and Audience Experience

A CCS / ACID Symposium

The experience of audience is at the heart of interaction and, in particular, interactive art. Computer-based interactive artworks come into being and exist in their full form when they are used. They cannot be understood only as objects, but must be thought of as time-based experiences, or periods of engagement. This collection of papers presents the latest work in the area of interaction, art and audience experience. It draws together different disciplinary approaches and perspectives including artist led research, curatorial and museological approaches and interaction design perspectives.

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