

# Hybrid Framework Human Computer Interaction Art and Experiences

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**Abstract.** The expansion in Human-Computer Interaction (HCI) field has not only been in excellence of interaction, it has also experienced different branching in computer arts. Instead of designing regular interfaces, the different research branches have had different focus on the concepts of multi-modality rather than uni-modality, pleasure, intelligent adaptive interfaces rather than command/action based ones, and finally active with human engagement rather than passive interfaces. One important area that contributes to creative practice in art is HCI, or interaction design in particular. An innovated framework for human computer interaction based on both pleasure and human engagement that exploit modern computer arts components and technologies is introduced. In designing for engagement, the artist needs to consider where they sit in this space and what kind of engagement or engagement process they are concerned with. On other designing issue many artwork consider pleasure as form of interaction with specific characteristics. Providing a context in which appropriate interaction design decisions can be made and the nature of the interactive experience must be addressed.

**Keywords:** *Human Computer Interaction, Human computer interaction Art, Framework*

## 1 INTRODUCTION

Using computers had always requested the inquiry of interfacing. The methods by which human has been interacting with computers has added new concepts with computers and art. New designs of technologies and systems appear more and more every day and the research in this area has been growing very rapid in the recent few decades (Costello BM 2007) Issues relating to Human-Computer Interaction are as important to interactive art making as issues relating to the colors of paint are to painting. It is not that HCI and art necessarily share goals. It is just that much of the knowledge of HCI and its methods can contribute to interactive art making (Costello BM 2011)

In interactive digital art, the artist is disturbed with how the artwork performs, how the audience interacts with it and, eventually, in participant experience and their degree of engagement. In one sense, these issues have always been part of the artist's world but in the case of interactive art they have become both more explicit and more obvious within the full goal of concern. Even as HCI in its various forms can offer results that at times help the artist, it appears that the disquiets in interactive art, rather like those in computer games design, go beyond traditional HCI. Hence,

The need to focus on issues that are separates for new viewpoints in HCI research. Two frameworks for interactive arts are introduced in (Costello BM 2007) (Costello BM 2011) Bilda Z (2011) ,Bilda Z (2008). The researcher in both frameworks considers relationships between the interactive arts, audience engagement, and experience design in public art. What might each offer the other? Engagement and experience are central to current Human Computer Interaction (HCI) thinking.

In this paper, hybrid framework is will introduced. The new framework captured the benefits of both framework and focus in the most important features required for ultimate interactivity and arts. In the first section give an introduction to the HCI and arts, related work and an overview study about computers arts and HCI is covered in the second section. The third section discusses the previous frameworks. The fourth section introduced the innovated framework. Finally a conclusion and future work are argued.

## 2. Related work

The interactivity of art has become much more explicit as a result of the many ways in which computing technologies and the Internet have facilitated it L. Candy and S. Ferguson(2014) .Artworks that incorporate computing are an postponement of the work that artists have been making for years: work that integrates and redirects prominent cultural materials. As a result of these changes new questions are arising and some old questions are being looked at again from a new perspective these questions are Bilda Z (2011) Bilda Z (2008) L. Candy and S. Ferguson(2014, Väänänen-Vainio (2008), Johnston A (2014), Creativity and Cognition (2013):

### **Question 1**

When is experiencing interaction engaging?

Answer to this question help us to know what aspects influence engagement with interaction and how to predict engagement with interaction in various respects.

### **Question 2**

How can we evaluate the experience of interaction?

How do we catch at the experience that our users/audiences experience? Can we ask them to coherent their feelings during the experience? Must we have faith in recall? Are there any objective measures.

### **Question 3**

How do familiarity and engagement inter-relate?

If we are aware with something, is our engagement likely to be lower? If the experience is subtle, might our engagement actually increase with familiarity?

### **Question 4**

Where is the art: in the object or in the experience?

Is interactive art about artworks? Possibly it is only concerned with audience experience and not with objects at all? Might HCI design be less related to graphic or industrial design than we thought: less concerned with the object and more with the experience?

### **Question 5**

Whose experience: audience or performer?

Occasionally, the aspect is at an expert user or, in art terms, an expert performer interacting. A performance piece can be interactive. It is just that the direct participants are not members of the audience but professional performers, such as musicians.

### **Question**

What makes interactive art engaging?

When and if an interactive work is engaging, why is it so? It is probably not simply because it sounds or looks nice. It is likely to be about the interactive relationship itself.

### **Question 7**

What makes interactive art engaging?

When and if an interactive work is engaging, why is it so? It is probably not simply because it sounds or looks nice. It is likely to be about the interactive relationship itself. So what are the characteristics of interactive relationships that engage us?

### **Question 8**

Can art teach HCI anything?

Is interactive art a potential source of new insights about user experience and how to shape it? Or is interactive art a task-free world of no practical interest to CHI? Do we need to be clearer about the artistic contexts within which we are working if we are to learn anything?

### 3. HCI Art and Experiences Frameworks

Regarding these questions, two frameworks has been developed or designed to find replies to all enquires which are Bilda's Engagement Framework Bilda Z (2011) ,Bilda Z (2008). and Costello's Pleasure Framework(Costello BM 2007) (Costello BM 2011).

#### 3.1 Creative engagement framework

Bilda has developed a model of the engagement process in relation to audience studies with a range of artworks in Bela\_Space. The process described in figure 1. Deep study in this framework its clear that the engagement mode transferals in terms of audience interaction from unintended actions through deliberate ones that can lead to a sense of control. In some works it moves on into modes with more exploration and uncertainty. Four interaction phases were identified; adaptation, learning, anticipation and deeper understanding.

**Adaptation:** Participants adapt to the alterations in the environment; learning how to behave and how to set expectations, working with uncertainty. This phase often occurs from unintended mode through to deliberate mode.

**Learning:** Participants start developing and an internal/mental model of what the system does, this also means that they develop (and change) expectations, emotions, and behaviors, accesses memories and beliefs. This phase can occur from deliberate mode to intended/in control mode.

**Anticipation:** In this phase, participants know what the system will do in relation to initiation, in other and predict the interaction. Phase can occur from deliberate to intended/in control mode.

**Deeper understanding:** Participants reach a more complete understanding of the artwork and what his or her relationship is to the artwork. Moreover, participants magistrate and assess at a higher, conceptual level. This phase can occur from intended/in control mode to intended/uncertain mode.

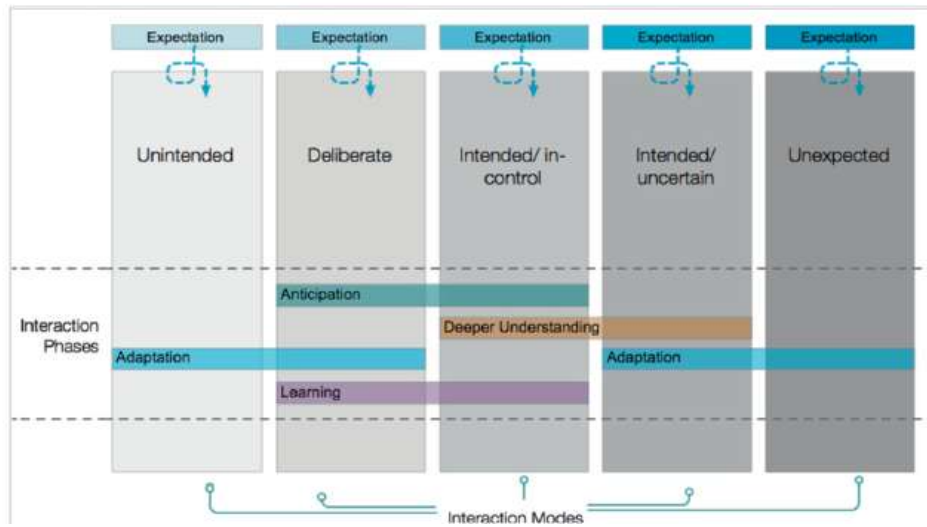


Fig 1: The Creative Engagement Framework Bilda Z (2008).

### 3.2 Pleasure framework

Pleasure framework introduced by Costello who argued that the nature of play can best be understood using a taxonomy termed a “pleasure framework”. Costello has synthesized a collection of research results that relate pleasure to 13 categories, each of which has quite different characteristics (Costello BM 2011):

**Creation** is the pleasure participants get from having the power to create something while interacting with a work. It is also the pleasure participants get from being able to express themselves creatively.

**Exploration** is the pleasure participants get from exploring a situation. Exploration is often linked with the next pleasure, discovery, but not always. Sometimes it is fun to just explore.

**Discovery** is the pleasure participants get from making a discovery or working something out.

**Difficulty** is the pleasure participants get from having to develop a skill or to exercise skill in order to do something. Difficulty might also occur at an intellectual level in works that require a certain amount of skill to understand them or an aspect of their content.

**Competition** is the pleasure participants get from trying to achieve a defined goal. This could be a goal that is defined by them or it might be one that is defined by the work. Completing the goal could involve working with or against another human participant, a perceived entity within the work, or the system of the work itself.

**Danger** is the pleasure of participants feeling scared, in danger, or as if they are taking a risk. This feeling might be as mild as a sense of unease or might involve a strong feeling of fear.

**Captivation** is the pleasure of participants feeling mesmerized or spellbound by something or of feeling like another entity has control over them.

**Sensation** is the pleasure participants get from the feeling of any physical action the work evokes, e.g. touch, body movements, hearing, vocalizing etc.

**Sympathy** is the pleasure of sharing emotional or physical feelings with something.

**Simulation** is the pleasure of perceiving a copy or representation of something from real life.

**Fantasy** is the pleasure of perceiving a fantastical creation of the imagination.

**Camaraderie** is the pleasure of developing a sense of friendship, fellowship or intimacy with someone.

**Subversion** is the pleasure of breaking rules or of seeing others break them. It is also the pleasure of subverting or twisting the meaning of something or of seeing someone else do so. this framework has admitted that playful interaction comes in many forms and so the characteristics of a playful artworks may be quite different to one another when then evoke or encourage different kinds of playful engagement.

#### 4. Innovated Framework for HCI Arts and Experiences

The innovated framework or HCI arts respect the two view of point. The proposed solution increases the causes of highly interactivity with motivation of pleasure concept. The new framework add the phase of interactivity with engagement model phase adaption, learning, anticipation, deep understanding and along the increase of engagement, meanwhile the increase of the pleasure is increase step by step according the interactivity modes which are unintended, deliberate, intended/ control, intended /in control and unexpected. Two pleasure characteristics are added which are motivation and excitation. Figure 2 describes in details the introduced framework.

First, a new phase is added to enhance the conduct and insist of interaction arts along the phases of interaction which interactivity phase.

**Interactivity**: the participant is continues interactive from start to the end of the all phases in the creative model. The interactivity is increase with the engagement rendering to the bilaspace Secondly, Regards to the new pleasure's characteristics:

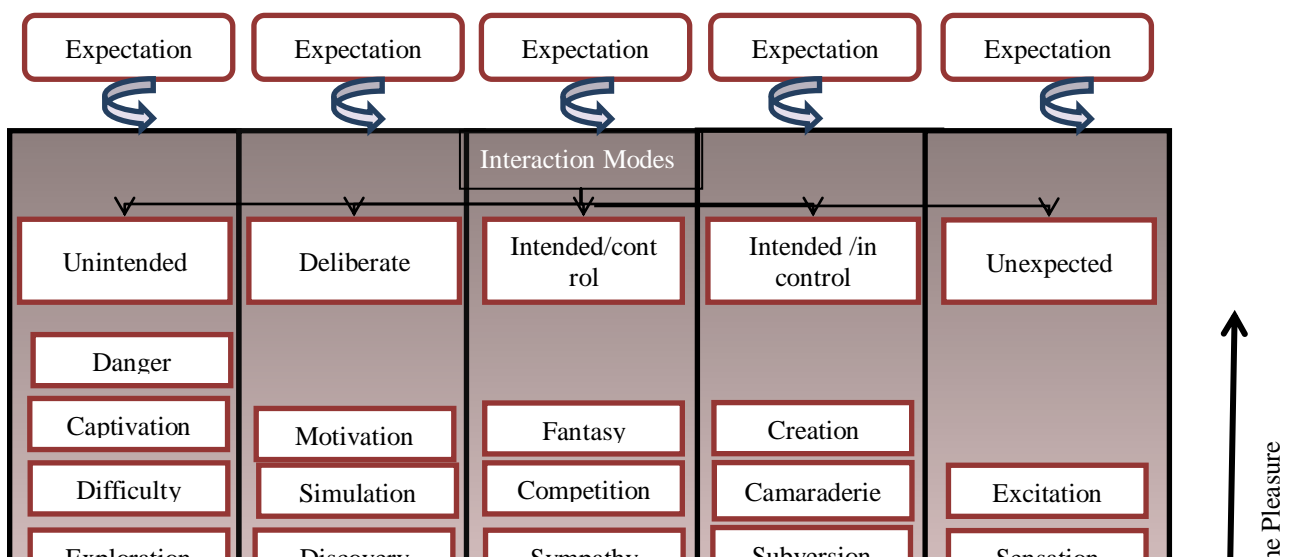


Fig 2 An Innovated Frameworks for Human Computer Interaction Art and Experience

**Motivation:** is the pleasure participant get from feeling there are motivation to work with

**Excitation:** is the pleasure participant get from feeling excited with something.

These characteristics of the pleasure framework

According to the proposed framework the innovation of increasing the pleasure along with the characteristics as follow:

In the first interaction mode unintended four characteristics increase the pleasure which are exploration, difficulty, captivation and danger during the adaptation phase of engagement space. The second interaction mode is deliberate where three characteristics increase the pleasure: discovery, simulation and motivation during the engagement phase's adaptation, learning and anticipation. The third interaction mode is Intended/control three characteristics increase the pleasure: Sympathy, Competition and fantasy during the anticipation and deep understanding, anticipation and learning. In the fourth mode Intended /in control three characteristics increase the pleasure: subversion, Camaraderie and creation during the engagement phases deep understanding and adaptation. Finally two characteristics increase the pleasure the sensation and the excitation during the phase of adaptation. This new framework intend to answer all question raised for engagement and pleasure

## **5. Conclusion and future work**

In this paper An innovated Framework for human computer interaction Art and Experiences is proposed. The framework is hybrid form the two previous framework engagement framework and pleasure framework. This framework is joining the two artworks for high interactivity and

ultimate usage of user experiences where the characteristics of pleasure are distributed along the engagement phases according to the interaction mode. For future work this framework should be implemented and tested for validation and verification with suitable measurements and experimental test.

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