WebArt

Methods for Investigating Design and User Experience Through a Reflexivity Lab

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Works of interactive art on the internet or *WebArt* are similar to film and theatre because of their temporal unfoldment. What distinguishes works of WebArt from film and theatre are the possibilities for interaction.

The experience which is created during the interaction is temporal. Through a process of video recording of the work of art as well as the users interaction with the work of art it can be made object of a process of analysis. In this article we will present a method to capture and retain the users' experience. The main focus is on the user and the users' interaction with the work of art and the inherent potentials for meaning and interaction that are unfolded.

By means of this method, a number of conditions for the experience of the user are investigated. The design for this investigation is based on the experimental experience method (Gjedde & Ingemann 1999, 2001) and includes a focus on rules, control, strategies of reading, cognitive resonance and the users' physical interaction with the work of art.

Three pieces of WebArt has been chosen for this investigation which involves three participants. The aim is to develop this reflexivity lab as a method to be used with different types of web design in order to reach a deeper understanding of the construction of meaning in interactive media.

The WebArt Project

Art is understood as an area that allows for the creation as well as the exploration and challenge of meanings within a frame of possibilities. Art is interpretative and does not carry predefined meanings to the same extent as non-fiction works, and this highlights the process of construction of meaning.

These processes of meaning construction are closely linked with and involve the users' experiential process. The concept of experiential learning is fundamental to learning theory (Kolb 1984), but experience in an educational sense is often linked with everyday practices that are thought to be of use within a certain framework.

The concept of art is defined in terms of different experiential qualities, that go beyond the use in mundane terms and have a different ontological status, with a value that is thought to be independent of its supposed usefulness, but rather based on its experiential qualities.

We will make a tentative definition of works of WebArt as encompassing two areas:

One is the frame of possibilities of the work of WebArt: this includes all the elements present in the interface and the interactive choices the users make.

The other is the frame of possibilities of the user: the personal relevance, the experience and the values which the user brings to the encounter with the work of WebArt. It also includes their willingness to get involved with the work of WebArt and enter into a dialogue with it.

We assume that a work of WebArt is made manifest temporally, through the users' interactivity and use of several channels of processing the work. (Ingemann 1999). In order to retain the work as it is created temporally we have designed a project that uses a state-of-the-art usability lab to register the construction of the work of WebArt on video. The activity on the screen is captured on video by using a scan-converter, while a second camera is recording the informants' face and body expression. The two sources are mixed simultaneously so that a video is recorded which has the image of the screen as its main image and a video of the informants' expression inserted in a corner.

The three participating informants are separately presented with the 3 different works of WebArt on a web-page which we have designed specifically for this purpose. This web-page has links to the different works of WebArt that we are using.

A facilitator is sitting next to the informant and enters into a dialogue with the informant about what she/he is seeing and associating with the work of WebArt. The other facilitator is sitting a different place and watching the activity and selecting central areas in the activity which can be interesting to go further into in the subsequent reflexivity interview. The encounter between *the frame of possibilities* of the work of WebArt and the frame of possibilities of the user has four different material expressions: the video, the facilitated dialogue, the interview on the work of art and the reflexivity interview which involves the informants reviewing the video made during her/his explorations of the work and art and reflections on it.

Illustration 1: Reflexivity Lab

It is this encounter between the frame of possibilities of the work of art and the frame of possibilities of the user, which provides the setting for the analysis of the interplay between the work of WebArt and the users experience.

We are using the term *reflexivity lab* for this methodological approach, because it is derived from the previously conceptualised experimental experience method. (Gjedde & Ingemann 2001). In the experiential reflexivity lab this approach is implemented and

explored in relation to interactive digital media and the multifaceted reflection is partly happening during the interaction, partly in the subsequent dialogue.

WebArt can be characterised as an area of interactive expression in which limits and possibilities are tried out and explored through works of art. A work of WebArt can be seen as needing an act of interactivity from the user in order to be changed and brought into existence at a different level. This is brought about through a bodily action: the mouse is moved around or clicked in order to explore and bring about changes in the work of WebArt. Thereby the notion of time is introduced: the work of art is changed and created through a temporal development which resembles film and theatre, since it is a temporal expression that cannot be frozen and captured but needs a temporal dimension in order to be perceived.

The Frame of Possibilities – Encounters Between the Users and the Work of WebArt

Each work of WebArt has a beginning and is in a starting position before the user enters into an interaction with the work of art. One of the three works of art is Tetrasonia, which starts from a minimalist position. At first we see only a rectangular surface which is divided into four squares of colour: a quadrangular orange surface, a rectangular dark blue surface, a quadrangular light blue surface and a rectangular green surface.

Illustration. 2: Anna looks at Tetrasonia.

This starting point is very open – what can one do next? In the following we will present the meeting between this work of art and the three informants, and the frame of possibilities that are emerging through their interactivity.

Anna is the first informant who is interacting with the works of art. She has a background teaching educational drama, and she approaches the works of WebArt with an exploring and open attitude.

She discovers that by moving the mouse over the coloured surfaces she can call forth some small rectangular images. By clicking on them she can make them stick to the surface and also make a sound. These sounds are sampled from natural sounds, like the song of the humpback whale, the frogs of the Amazons or a volcanic explosion, ... “Is this then music, or is it an underscoring of the symbol?”

This rhetorical question will frame Anna’s exploration of this work of art which she in the interview reflects on: “... But to me it was also an interrogation of the media”.

From an analysis of the complex data, we have extracted different types of strategies through which our informants are approaching the works of WebArt.

Cognitive Resonance

An overarching parameter, which is decisive for the degree to which the user gets involved with the work of WebArt and enters into a process with it, is the degree of cognitive resonance. Cognitive resonance is in this context understood as an openness and receptivity from the user towards the frame of possibilities of the work of WebArt. This incorporates context as well as content and makes it possible to enter into a process of meaning construction which involves the user at a deeper level.

Anna is having an encounter with the work of WebArt with a cognitive resonance, which makes her engage with the work of art with the intention of fully exploring it, and wanting to bring forth all its inherent possibilities for interaction and meaning. She is empathetic to the work of art and its possibilities, one of which is to enter into a role that she constructs for herself as a composer, and using the sounds of nature as a tool to compose with.

Illustration 3: Carl looks at Tetrasonia.

Carl is professionally involved with interaction design and learning. While Anne could engage herself with Tetrasonia for more than half an hour, Carl is only spending ten minutes exploring it, and only stays with it because he is prompted by the facilitator.

Carl does not see the work of WebArt as art. To him it is: "...maybe a bit more like a hypertext. The navigational structure." He also makes connections to other information sites: "... it is actually like many other hypertexts, encyclopaedias, Encarta."

He stays in a phase of initial exploration and does not perceive it as a work of art, neither does the work of WebArt afford him a way to develop such a resonance.

The third user, Bettina, is an arts teacher and very interested in contemporary art. She spends approximately half an hour on *Tetrasonia*. She has an explorative strategy. The moment she discovers the fundamental concept of the work of art as consisting of four elements, she stops her exploration.

While Carl quickly is categorising the work of art as a hypertext based on its navigational structure, Bettina is finding this blend of info and art to be challenging "... such a blend of culture, information knowledge acquisition and then experience.....I think

Illustration 4: Bettina looks at Tetrasonia.

this is a very interesting genre of blending where you are expanding the concept of a work of art.”

One of the works of art, *Dustharp*, differs from the other works of art by allowing for the experience of a flow, which initially is not dependent on the activity of the user. This is the experience Carl encounters.

Initially he sees a red surface, upon which a big crimson oval figure is resting. Within this oval figure a number of pink bullets are moving forth and back in a quiet tempo. Carl is trying to hold on to one of the bullets or maybe transform it into something else. Then a sound is produced. A sound of a harp. Through the movement of the mouse he may play the harp. His physical expression is nonetheless a quick mouse clicking activity. *Dustharp* is the only work of art which he will characterise as such, and also the only he can relate to emotionally. “This reminds me of an artery or something like that, maybe inside the body. Something very quiet, maybe a birth...”

Illustration 5: Carl looks at Dustharps.

Conditions for Resonance

The encounter with *Dustharp* has a cognitive resonance for Carl. He approaches the work of art with an open attitude that is supported by its interface and design elements, allowing for a playful use of the sound element. The music genre resembles new age music, inviting the user to relax and peacefully explore.

The aesthetic elements are easily accessible and lead the user into a clearly defined environment, which offers the user an overview as well as possibilities for interaction. They also offer a pattern of causality in the navigational structure, which is challenging and aesthetically pleasing for the user.

The architectural structure maintains a balance between an openness and a closedness, which is appealing to the user and draws the user into an interaction with the work of art.

The resonance draws on qualities inherent in the work of art and in the attitude with which the user encounters the work of art. *Dustharp* draws on well-known schemas and an open design that may support a resonance, while the resonance with *Tetrasonia* depends on the user encountering it with preconceived notions of it as a work of art.

Narrativity and Existence

In order to investigate the process of meaning construction from a narrative approach, we have evoked the users' narratives about what they saw and experienced during the usage. We explicitly wanted to find out if they experienced the use of the works of WebArt as a narrative they created. In the analysis we have looked at the possibilities inherent in the works of WebArt for evoking the users' narratives at different levels. We have also looked at the extent to which the users through the use of narratives demonstrate that they have been able to construct meaning at a global level.

Bettina narrates how she through the interaction with *Dustharp* experiences a sense of acting as a conductor for the activity – she perceives herself acting as a conductor of an orchestra “....for each click I make, I am building up the sound of the orchestra.....it is quite minimalist...starting at the coloured surfaces and from there evolving the entire universe.”

Anna's strategy is through a process of orchestration to try and evolve a complete work of art, in which she works out the conflict between good and evil through her creation of the work of WebArt. This strategy must be seen in relation to her own repertoire of narratives and myths.

Bettina, on the other hand, has a strategy involving a distancing and more exploratory approach, exploring alternative narratives that may evolve from the work of WebArt. Her strategy of exploration/distancing can be viewed as a detective investigating a mystery, trying to find a solution. The quality of a mystery is important, and it has to be hard to solve. This contains the challenge and the intellectual satisfaction of reaching a solution through a strategy of problem solving.

Playing and Explorative Strategies

The third work of art that we have used in this investigation first appears as a little white quadrangle on a full-screen black background. This is the Work of Art. This is *White & Black*.

We can see that she through her exploration of the work of WebArt is focusing on the temporal aspects. “...if I want something from these works of art which are temporal, I will need to give them time... here is a stripe with some movements and that is it... but when you give it a bit of time, like I do now, then some boundaries are emerging. My eyes are perceiving different boundaries now, than they did before.... I am starting to see the black and white fields in a different way... I am becoming more and more engrossed in this universe...”

Illustration 6: Three stills from *White&Black*.

It is the constraints of this work of WebArt, as Bettina perceives it, that challenges her and makes her perceive it in a meditative way within her frame of possibilities. Bettina says she does not perceive a narrative in this experience, but finds it meaningful by relating it to her concept of art.

Bettina does not perceive a narrative in *White&Black*, but could it be inherent in its frame of possibilities? We capture three still images of different stages of the movements.

A narrative must contain elements denoting differences. The three still images are very different. A small white quadrangle; a large white pillar with lines of black studded with black and white tiny quadrangles; a smaller pillar with lots of black broken lines. But do these elements contain more of that which we ordinarily would term a narrative (Gjedde 1999).

Is there a setting? Yes, there is a white quadrangle on a black background. And then there is the cursor, representing the movements of the hand and the mouse. This is the minimalist setting in which a narrative may unfold, even if transferred to the universe of the user, since the user through her interactions participates as a player. Does it have a conflict? Yes, a conflict is building up between one player, the white quadrangle and the other player – the user. A conflict involves control and interaction. Is there a point or solution? Yes, to the extent to which the user explores the potentials of the environment and solves the conflict between the quadrangle and the user by establishing and clarifying the principles of causality in the environment.

The reason why Bettina does not experience it as a narrative may be that she does not to the same extent find familiar and concrete elements in it as she does, for instance, in *Tetrasonia*. These familiar elements may facilitate associations to the story of the creation of the world, or she may relate directly to the four elements. *White&Black* does not provide the same stereotypes to embed the story in. This does, however, not indicate that there is no story within its frame of possibilities, only that it is being unfolded at a more subtle level, but still to be found at the level of the users' activity.

In this work of WebArt we find that the central function of the interactivity is a play activity. It is a serious and focused play, which has a value in itself. Some informants have concrete associations to images of moving traffic and blurred cityscapes, but they are not central aims for the activity. It is through the play as exploration that the work of art gains existence and meaning. The interaction does not lead to anything, but it carries its own reward.

Play and Control

The way all three informants approach the experience of interaction with the works of WebArt involve three phases, which are similar to a traditional visit to a museum. These

are: a phase of orientation (which lasts approximately 1/7 of the total spent time); a phase of focusing (5/7) and a fading out phase (1/7) (Falk & Dierking, 1992:58)

We have found that during the individual exploration of each work of WebArt, the phase of orientation is focused on discovering rules for the interaction with the work of art, and the possibilities the user has for affecting and controlling the work of art.

We have further found that use of the works of WebArt stops when the user through the play has uncovered the rules that are embedded in the work of art, and when the user through his or her interaction with the work of art has found the boundaries for the control that is offered.

The uncovering of the control and the rules are happening all through the interaction – but fundamentally it is being mapped out already during the phase of orientation. In the phase of focusing, the rules are further tested out and the users' frame of possibilities is defining the limits for the interaction beyond those in the work itself.

Focus and Strategies

The interactivity is both a concrete physical activity and also the vehicle through which the user shows the strategy and the focus she/he brings to the encounter. It is though this activity that she/he makes a connection with the work of art.

When Carl encounters *Tetrasonia* and *White&Black*, it is with a top-down strategy and a predominantly logical-rational perspective.

Anna is obviously immersed in the works of art and we find that she is using a bottom-up strategy.

She creates narrative structures and enters into a process of creating associations reflecting aspects of her cultural as well everyday life. She is also exploring the works of WebArt for existential themes.

We find that Bettina's strategies for interaction are positioned between the strategies of Carl and Anna, drawing on elements of them both. She is using a top-down strategy as well as an open and immersive attitude. The frame of possibilities she unfolds is closely linked with her professional interpretative approach and less with her everyday life.

Through the process of interaction the frame of possibilities is facilitated for the user as well as for the work of WebArt. At the core of the interactivity is the choice of the user, which we suggest is something that goes beyond the click or the movement with the mouse. This core of interactivity holds meaning in itself. The importance of this core of interactivity depends on whether it is connected to the process of clarifying the rules through an attitude of play. New possibilities for interaction design may be developed based on this approach, which not only should focus on simplicity and easy navigation, but also on providing the user with fruitful movements and challenges.

Interaction and Immersion

The attunement is a prerequisite for the connection between the user's frame of possibilities and the interactivity. The Danish writer Ole Thyssen states that: "To attune is to work with the observer's blind receptivity to the suggestive force of the aesthetic arrangement". (Thyssen 1998:229).

One might say that the attunement is both something which the user is bringing to the encounter with the works of WebArt, but also something which is emerging through the

encounter with the works of art. The work of art may have a suggestive force or lack it. The spectator may have an openness or lack it.

The quality of the attunement depends, among other things, on the spectator's openness and experience. This is not necessarily made explicit, but may be expressed through the temporal construction of the work of WebArt. It can be seen in an attitude of either an immersion into or a distancing from it. The attuning is a precondition for the perception and construction of meaning, but the perception and construction of meaning is equally a precondition for the attunement. The perception and construction of meaning is part of the experience. In the experience is embedded the qualities of knowledge, emotions, values and action. (Gjedde & Ingemann 1999, 2001)

The informant's body language communicates beyond the consciousness of the informant. Gestures and facial expressions were observed during the informants creation of the work of WebArt. This body language is dynamic and temporal. This also makes it difficult to capture. We have edited the several hours of video, and thereby condensed the sequence of the construction of the works of art, interactivity and kinetics in order to extract the meaningful sequences and prototypical expressions.

The first phase has condensed the video recordings to last only 18 minutes. After this we made a further condensation and chose prototypical examples of body language, which we then captured as still images from the video. This condensation can be seen as a parallel to the condensation being made in analyses of qualitative interviews, in which long sequences are condensed into a focal sentence (Kvale 1998). In this case, where we have used video, we have condensed the long sequences into the most important elements which, as a narrative, cover the informant's process of meaning construction and interactivity. These were finally condensed into still images which underscore significant bodily expressions of the informant. (Argyle 1975:215)

As an example, we will look at Anna.

Illustration 7: Anna in the phase of orientation.

Illustration 8: Anna in the phase of focusing.

Illustration 9: Anna in the phase of fading out.

In the orientation phase it is characteristic of Anna that she leans forward a little and smiles. We interpret this as an expression of openness and anticipation. In the focusing phase, Anna is silent. She leans back and holds her hand up in front of her mouth with a finger up against her chin. We see this as a certain insecurity and thoughtfulness. The hand is partly covering the mouth and covering up emotional expressions. In the fading out phase Anna leans back. She is tentative and listening and has a sceptical expression.

The visual impact of her body actions enhanced certain areas of the verbal expression recorded during the facilitated dialogue - the interview on the work of art and the reflexivity interview.

This happened during an early stage of the analysis – and the stills of these prototypical bodily expressions captured during the condensation phase impacted on our overall experience of the interaction between the informant and the work of WebArt.

The Fourth Informant

The three informants are obviously present in the project. They are our informants – but there is also a more hidden fourth informant – the two researchers. We are also participating in the construction of meaning as those who have initiated the *Reflexivity lab* and the conditions it is operating under.

We are not the fourth informant as one who in interacting with the works of WebArt – but we are the fourth informant who is bringing a hermeneutical perspective to the situation and the different forms of dialogue and interviews.

This text can then be understood as an expression of the understanding and construction of meaning of the fourth informant. The reflective focus mirrors the construction of meaning and the frames within which the process is happening.

Many usability studies focus on uncovering problems in interface and other HCI issues, and on investigating how design can support predefined goals, or uncovering the needs of the users (Dumas & Redish 1993, Nielsen 1993). This project has had a totally different focus, looking at how qualities like attunement and immersion may enhance processes of experience and learning.

The design of the project implies levels of attention put on the user, which may affect the user's attunement. We are much interested in knowing what the informant is experiencing, thinking and able to express.

We are aware of our framing the experience of the informants, as well as affecting the experience itself through our involvement. This methodological approach to the interaction between informant and researcher involves a reflection and consciousness of the researcher as a fourth informant. This we see as an expansion of the methodological framework related to a phenomenological approach (Moustakas 1994).

Discussion

On the concrete level, this project has focused on the experience of three informants interacting with three chosen works of WebArt. One may suggest that art fundamentally has an intrinsic value and not necessarily a need to communicate anything definite or bear reference to anything definite. In materials that are meant for teaching or information, one may say that references to an outer reality are obvious and that these types of materials are meant to communicate something definite. On the other hand some possibilities for experiences may be closed if the approach is solely logical-rational. In this case, possibilities for the user may be inaccessible if the approach is too limited.

A more open approach may involve attunement and interactivity as carriers of an intrinsic value. This may be related to the frame of possibilities of the user as well as the work of WebArt, the uncovering of its rules and the construction of meaning through narratives.

Even though three informants cannot represent all possible strategies of experience and interaction with the chosen works of WebArt, they do represent a spectre of possible approaches in the encounter between the user's frame of possibilities and the frame of

possibilities of the work of WebArt. Further research will be needed to further develop this spectre.

This study has focused on the development of a methodological approach to the analysis of a work of interactive WebArt with emphasis on immersion and exploration, which may be relevant for analysis of other genres beyond WebArt.

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<http://akira.ruc.dk/~bruno/webart1.html>