Building a Bridge to the Aesthetic Experience: Artistic Virtual Environments and Other Interactive Digital Art

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1 Overview: Dena Elisabeth Eber, Moderator

Most artists, curators, and museum educators share an important common goal: to create or curate art that viewers can appreciate and enjoy. Ideally, they also want viewers to enter an experience that is immersive and builds a connection with the work beyond the surface of the media. This experience, often referred to as the aesthetic experience, is an instant in which a person may feel "...A combination of interest and pleasure and curiosity...The moment is one of heightened attention to perception, which is what makes it both meaningful and memorable" (Walsh-Piper, 1994, p. 105). For some this means getting lost in the visual elements, and for others it is highly emotional. Although complex and multifaceted, the aesthetic experience for a viewer may be characterized by a finely tuned state of consciousness, or an experience in which the person is in awe, intensely focused, and in pure enjoyment (Dewey, 1934; Csikszentmihalyi & Robinson, 1990a). Csikszentmihalyi also refers to this state as the flow experience (Csikszentmihalyi, 1990b). There are many people who feel that physical interactivity in the form of Virtual Environments (VE) or other digital technology may facilitate the aesthetic experience for the viewer.

Since the early developments of VE technology, artists have used it to create artistic virtual environments (AVEs). AVEs are a relatively new medium with new aesthetic, creative, and intellectual problems to solve and questions to ask. In particular, how do AVEs and art that incorporates other kinds of digital interactivity relate to the aesthetic experience? Some might feel that our culture, in general, might feel distant from many traditional art forms and that this technology may build a bridge to artistic understanding. In other words, does VE and other digital technology speak a contemporary language, one that reaches a now digitally savvy youth?

Still others feel that this equipment not only does nothing to bring participants closer to a flow experience, but they feel that the complexity, expense, and accessibility of this genre of installations may confuse and shy viewers away. Certainly, the goal of most artists is not to make art for the sake of a given medium. Instead they want to express something and the medium they choose happens to advance that message in the best and most comfortable way.

This panel does not seek to discuss the validity of AVEs and digital installations as an art form. Rather it will be a debate on the effectiveness of this technology to help the viewer experience art in a richer way. Panelists will discuss theory, experiences of individual artists, and studies that connect the quality of the aesthetic experience to digital interactivity.

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2 Panelist 1: Brian Betz. AVEs, Presence, and the Aesthetic Experience

We believe that in Aesthetic Virtual Environments (AVE) a relationship exists between psychological presence and the aesthetic experience. By psychological presence we are referring to the feeling of "being in" a virtual environment. In terms of the aesthetic experience, Hirschman (1983) has noted that virtual environments can produce an aesthetic experience that is characterized focused attention, heightened perception, and arousal of emotions. These changes in participants can lead to a state of transcendence. We have conducted, by both qualitative and quantitative means, numerous studies to investigate the relationship between presence and the aesthetic experience in AVEs. In addition to conducting research, we are also involved in the creation of art, which we have based, in part, on our findings. Thus, our collaboration involves a convergence of three individuals with practices spanning electronic arts, experimental social psychology, computer science, and aesthetics that is focused on the issue of facilitating the aesthetic experience in AVEs.

The qualitative portion of our research study follows a phenomenological model in which the researcher attempts to understand the meaning of an event, person, or process to people in a given situation (Bogdan and Biklen, 1992). The specific instance of the phenomena is a case. For our research, the case is the aesthetic experience or presence of viewers in an AVE. Because our research has been focused on many instances of these phenomena it is multicase in format. In a typical study subjects interact with a desktop version of an AVE and data collected is in the form of videotapes of the participants interacting with the environment,

narratives written by the participants, interviews, the artwork itself, surveys, and field notes from researcher observations.

The quantitative portion our research has involved a variety of assessment measures to explore subjects' interpretation of AVEs. For example, in each of our quantitative studies we have administered the Sense of Presence Inventory (Lessiter, Freeman, Keogh, and Davidoff, 2000) and to test for individual differences in subjects we have administered the Absorption Scale (Tellegen, 1983). In a typical study subjects interact with a desktop version of an AVE and then a post-experimental questionnaire is administered.

Our findings indicate a connection between psychological presence and the aesthetic experience. In short, subjects who indicate a high level of presence in an AVE are also more likely to describe their encounter with the artwork in terms of an aesthetic experience. In addition, we have found that certain personality and cognitive factors mediate the interpretation of virtual environments. As mentioned above we have attempted to use our findings to guide the art creation process. It is hoped that our research might guide other artists in their use of virtual environments as a means of artistic expression.

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3 Panelist 2: Tobey Crockett. An Aesthetics of Play and Empathy for Virtual Worlds

As a theorist, art historian and former art critic, I bring both historical and philosophical awareness into my practice as a virtual world builder. My world, "TCWF", an acronym for "Tobey Crockett's Wild Frontier", is located in the Eduverse browser of ActiveWorlds. I believe that we need to rise to the challenge of re-shaping the tools of aesthetic inquiry in relation to virtual worlds, not only in reponse to a new wave/generation of art makers and participants, but also in response to the ethical and political legacies of feminism, deconstructionism, post-structuralism and post-colonialist theory. Artistic virtual environments (AVE's) are an ideal format for exploring this new growth area, what I think of as the critical theory of digital media.

While aesthetics in the Romantic, Kantian sense typically indicate a search for the Sublime and a sense of transcendence, there are quite a number of practical and philosophical reasons which compel us to re-frame aesthetics when related to interactivity in general, and particularly as applied to the special case of AVE's and other avatar worlds. This can be a knotty problem. Rather than being simply a matter of formal criteria, an aesthetics of technology ought to include new realms of experience, expanded notions of subjectivity and pleasure. My work hinges on two new notions of an aesthetics appropriate to the virtual world - an 'aesthetics of play' and an 'aesthetics of empathy'.

I believe the "Cyberforum@Artcenter" series provides an excellent case study, comprised of a two year period of live, inworld author chats which took place in 2000 and 2001. This was a collaborative team effort under the aegis of teacher and cyberphilosopher Dr. Michael Heim, and the group included not only participants such as myself in a classroom and lab setting, but also virtually-enabled members remotely located in other countries and time zones (Heim, 2000, 2001). All of the authors in the Cyberforum series are digital theorists and include N. Katherine Hayles, Peter Lunenfeld, Lev Manovich, William J. Mitchell and Brenda Laurel, among many notable others. In addition to content related to the actual authors, the behind-the scenes creation of the virtual worlds themselves can not be underestimated as an important component of the success of these events. While it is still debatable as to what usefulness it serves to have a strong 3D sense of embodiment, I believe avatar activities such as building and play provide some important insight into the answers to those questions. Both the architecture as organizing social structure and the process of building itself are absolutely central to the aesthetic experience of being in a virtual world.

I have previously written about "the computer as a dollhouse", positing avatars in the role of dolls, and virtual world building functioning as an extension of blocks (Crockett, 2002). Using a psychoanalytic framework, I have shown how the positioning of the computer and virtual worlds as play objects (Winnicott, 1971) allows us to construct a new reality and set of identities, critical steps in our exploration of cyberspace. In brief, I propose the avatar as a transitional object (Winnicott, 1971) and the virtual world as a transitional space (Schwab, 1994). Such tools allow us to negotiate the paradoxes which arise from the simultaneous cohabitation of the immateriality of cyberspace and the concrete world, and to develop expanded notions of subjectivity. It is this zone of expanded subjectivity which gives rise to what I term the aesthetics of empathy, wherein the sharp divisions between self and other literally lose ground and undergo radical transformation in the ambiguity of virtual worlds. Additionally, I suspect that we have the potential for a radical, liberatory relationship with the avatar and its heretofore unheard voice - for if we refuse to ventriloquize or essentialize the avatar, I believe we may hear something new and unexpected.

Finally, play as a source of pleasure, and the role of pleasure in aesthetic judgment should not be overlooked, and may also carry a psychoanalytic component. The states of "flow" described by Csikszentmihalyi (1975) and Maslow's "peak experiences" (1968) are possible clues to an analysis of pleasure derived from intense pattern finding and problem solving, two formidable components of virtual world play and building. Although pleasure has been explicitly dismissed by Kant as a criteria for aesthetic judgment, we have a rich opportunity to counter this position given all we have learned in the intervening centuries. Empathy, pleasure and liberation are just a few of the ethical and political components which, as would be expected with a more a mature theory of 'interactive' aesthetics, we can expect to negotiate in relation to the artistic virtual environment.

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4 Panelist 3: Juliet Davis. Crossing Over: The Nature of Virtual Experience in Relation to Corporeality and Materiality

Francisco Valera ("The Reenchantment of the Concrerte") and Brian Massumi (Parables of the Virtual) provide interesting groundwork for an exploration of the aesthetic experience in digital environments. "The analog and the digital must be thought of together, asymmetrically," Brian Massumi suggests, in his article "On the Superiority of the Analog" (143). Massumi proposes a relationship between analog and digital in which the viewer has analog experience perceiving, integrating, translating, and relaying the stimuli that are generated digitally. He points out that the virtual experience computer users have (text, graphics, interface sound) is analog in nature. From his perspective, the digital is not to be confused with this virtual realm because the digital is a state of constant inactualization, whereas the virtual is the actualization of it (the apparition)—and our interaction with that apparition (hearing the sound, seeing the interface, interacting with the screen) is analog. Overall, Massumi believes the relationship of the analog and digital cannot be constructed in mutually exclusive terms but instead are both part of experiencing the virtual experience that is generated by digital code. His writing lays interesting groundwork for thinking about virtual experience.

Along the same lines, through a series of arguments and examples of clinical studies, "The Reenchantment of the Concrete", by Francisco Valera, argues that "the proper units of knowledge are primarily concrete, embodied, incorporated, lived" (320): in other words, that cognition may be largely founded on embodied experience of the concrete (rather than abstract logic), which is embedded in the immediate moment; which cannot be pregiven; and whose effects on cognition cannot be comprehensively mapped or coded with logical certainty. He defines "embodied" as having two interrelated dimensions: 1) it relies on having a body with capability to have sensory perception, and 2) this capability is embedded in a larger biological and cultural context. Valera suggests that the dialectic antagonism that engenders our ideas of rational versus irrational and conscious versus unconscious (and for that matter, mind versus body) may miss the point that our systems of cognition necessarily embrace both. Cognition relies on perception, which is perceptually guided action (i.e., reliant on embodiment in the present moment). Again, his work has interesting implications about relationships between body and screen (via perception).

While we experience both virtual and embodied aesthetics in an analog process (as Massumi and Valera would suggest), there is a qualitative difference in experience (which well respected works by artists such as subRosa and Dennis del Favero explore) between the digital experience and other experience, and that the differences have to do with the nature of corporeality and materiality beyond simple representational issues. Art practices that combine live performance and online experience seem to provide a unique look at the "crossover" from screen to real space and the qualitative differences we experience. They suggest that getting at the problems of the aesthetic experience in artistic virtual environments might mean looking beyond issues of representation in terms of perception, cognition, and signifaction, and grappling with the nature of corporeality and materiality in lived interaction--the possibility that what flesh and blood (or bricks and mortar, or paint and canvas) mean to us (sociopolitically and otherwise) might be fundamentally different than what virtual "presence" can mean.

5 Panelist 4: Flavia Sparacino. Artistic Virtual Environments (AVEs): Some Criteria to Communicate More Effectively with the Public

Most sensor-driven interactive entertainment, art, and architecture installations today rely on one-to-one mappings between content and participant's actions to tell a story or induce emotions. These mappings chain small subsets of scripted content, and do not attempt to understand the public's intention or desires during interaction, and therefore are rigid, ad hoc, prone to error, and lack depth in communication of meaning and expressive power.

While it will be left to museum curators and art gallery managers to determine what is good or bad art, some criteria can be set to ensure good communication that engages the viewer or participant in the artistic experience conveyed by AVEs:

Natural interfaces.
It is unrealistic to encumber participants with gloves, cables, heavy virtual reality glasses to experience AVEs. Entering a room wearing heavy stereo glasses and using a "magic wand" to explore a virtual world is something that fails to fully engage the audience as the technology dominates over the experience. Unencumbering computer vision interfaces or other wireless sensors (such as infrared sensors, electric field sensors, sonars, etc.) are the ideal "input device" or communication interface with the artwork on display. Rather than having participants wear glasses, it is more effective to work with dynamic projections in the real space (mixed reality or augmented reality) or to explore the availability of now commercially available autostereoscopic three-dimensional displays.

Robust sensing, sensor fusion
It is important to ensure the full responsiveness and reliability of the system throughout the entire period of exposure of the artwork, whether months or years. If the interface breaks often or does not work consistently, the "magic" of involvement and immersion in the AVE vanishes. Touch-based screens or some hardware sensors tend to wear and break after use by hundreds of people. In this respect computer vision is the ideal input modality for AVEs. The use of additional wireless sensors and the use of algorithms for sensor fusion and sensor cooperation can greatly enhance the reliability of the input modality of the AVE. Cooperation of sensor modalities which have various degrees of redundancy and complementarity can guarantee robust, accurate perception

User modeling
To make good use of reliable measurements about the user, we need to be able to interpret our measurements in the context of what the participant is trying to do with the digital media, or what we actually want people to do, to get the most out of the experiences we wish to offer. An interactive AVE should progressively build a "user-model" or a set of expectations of how the participant wishes to interact with it, so as to give "meaningful responses".

Context-based interpretation of participant's actions in the AVEs Together with a user model the system should build a model of the "situation" in which it is involved together with the participant. Several tools are available today to do this: from simple state machines, to more advanced probabilistic models.

Compelling content

It is not simply because it is produced through a computer that something can be called "computer art". The artists need to master all the necessary 2D and 3D production tools to generate compel-

ling content on display in the AVEs. Such competence should not be confused of course with the indispensable artistic intent (and talent). It is however an important part of the artist's education, just as the mastery of brushes and colors is important for the painter.

Conclusion

The creation of compelling AVEs requires artists with a wide range of competences, from sensing, to mathematical modeling, to 2D and 3D representation skills. All of this is quite an endeavor for a single person. However the awareness about such issues can lead to interesting collaborations between artists and scientists, or to a new kind of interdisciplinary education for artists who wish to express themselves with AVEs. The criteria here above can also be used by curators to help them evaluate or discriminate different AVEs.