

## Whose Bits Are They, Anyway?

Recently, I have been collaborating on the design of a house that I might live in for the rest of my life. Or have I? No matter what an architect tells you—no matter how much you believe that the design of your home will draw upon your personal lifestyle, habits, desires, and self-knowledge—the plan actually springs from (and is detailed by) an imagination which is not your own. That is, after all, why one hires an architect to begin with.

The architect's presence in the process is formidable and, occasionally, impenetrable. His development environment is rich in visualization and memory: He draws freely from published photographs, past works, and houses he has lived in or visited. To some extent, the architect tries to incorporate the client's images, experiences, and expectations into his own knowledge base. However, I have found that the throughput of my images pales in comparison with the architect's own, in part because I lack a vocabulary and in part because the issue of control rests in the background.

Whose house is it, anyway? In any activity involving collaboration or co-construction, friction can be a principal force in rebalancing the relationship. However, in a clash between expert and client, the client may have a difficult time understanding or articulating which aspects of the plan feel most threatening. For example, a discussion over furniture placement may actually reflect the client's deeper, unconsciously realized desire to include more windows and doors in the design.

The strength of the architect's interpretive vision is not unlike that of a software designer or storyteller: Authors of all kinds live to grow a vision of their product. The artistic process is a complex marriage of instinct, rigor, experience, personal style, and the opportunities of timing. Forms and details are mapped out within the subconscious, bubble to the surface, and find their way into a plan at the very moment that particular stage of the plan is being articulated. The collision of multiple visions results in a blueprint for

action—a sparse, pragmatic representation of elaborate processes—which, in the end, will be handed over to other parties for implementation.

A house provides the stage setting for many of life's dramas. In some sense, the architect's job is to set parameters for living. My understanding of and contribution to the architect's vision is also a process, however—a process fraught with joys and frustrations.

You work the pedals and I'll steer

Throughout the history of civilization, questions of power and control have dominated practical life as well as philosophical discourse. Today, on the cusp of the Information Age, these issues are resurfacing in the context of digital authoring. Interactivity, machine intelligence, and networked community participation are substantially redefining the traditional roles of "author" and "audience."

For many traditional content-makers, this transition seems more like an assault than an opportunity. As in any battle of ideas, the struggle to maintain artistic control is one of passion. The communications power of recent technology puts us in a tricky position. Who structures the experience that triggers emergent consciousness? Who sweats over the development of a scenario? How closely can interpersonal communications be woven into the stuff of story? Must all of the participants be human?

In the case of news or fiction, many authors feel particularly uncomfortable with the notion that the machine or the audience should play an important role in the co-construction of narrative. In these forms, the coherence of thought and interpretation—the integrity and consistency of "a known and trusted voice"—is considered an important part of the "value added" by the storyteller. For this reason, many new media authors are drawn to the idea that interaction is simply a matter of overtly or covertly choosing from a menu, and that all will be well if the author

develops a limited, branched narrative structure that offers more than one perspective on a tale. (For some, even this seems a daunting task.) The problem is, this type of structure does not convince the audience that their actions result in meaningful consequences: From the start, they are aware that only a limited number of playouts are possible.

While this strategy may create opportunities for gossip (“What happened when you suggested that she throw a tantrum?”), it appears most useful in the closed worlds of CD-ROM publication. Allowing individuals to choose from a limited group of “authored” options does little to create an in-depth discussion within a community. The act of single-person authoring is an act of controlling language, imagery, and strategy; the act of multi-person discourse and debate is a complex, collaborative process characterized by dynamic give-and-take, surprise, and mutual discovery. When nonhuman players—such as software “agents” and artificial life forms—are added to the mix, new and expanded vistas of story construction and playout become possible.

A more optimistic approach to modern content development combines a rich, authored structure with a fabric for communication among audience members—and synthetic participants. While the consciousness of the artist or storyteller has traditionally held sway over a particular story’s shape, the narrative itself emerges from the particular intellectual, social, and material world that both author and audience are a part of, each in their own way. In the end, the equivalent of a single “known and trusted voice” may emerge in the form of community consensus, or a more exploratory and digressive “voice” may emerge throughout the dynamic, adaptive process of co-construction with other human beings and semi-autonomous software agents.

The problem of control is no longer a simple one because it is centered on experience as well as relationship. Why do we trust any particular storyteller or software agent working on our behalf? Co-construction is a cultural technique by which an established community can arrive at a consensus. While the religious advocate can become fanatic and argue with or walk away from the Darwinian without changing position, adaptation is the essence of co-construction. The architect must offer to build something that I am happy with or it will not get built. As we waver on the cusp of highly distributed, emergent stories, both storyteller and audience require a clear articulation

of themselves in relation to each other and to the cybermechanics of a tangible feedback loop.

The question at hand is whether or not we believe that the future of the artistic work is as evolutionary as we ourselves are. Will the artist ever be convinced to provide a shell that can act as a mirror to each voyager? As I try to approach this ideal, I increasingly discover how rigid the link between creator and content really is.

#### The social life of situated bits

In July, I traveled to the newMetropolis Museum in Amsterdam to see the exhibit “Get Connected!” created by Michael Murtaugh, a former Media Lab student (see Figure 1). The museum, which only recently opened, makes a notable architectural statement—it is a venue with an attitude. Seen from the outside, a huge patina-green structure suggests two halves of a beached ship sliding into the harbor; a string of wildly angled foot-bridges leads to the entrance, reinforcing the image of dynamic impact with the shore. The museum’s cavernous inside spaces are filled with large-scale interactive exhibits speaking to themes such as energy conservation and communications. Murtaugh’s in particular was a hubbub of youthful activity.

One pleasure of knowing designers is listening to their “war stories” and understanding why particular decisions were made. The original concept



**Figure 1. “Get Connected!” combines social and technological activities to create a lively new society of audience.**



**Figure 2.** At Mike Murtaugh's installation, a young lady plays to win.

for Murtaugh's exhibit was a "treasure hunt" where participants would work collaboratively to gather sets of related cultural icons. Discovery and the desire to make deals would motivate participants to connect via videophone with other players (whom they do not necessarily know) and negotiate the trade of needed icons. Participants would play not only with each other but also with (or against) software agents skilled in negotiation. However, the game I encountered was greatly simplified from this original concept, whose prototype I saw a demonstration of in May.

The evolution of Murtaugh's interactive installation is a fascinating example of iterative design and conceptual adaptation based on participants' responses. Its spatial design—based on concentric circles—existed long before any decisions were made about its content. A circular bench, roughly eight feet in diameter, defines the inner ring. This bench also frames a round screen parallel to the ground, onto which fanciful video imagery was projected from below—a sort of seat-level Video Pond where, for example, a gigantic frog hops across several lanes of miniature automobile traffic. The exhibit's outer ring, perhaps 25 feet in diameter, is lined by 10 evenly spaced PC workstations. Each is equipped with a video camera and goose-neck microphone and is oriented such that visitors sit looking out from the center, away from each other. Participants select who they wish to communicate with—one at a time—via their "videophone" interface.

Through experience and discussion, Murtaugh

learned that his game's greatest pleasures arose from two core interactions: Visitors enjoyed seeing and hearing each other in the videophone window, and they enjoyed trading elements. However, he also discovered that the kids faced a daunting learning curve before grasping the concept of building sets of cultural icons and in identifying just how these icons were related. He revised the piece to follow the rules of a simple card game, reminiscent of "Go Fish," where the goal is to collect four cards with the same face value (see Figure 2). He also added a "ticking clock" element to impose a sense of urgency, pacing, and accomplishment to the game. Each player begins the game with a videophone "credit card" containing an arbitrary amount of credit; as they spend time on the videophone, this credit ticks down towards zero, where the game ends. Successful gathering of four of a kind adds "money" to the credit card and prolongs the game.

As I approached the exhibit, all the stations were occupied by one and sometimes by several players. Videophone interactions generated a chaotic buzz of excited activity. Many of the visitors were children; watching boys and girls use the space was great fun. Two girls dashed to stations at opposite sides of the circle. Barely able to see themselves in the video window due to the high placement of the cameras, the girls immediately became deeply involved in sharing information and commanding outcomes. Occasionally, one shouted to the other across the room. In addition to the task at hand, giggling and gossip were also part of the exchange. During one particularly intricate negotiation, one girl got up from her chair, walked across the room, tapped the other girl on the shoulder, and initiated a face-to-face conversation; she then returned to her workstation for more wheeling and dealing. The technological framework is just one part of the interaction enjoyed by this newly formed, purposeful, distributed society of audience. Co-construction is a card game; collaboration is community.

#### The social life of personal effects

Rachel Strickland's "Portable Effects" exhibit, which was installed at San Francisco's Exploratorium for several months this spring, stands at the other end of the interpersonal communications spectrum from Murtaugh's piece. This elaborate constructed environment invited individual visitors to examine their own portable possessions. The experience was suggestive of passing through a futuristic, self-service Customs

inspection at an interplanetary spaceport. At sequential stations, the visitor examines how she carries her bag, what it contains, and how these contents mirror those of past visitors. You first photographed yourself and your bag; next, you emptied your pockets and handbag onto a high-tech workbench, where each item was extensively photographed and databased, alone and in relation to other items (see Figures 3 and 4). Finally, you arrived at the portrait gallery, where you could compare your journey to that of others—if you provided the system with complete information.

In this exhibit, simple self-referential activities initiated a cycle of reflection about the container and the contained. During this process of examination, I became acutely aware that each object revealed aspects of my personality and life; when taken together, they painted a fragmentary but insightful self-portrait.

The stated goal of this project was to map the pockets of the world—and what a lovely visual and conceptual map could be rendered! Yet, as in other applications which want to “know” me, I found myself instinctively reluctant to attach my real name to this packet of personal data: another confrontation with the issue of “Who controls?” At first, I felt in control—I chose to enter the space and I enjoyed participating in the activities. I was not particularly put off by the onlookers who intently followed the trail of my picture images. However, as the request to register the data hit my eyes, I recoiled: Who was in control, me or the database owner?



**Figure 3. An inspection station in Rachel Strickland’s “Portable Effects” exhibit.**

Interactive distributed works are defined by the connectivity of the audience as much as by the relationship between the artist and the representation. Unlike traditional art objects—cinema, painting, sculpture—which lack any enduring audience contribution except through the model of commerce or religion (fans), these works rely on co-contribution—the dynamic generation of essential content by the audience. To engage the audience, these works are structured around a clear up-front challenge—to peep, to reveal, to barter as in a card game, and to incorporate different levels of involvement. MM

*Contact Visions and Views editor Glorianna Davenport at Media Arts & Sciences, Massachusetts Institute of Technology, 20 Ames St., Cambridge, MA 02139, e-mail gid@media.mit.edu.*



**Figure 4. The spaceport-like installation invites visitors to inspect their personal paraphernalia in Strickland’s “Portable Effects” exhibit.**