

THE SELF EDUCATING SPACE

Michael Zeligs

Stanford University

CCRMA

June 9th, 2009

ABSTRACT

The self educating space is an intuitively designed classroom that incorporates contemporary theories of emergence into a freely available learning environment. Based on combining values of contemporary art and participatory play, this installation allows self-directed learning to be easily accessed, and the space itself evolves based on user participation. User-generated content in a variety of mediums is used: musical instruments, recordings, instantaneous and simple performance interfaces, and collaborative artwork. The end result is a gathering that places its "fingerprint" on the space, and informs both participants and architects of their power and capability as creators.

1. INTRODUCTION

Imagine walking into a room of children at play. The energy is palpable. Dynamic worlds of interaction are created as individuals and small groups combine the resources around them with the world of their imagination. If the tools are well-designated and easy for young minds to understand, children will jump at the opportunity to begin creating. Classrooms like this foster experiments that ultimately lead to emergent social structure and general knowledge of the universe and its laws.

If this environment were to be created for adults and teens, with the children's world of abstract "imagination" replaced by easily accessed network knowledge, and with "games" modified to provide an collaborative artistic satisfaction equal to the intellectual capabilities of participants, then new societies, ideas, and collaborative works of art emerge almost all on their own.⁵

My goal as an artist is to provide a space for creativity and exploration by interrupting our busy days. Make it large. Hard to ignore. And clear, and kind, demonstrating that there's nothing else to be missed. When individuals re-engage their sense of play, social communication is uncovered, and people realize that they themselves are artists. The architect of such a space simply provides an algorithm for the experience of participating.

Local, user-generated knowledge centers on the web have

mirrored our need for local collaborative learning environments.⁵ "The loss of community, is, in fact, the founding theme of urban sociology."¹ By fusing the digital and the local, we can overcome the notion that "there exist audiovisual products separate from the space they occupy and the bodies they are addressed to." When the wealth of digital knowledge is presented to groups, we see a "simultaneous centralization and decentralization of activities," with the limitless resources of the digital world coming into social contact with local groups, where instant and gratifying communication can occur, and new ideas are born.²

Our contemporary movement understands that there is difference between a pre-programmed, received experience and one that is generated by users. New ideas develop and are implemented from a grass-roots level. Creations arise that could never have been predicted by the architect, because responsibility creation reside solely in the hands of the participants.

2. THE ROLE OF INTUITIVELY DESIGNED AUDIO GAMES

2.1 Theory of Audio Games

Intuitively designed musical instruments can enable anyone to immediately create exciting sounds. A few rules apply to type of design: 1) Simplicity 2) Immediacy 3) Clear functional higherarchy.

If the idea of a space is to help participants realize their power as creators, then the games need to be designed with the inexperienced user in mind. Far too often designers integrate what seem to be, for them, very clear, higher-order connections (FX processing, signal routing, etc...). Some of these concepts are much more difficult to picture. The majority of participants will be satisfied, if, on first touch, they are able to produce satisfying music and understand how their interaction is contributing to the sonic environment.

Games should be accompanied by clear instructions, and a playfulness that obviously invites for collaboration. Creating a foolproof design that continues to radically

expand musical capabilities and produce satisfying results is the balance that the classroom looks for.³

2.2 Live Layers Multisampler

2.2.1. Design

A multisampler an instrument that allows looped waveforms to reside on a series of switches, which can be triggered at a user's discretion. Live layers accomplishes this with a keyboard, an array of foot switches, and a set of trigger pads. On each key live sounds, all tempo and pitch synced. It is arranged by category: bass, drums, percussion, accompaniment, solos, and textures. The top 1.5 octaves of the keys serve as a normal rock organ to allow for on the spot improvisation.

Any combination of keys can be held down at the same time to create layers of different sounds. If a particular texture is achieved and the user would like to keep it playing, then the foot switches can be used. Live layers has 4 banks of recording slots, and 4 corresponding delete buttons.

Pressing the record button starts resampling whatever is being played, and pressing again begins looping the texture in the background. Other elements can then be added with the keys, and a rhythmic song results.

Live layers also contains a set of "Instant Remix" knobs. These knobs, 1-4 on the keyboard, correspond with tracks 1-4 in the recording banks. Any texture that has been recorded can be processed on it's corresponding knob, with effects like filter modulation, beat repeats and delays.

2.2.2. Thoughts on design

As stated before, simplicity is essential. This instrument is a bit of a challenge to play.

I encountered a few bugs in the programming process:

1) Launching. There is a balance between instantaneous results (no quantization), and guaranteed metrical matching (launching quantization, 1/8th note or 16th note). I settled on none because it provides the most instantaneous reaction from when a button is pressed, but this requires participants to have an understanding of playing notes within a rhythmic context.

2) Recording. In order to have the recorded samples loop in a rhythmically consistent way, the samples need to be a

specific length (1, 2, 4, or 8 bars). This can easily be accomplished, but when paired with the allowing instantaneous launching on the multisamples, rhythmic elements can enter at anytime in the cycle of the known beat clock. What this means is that in order to maintain "round" loops, when the button is pressed, there may be a lag until recording begins (on what the program thinks is the downbeat) and there is a lag upon stopping recording until the loop has reached an appropriately even length. This means that users have to continue playing their texture even after they have hit the button to stop recording, until they hear it begin playing in the background.



Live Layers Console

3) Remixing. The correlation of tracks 1-4 on the instant remix knobs did not seem to make much sense to people. It may be more advantageous to reorganize the knobs to each present different kinds of effects, and have them act on all the recorded tracks, or even on the master track. This might make remixing more intuitive and easy to use.

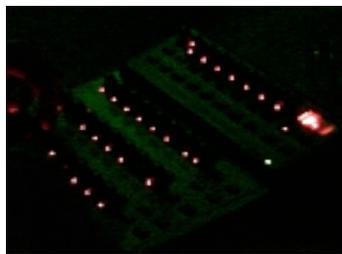
4) Designation: Having each key clearly marked with some kind of symbol would help users predict what kind of sound is going to come out, and also aid them in returning to textures and beats they enjoyed. Right now, there is sort of a "mystery box" effect going on.

2.3 YouMix Console

2.3.1: Design

The YouMix Console is an array of 32 light up knobs, in rows of 8, paired with a projection screen. Each individual knob controls the volume for a looping texture. The bottom row has musical textures. The middle two rows control volume for an array of found speeches, from the political and metaphysical sphere. The top row controls opacity for video being projected onto a screen.

Users can experiment by mixing knobs from different rows, resulting in a really cool audio-visual experience. Something profound occurs when a moving musical texture mixes with an inspiring speech...it is as if the stage is set. Adding user-mixed video to the output makes it a fully engaging cinema.



The YouMix Console

2.3.2. Thoughts on design

This design is much simpler than Live Layers. The function of the knobs is easily understood by users, and most of the work in designing this went into content.

This architecture provides an excellent medium for the rhetorical side of my art. I was able to find music and audio samples that conveyed what I consider to be the most pressing information at this time, that of environmental degradation and the rampant growth and consumption caused by the human species.

This audio game was, I believe, a much more successful application of theory surrounding the self educating space.

3. STANFORD INDUSTRIES PRESENTS: THE MACHINE.

Saturday, April 11, 2009. Synergy House Experimental Room

The Machine is a fully interactive sound installation. It is based around the theme of a circus game tent, and allows for instantaneous creativity and emergent musical experiences to arise. It was installed for the larger circus design installation that immersed participants in a dynamic setting for a party on Saturday, April 11th.



The Machine Installation

The machine consists of several localized sound games, from put-put golf to analogue signal processing with a theremin. It represents an interdisciplinary effort to create a place of instant and immediate creativity. The user interaction was divided into 4 sub spaces: Analog Processing, The Kitchen (with microphone processing and toys and blenders and things), The Love Seat (with rate controlled subwoofer and telephone messages), and the Sound Box (mini golf, and 12 buttons placed around the room to create ambient and triggered noises). Knobs and pressure sensitive sliders were used to control repeat rate and grain spray in the Kitchen processing unit, and there was a global "Destroyer" button that prompted an instance of the LiveCut algorithm for slicing samples on the fly, resulting in cool remix functions.

4. THE SELF EDUCATING SPACE: THEORY INTO PRACTICE

May 29th, 2009. Synergy House

This installation took place on May 29th and represented my immediate application of these theories. The space

will contain a mix of easily accessed collaborative art projects, multimedia presentations, and sound games. Below are the specific elements to be implemented therein.

We completely redesigned the ground floor of the house. The computer cluster was made to be a lounge space, with reading materials and photographs thrown all over the ground, to make for easy access should anyone be interested.



You Mix Installation Environment

The YouMix console was placed in a dark room, along with other aspects of room design, plants, and intelligent lighting.



YouMix Projection

Live Layers was placed in an adjacent room, paired with canvasses and paint for collaborative artwork. Users on Live Layers were able to play music for those who were painting. Other mediums for collaborative art were in the entrance: Chalkboard, Whiteboard. All of these spaces surrounded the main dance floor and stage area.



Self Educating Space Collaborative Artwork

5. CONCLUSION / FUTURE POSSIBILITIES

The Self Educating Space is a framework for magnifying the social and creative possibilities of a gathering place. The factors that constitute successful interaction and hosting are infinitely scalable...from producing vast warehouse sound tribe gatherings to day to day public education projects. So far the approach has been to use intuitively designed sound games to help engage the idea of creative play and collaboration.

Each subsequent effort has resulted in a refining of what elements are necessary for creating an environment that enables participants to educate themselves. I am seeing the value of simplicity, and also the value of having specific rhetorical efforts guiding the experience, rather than just sound (compare: YouMix to the Machine). These proofs of concept have showed that a dynamic and expressive architecture awaits DJ's and non-musicians to demonstrate how the world of digital audio and education meet, and that the experience of the future will not be served, it will be created by those who are receiving it. The democratization of creativity.

6. REFERENCES

- [1] Castells, Manuel 2000. *The Rise of the Network Society* Cambridge, MA; Oxford, UK: Blackwell.
- [2] Kelly, 1995 *Out of Control: The New Biology of Machines, Social Systems and the Economic World* Perseus Books.
- [3] Lillard A, Else-Quest N (September 2006). "The early years. Evaluating Montessori education". *Science* **313** (5795):
- [4] Ranciere 2004 *The Politics of Aesthetics: The Distribution of the Sensible* Tr. Gabriel Rockhill
- [5] Wheeler, 2000. "Cities in the Telecommunications age" Routledge.