

Thesis Proposal

You Are Here



-Seattle's Pioneer Square as an Exploratorium

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Part 1: Scholarly Framework

1. **Title:** "You are Here: Seattle's Pioneer Square as an Exploratorium"

2. **Thesis Statement:**

Throughout history man has been explorative. We've explored new continents, the oceans, and space. As children we explore and take delight in the simple discoveries of our surroundings. It is in this spirit of exploration that this thesis will show that through man's explorative nature and an understanding of our senses, virtual and physical environments can not only coexist, but can also complement and define each other.

One modern version of this explorative nature exists in tourism. We are exhilarated by travel. We wander the streets in search of an understanding of the place. We take pride in "finding" a "hidden café" off of the beaten path where we sit and marvel at our surroundings. This thesis will take these "tourists" and, through the use of historical information and the senses, engage them in a conversation about their surroundings that encourages them to explore it more thoroughly.

In the tradition of exploration, the virtual environment is a continuation of our attempt to graphically recreate our surroundings, dreams, and possibly fantasies. Although it is sometimes likened to other media such as photography or film, the one true distinguishing feature is user interaction. The user is able to explore and interact with the virtual environment much like one would a physical environment. This thesis will construct a virtual environment and install it in a physical place as a means of connecting the "tourist" with that place.

3. **Theoretical/ Conceptual Framework:**

We gather information about our surroundings through a variety of sensory interactions. Although a lot of senses enable us to experience

our surroundings, there are five basic senses that we typically discuss. Seeing, hearing, touching, tasting, and smelling the physical world provides us with the means through which to organize and understand it. Architecture (historically) has been primarily discussed in visual terms. Visual information processing takes up almost half of the brain's cortex. We rely on visual cues to provide a majority of the information about our surroundings. Interestingly, our eyes only see two-dimensional information (height and width). The rest of the information (the third dimension) is drawn from our brains processing of the information through visual cues and the comparison of data from the left and right eyes. Just as our bodies process visual information as a means of understanding the third dimension, they also process sound as a means of describing our surroundings. The reflection of sound off of the outer ear (allowing us to hear things twice) provides us with spatial cues that help orient us toward, and focus on, things of interest or potential danger. These spatial cues help us navigate the complex and rich physical environment. "Sounds have to be located in space, identified by type, intensity, and other features. There is a geographical quality to listening."¹ The same visual and auditory cues hold true in a virtual world and can therefore be used to describe and/or understand a virtual place or virtual architecture. Currently, the virtual world is restricted to seeing and hearing. So, the supplemental information that we gather from smell, touch and taste is unavailable to us forcing us to rely on those two basic senses. The sense of touch can be arguably included through the way in which we interact with the virtual place (keyboard, mouse, pen and tablet, data glove...) and the sense of smell is being explored in examples such as the iSmell (a small device that heats various combinations of oils in order to reproduce smells. The smells could then be served via the internet or simply triggered through a program on your computer). However, this thesis will explore how an understanding of the senses of seeing and hearing, and how an understanding of our bodies processing of them, can serve as a

¹ Ackerman, Diane. [A Natural History of the Senses](#). Vintage Books, 1990. 178

framework for design, and how that framework can translate into both the physical and virtual environments.

4. Methodology

1. *Research* - The initial stage of the thesis will be spent researching information design, interface design (In this thesis "Interface Design" is meant to refer to how the user interacts and/or navigates through the information being presented (a three-dimensional environment). The design of hardware and/or the formal writing of new software is not going to be explored.), virtual environments, Pioneer Square, our senses, and our bodies processing of them.
2. *Develop Information Program* - Based on the research of Pioneer Square, a collection of important historical information will be created. This collection becomes the programmatic elements of the Virtual Exploratorium.
3. *Information Architecture* - Understanding the interrelation of the information and how one concept can flow into another will help create a navigable space. In Architectural terms, this step in the methodology creates a bubble diagram and then possibly a programmatic massing which shows the relationships between the pieces of information established in step two.
4. *Sensory studies related to the Information and a Virtual Environment* - The goal of this section of the methodology is to find out what kind of sensory experiences can be drawn out of the information and the relationships between the parts?
5. *Design the Virtual Exploratorium* - Using the sensory studies and the "programmatic massing" design the Virtual Exploratorium. The Language can include any combination of organizational information, spacial relationships, forms, and/or experiences (i.e. - sequence of events). The Virtual Exploratorium will be designed for use in a format that can be served via the internet. It will not include writing new software or creating new hardware. The point is to push my understanding of the current technology available to me.

6. *Record the Physical environment* - Through photos, sketches, and possibly even short film clips, gather information about Pioneer Square. These studies need to include the sensory experiences of the Pioneer Square district as well as simple materials and composition studies.
7. *Design the Kiosk* - Based on the Studies of Pioneer Square, design a kiosk which relates to the physical environment and expresses the contents of the virtual environment. (The Kiosk will support use by multiple people and will act as an information hub for Pioneer Square. The current plan for Pioneer Square calls for a manned information kiosk to be placed in Pioneer Place Park. After I finish reading through and evaluating the purpose of their proposed kiosk, their basic program may be added to this project.)
8. *Build a Full Scale Mock-Up of the Kiosk and/or it's important details*- The mock-up of the Kiosk needs to demonstrate the interaction and activation of the senses. Should the scale of the Kiosk grow to a size that makes a full-scale mock-up unmanageable, then mock-ups of important key details will serve the purpose.
9. *Presentation* - Preparation and presentation of the Project to a jury of critics.
10. *Documentation* - Documentation will be occurring at all phases of the process so that the final document can be easily assembled.

5. Scope of Investigation

The design portion of this thesis will consist of two parts:

1 - The design of a Virtual Exploratorium.

The program of the exploratorium is one that encourages the exploration of Seattle's historically rich Pioneer Square as a means of learning and understanding it. The Virtual Exploratorium acts as a complement to the physical place and provides a means of finding insight through experiencing historical information through a three dimensional environment. In a virtual environment the information can take on a variety of forms (video, sound, text, photos, 3d models). A large portion of this process will be devoted to the study of three-dimensional information design and how the

user interacts and/or navigates through the information. The dominant questions that need to be answered in this portion of the thesis are: How can this information be organized to make it easily navigated and understood, and What makes an effective interface for a virtual environment? (typical VRML enhanced with simple code hacking can enrich the interface making hot spots, sounds, and movable pieces part of the experience.)

2 -The design of a multi-sensory Kiosk capable of engaging multiple users in Pioneer Square's Pioneer Place park.

Although other possibilities were discussed (i.e.-GPS enabled PDA's which feed information based on location, smaller kiosks spread throughout the district...), the kiosk was chosen to act as a link between the virtual and the physical environments. It provides the "tourist" with a means of accessing the Virtual Exploratorium and gives the Virtual Exploratorium a physical presence and location. Being that the Kiosk acts as an interface to the virtual environment, it should relate to both its surroundings as well as the virtual environment that it serves. This connection becomes a means toward understanding the kiosk in the physical environment. If the kiosk only relates to the physical environment then how can it be understood as a means of interfacing the virtual environment and if it only relates to the virtual environment then how can it be understood to be a part of Pioneer Square. It must respond to both.

The main issue that the kiosk presents is how do you remain sensitive to the historically rich physical environment while designing a technology based kiosk that links to a virtual environment.

6. Preparatory Study

Arch 402 - Design / Build

Professor - Steve Badanes, Damon Smith

We designed and built a pavilion and two small workstations at Klahanie's Highland Gardens. The experience gained by actually constructing a project is immeasurable.

Arch 500 - Arch Design Studio

Professor - Grant Hildebrand

The project for this studio was focused around designing a museum for the Klondike Gold Rush that was located in Pioneer Square. It provided an understanding of an important part of Seattle's history and gave insight into designing that type of facility.

Arch 504 - Furniture Design Studio

Professor - Andy Vanags

The learning potential of a hands on studio provided me with an opportunity to resolve a complex project and allowed me to understand my attraction to craft and the art of making.

Arch 505 - Arch Digital Design Studio

Professor - Ellen Do

My project for this studio was a physical exploratorium for Seattle. It provided me with a chance to explore the relationship between the physical and the digital environment in the design process.

Arch 498 F - Web Weaving

Professor - Brian Johnson

It gave an understanding of presenting information via the web and provided a place to discuss the types of interaction one would expect to take place in that type of media.

Arch 411 - 3d Modeling and Animation

Professor - Brian Johnson

This course is an introduction to the types of software needed to create three dimensional models and animations.

Arch 590 - Urban and Preservation Issues in Design

Professor - Jeffrey Oschner

Introduction to recent theory and practice in the fields of urban design and historic preservation primarily in North American urban contexts, including examples of recent projects presented by practicing professionals.

7. Annotated Bibliography

Ackerman, Diane, A Natural History Of The Senses. Vintage Books, 1990

This book is a poetic look at our senses and how we understand our world as a result of them.

Bergman, Ann, Dunnewind, Stephanie, Out and About Seattle with Kids: The Ultimate Family Guide for fun and Learning. 2nd Edition, Northwest Parent Publishing, 1998.

Not a typical travel guide, this book gives insight into Pioneer Square as a means of exploring and learning with children (as a family).

Dawson, Dena and David, ACCESS Seattle. Harper Resource, 4th Edition, 1999

A travel guide for Seattle, this book provides both historical and current information about Pioneer Square.

Dean, David, The Architect as Stand Designer: Building Exhibitions 1895-1983. Scolar Press, 1985

This book documents the exhibits for the Interbuild Exhibitions.

Fink, Dr. Jeri, Cyberseduction: Reality in the Age of Psychotechnology. Prometheus Books, 1999

Through arguments that show that our lives have always been filled with "virtual reality", Fink explores our attraction to the computer based Virtual Reality.

Hershenson, Maurice, Visual Space Perception: A Primer. MIT Press, 1999.

"An Overview of the principles of space perception"

Hoffman, Donald D, Visual Intelligence: How We Create What We See. W.W. Norton & Company, 1998

By understanding "visual intelligence" a large portion of how we perceive the world and how we can design virtual worlds will be understood.

Hoffos, Signe, Multimedia and the Interactive Display in museums, exhibitions and libraries. Library and Information Research Report 87 The British Library, 1992

Through introductions to various multimedia formats and their uses, this book provides an overview of the technologies available in the fields of multimedia and interactive displays.

Johnson, Steven, Interface Culture: How new Technology Transforms the Way We Create and Communicate. HarperCollins, 1997.

Theme-

This book provides a strong historical look at interface design and provides insight into what may have made various interfaces successful. It also raises questions as to how an interface should evolve for future use.

Specific Importance-

As I develop a means of interaction between the user and the virtual environment, this book provides a means of understanding the processes involved.

Neiman, Bennett R. and Do, Ellen Yi-Luen, "Digital Media and the Language of Vision." Media and Design Process. Salt Lake City: Acadia, 1999. 70.

Theme-

This paper presents a way of merging analog and digital information as a means of understanding and creating spatial relationships.

Specific Importance-

It provides me with a means of merging and organizing information from both the physical and the virtual environments.

Solso, Robert L, Cognition and the Visual Arts. MIT Press, 1999.

This book presents information as to how we "perceive, process, and store visual information and [how it applies] to the viewing and interpretation of art.

Thwaites, Hal, "Visual Design in Three Dimensions." Information Design. London, MIT Press, 1999. 221.

Theme-

Historical views, current trends, and the potentials for the future of Three Dimensional Information Design.

Specific Importance-

This essay provides me with some important insight into how our bodies process three-dimensional data and therefore what makes virtual environments successful.

The White House is our house - a CD-ROM Visit. Computer Software. Autodesk Press, 1998

Theme-

This CD-ROM lets you explore the White House. Through that exploration, historical information about the Architecture, the Presidents, the first ladies, and their children unfolds.

Specific Importance-

The ideas of using a variety of media and exploration as a means of learning will help guide me in the organization of the virtual exploratorium.

8. Supporting Material

- 1 - Vicinity Map of Pioneer Square
- 2 - Site Map of Pioneer Square's Pioneer Place Park
- 3 - Related Web Pages

Part 2: Logistical Framework

1. Outline of Tasks:

Research - *Read* - books, articles, and papers on information design, interface design, the senses, and pioneer square's history
Photograph and/or Videotape - pioneer square looking at materials, composition, and sensory experiences,
Sketch - pioneer square as a means of understanding its composition and details.

Case Studies - Perform case studies on museum exhibits and installations.

Develop Information Program - Based on the Pioneer Square readings, define a set of historical Information to be used as the program.

Organize and Study the Information - Study relationships between the pieces of information.

Sensory Studies for the Virtual Exploratorium - What kind of Sensory information can be taken from the data.

Design the Virtual Exploratorium

Design the Kiosk

Build a Mock-up of the Kiosk

Create Final Presentation

Present

Compile the supporting document

2. Schedule:

Fall '00:

Research	Sept 25 - Oct 20
Develop Information Program	Oct 21 - Nov 2
Organize and Study the Information	Nov 3 - 16
Sensory Studies for VE	Nov 17 - 25
Design Virtual Exploratorium (VE)	Nov 26 - Dec 14

Winter '01:

Design Kiosk	Jan 2 - 19
Build Mock- up	Jan 20 - Feb 3
Create Final Presentation	Feb 4 - 18
Presentations	Feb 19 - 23
Compile Final Document	Feb 24 - Mar 9

3. Available Resources:

Supervisory Committee: Ellen Do (Chair),
Brian Johnson

Special Resources: DMG (Design Machine Group) Research Lab,
DDS (Digital Design Studio)
CAUP Wood and Metal Shops
CAUP Slide Library
UW Library System
DCLU
Pioneer Square
Museum of History and Industry
Related Books (listed in bibliography)
Related Web Pages
(listed in supporting material)

4. Space Support:

I am seeking thesis space for both fall '00 and winter '01. If obtaining space in the DMG doesn't work out, then I will need space in the thesis pit.