A Library of Emotions
A Library of Emotions

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abstract

This thesis is an investigation into the impact of design elements on human behavior as explored through the design of a library. A library was chosen for its role in the community and because of the diverse group of users a library affects. A library, defined as a collection of things, is also a metaphor for the role memory plays in determining the emotive response a person has to their surroundings. Memory acts as the collection of internal associations. When engaged through sensory experience, memory dictates an emotional reaction to a space based on previous experiences. This project is a discovery of how to engage the senses and the memory in order to evoke an emotive response.
Table of Contents

Abstract iv
Table of Contents v
Design is Essential 1
Comfort 3
Emotion in Architecture 5
Precedent Study 14
Engaging the Senses 16
Five Senses 17
Memory Serves as a Library for Emotions 18
A Memory of my Childhood Library 20
Color 22
Edward Hopper 23
Human Behavior 24
Prototypes 28
Three Acts 36
Tenley-Friendship Branch Library 38
Process 40
A Child’s Memory 52
Building Overview 55
Experiencing Tenley-Friendship Library 66
Acknowledgements 83
Image Credits 84
Notes 85
Bibliography 87

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Design is Essential

I believe that Design is Essential.

The research I did throughout my thesis supported this basic premise. In Donald Norman’s book *Emotional Design: Why we love or hate everyday things*, he cites studies done in Japan and Israel to test the design of an ATM machine which concluded that people perceive well designed machines to work better than their less aesthetically pleasing counter-parts. This discussion occurred in a chapter appropriately titled, “Attractive Things Work Better.”

As a consumer, we are all affected by design. When I decided to buy an mp3 player, I chose an iPod. I didn’t believe that the iPod was superior in its ability to play music, but the simple design which combined all buttons into a slick, functioning scroll wheel attracted me. It felt easier to use. This design appeal applies to buildings as well. The design of an object or a space has an affect on the emotional state of the user.

Emotions and design are intertwined. In his article, Emotional Design, Chris Travis said, “the unconscious world of emotion that lives within us must be a primary source for much of our design criteria.”

In order to explore my questions about design I wanted to use a project about learning and community. I chose to design a branch library. A library is there to serve the community. It has a diverse group of users and is free for all to use.
I approached this thesis with a curiosity about what makes a space comfortable, which led me to exploring the impact of the physical environment on a person and vice versa. My goal was to design a space for comfort, a space for everyday, and a space for community.

Some questions I asked were:
- How do spaces make people feel?
- How is space defined?
- What effect does this have on inhabitants?
- What are positive attributes of a space?
- What are negative attributes of a space?
- Is there a universal comfort factor?
- What are the basic needs of a shelter?
- What is needed to make the shelter comfortable?
- How does architecture respect inhabitants?
- How does flexible space compare with comfortable space?
- What is the difference between the overall comfort of an experience and ergonomic comfort?
comfort

from confortare to strengthen much

comfort suggests the lessening of misery of grief by cheering, calming or inspiring with hope.

comfortable implies the absence of disturbing, painful or distressing features and in a positive sense, stresses ease, contentment and freedom from care [a comfortable climate]
I came to the conclusion that there is no universal comfort, therefore I began to explore the idea became to make the user feel an emotion.

Some questions I asked were:
Is architecture emotional? How can a building evoke emotion? Is emotion expressed in architecture? How can you express emotion through architecture? When he accepted the Turner Prize at the National Building Museum in 2007, Frank Gehry said that architecture is a dream image that, through technology and construction becomes reality... but it is never quite like the dream. Can emotion be expressed after such a long process from inception through construction? Can emotions of a building change with time? Can the built environment evoke specific emotions? Can the emotions evoked by the built environment be predicted? What about a space causes emotions? Material? Structure? Texture? Color? Size? Shape? History? Light? Temperature? What effect does construction type have on emotions experienced in the space?
Emotion in Architecture: Architecture Personified

Nicknamed “Fred and Ginger” or “The Dancing Building,” this building designed by Frank Gehry appears to be dancing. This raises the questions: How can architecture express emotion? Can the emotions of a building change with time?
Emotion in Architecture: Architecture of Power

Tian'anmen Square, Beijing, China

The largest public plaza in the world. The plaza was designed to make the individual feel insignificant.
The Imperial City was off limits for 500 years. It was home to the emperors of the Ming and Qing Dynasties. Surrounded by a moat and 32 ft. high wall, the palace uses highly ordered symmetry and sectional changes to evoke power.
Emotion in Architecture: Architecture of Memory

United States Holocaust Memorial Museum, Washington, DC, USA

“The intent of the building is to be a resonator of your own imagery, of your own memory.”

-James Ingo Freed, Architect

The Hall of Remembrance is full of soft, warm light. After experiencing the harsh surfaces and complex shapes of the rest of the museum the boundaries of this space feel soft due to the quality of light, architecture and color choice. The hall is a warm white color, representing hope.

The architecture of the United States Holocaust Memorial Museum is, in the words of the architect, meant to play on people’s memories. Does this mean that in order to create a built environment that evokes emotion it must be based on memory? And if so, what triggers memories?
Lighting has a great effect on the success of a building. An architect can employ it blandly, or with dramatic effect. To do this he must have knowledge of the way the sun hits his site at different times of the day, and different times of the year. In general, light from the south is better than the north, especially in the winter.

There are 3 simple ways to dramatically introduce light into a space.

1. Bright Open Hall

A basic example of this could be a roof supported by columns which simply provides protection from the sun. This type of space would create a feeling of openness. The quality of light would generally be good because it is not from directly above or front. Both minimize shadows creating a plastic effect. However, sometimes there may be too much light.

2. Room with a Skylight

A basic example could be a room with walls and no ceiling. A good specific example is the pantheon. This type of lighting works here because there is such a tremendous space. A spotlight effect is created by light from the oculus. In a room with no ceiling too
much light would be let in and create a shadowless interior where textural effects are poor.

3. Room with light from the side.

This is the type of room we are used to. Overall, this kind of space will be darker, however the quality of light will be better. There will be more shadows. In a room with a window light can be effectively controlled by curtains.

Each has its advantages and drawbacks depending on how it is employed.

It is important to understand that the quantity of light is not as important as the quality. It is the way light falls that makes the difference.
Emotion in Architecture: Texture

Chapter VII: Textural Effects, Experiencing Architecture, by Steen Eiler Rasmussen

The texture of materials for a building is very important. It gives the building character. There are two textural tendencies in architecture:

1. Rough Surfaces emphasize structure. The tend to be better with deep relief.

2. Smooth surfaces hid structure. When a smooth surface is made of high quality material it is sometimes best with no ornamentation or relief. But smooth surfaces must be perfectly homogeneous, even minute differences effect us strongly.

Sometimes the simplicity of structure is shown through texture and it is appealing. Other times it is distracting and discomforting. For example: Rough concrete is used for a foundation. The rough strong solidity of the concrete is comforting and we trust in the strength of the building. However, if the same foundation is made to seem smooth, we may not trust its structural abilities.

Materials must be used skillfully in order to be complimentary to the structure.

Rough and smooth textures can be employed together to obtain effective contrasts. In order to draw attention to something an architect might switch
2. Homogeneous
Not Homogeneous

The rough foundation looks stronger

Change in material and/or texture celebrate an element

textures and/or materials. Materials are judged by more than just
texture. They are judged by hardness and heat conductivity. For example, wood does not become very hot of very
cold. It is a “sympathetic material.” A material that does get very hot or cold may not appeal to us. For example, on a cold morning the tile floor in a bathroom is not very appealing. It is generally very cold. A wood floor is bearable, meanwhile, carpet is desired. However, on a hot day, carpet may be the undesirable material. Each material is good for its own purpose.
“I see a library as a place where the librarian can lay out the books, open especially to select pages to seduce the readers. There should be a place with great tables on which the librarian can put the books, and the readers should be able to take the books and go to the lights.”

-Louis Kahn, on the design of the Library at Phillips Exeter Academy
Engaging the Senses

The built environment should engage the user and have a psychological impact. In an attempt to understand how people will react to their surroundings I researched the five senses, memory, the impact of color, and human behavior.
Engaging the Senses

One must engage the senses in order to evoke an emotive response.

The five senses:

Touch
Touch is the sense of nearness, intimacy and affection.

See
The eye is the organ of separation and distance. Vision isolates.

Hear
Sound incorporates and is unconscious.

Smell
Smell is the sense most strongly linked to memory.

Taste

“All of the senses, including vision, can be regarded as extensions of the sense of touch; the senses are specialization of the skin. The senses define the interface between the skin and the world.”

-Junani Pallasmaa

Good architecture needs to involve all of the senses.
Memory serves as a Library for Emotions

Engaging the Senses

“...we all view the world through a broad set of internal associations most, but not all, from our childhood. This internal landscape determines how we respond emotionally to the architecture of our surroundings.”

-Chris Travis

Emotions evoked by the built environment are connected to memories. Our memories serve as a library of emotions and associations.
I confront the city with my body; my legs measure the length of the arcade and the width of the square; my gaze unconsciously projects my body onto the facade of the cathedral, where it roams over the mouldings and contours, sensing the size of recesses and projections; my body weight meets the mass of the cathedral door; and my hand grasps the door pull as I enter the dark void behind. I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other.¹⁰

-Juhanni Pallasmaa
Once upon a time, three girls and their mother arrived at a fork in the road. The options were to continue straight, up the steep climb, or to take the secret path around. The steep climb was the most direct way to get where they wanted to go, but it lacked excitement. The girls snuck away to the secret path surrounded by rough concrete walls. Green plants fell over the cold damp walls like a jungle. The sharp turn ahead held real danger: the unknown beyond, and the risk of tripping and skinning a knee if the corner was taken too fast. The girls build speed as they race up the incline, ignoring the dangers of the turn. They merge into a clearing at the top. The mother is not there yet and they race ahead through the doors of glass and into the cool interior beyond them. Thirsty from their adventures, the girls discover a spring and drink from it. The delicious water quenches their insatiable thirsts. The mother catches up to them and quiets everyone down and ushers them through the second set of glass doors into the library. Upon entering they are greeted by the sweet and musty smell of old books. The family heads to the back right corner of the library, where the girls settle in to listen to the calmness of the librarian’s voice and the quiet turning of the storybook page during story hour.
“...we all view the world through a broad set of internal associations most, but not all, from our childhood. This internal landscape determines how we respond emotionally to the architecture of our surroundings.”

-Chris Travis
Engaging the Senses

Color

Black
Black is the color of authority and power. Black also implies submission.

White
White symbolizes innocence and purity. White also implies sterility.

Red
The most emotionally intense color, red stimulates a faster heartbeat and breathing. Since it is an extreme color, red clothing might not help people in negotiations or confrontations. Pink is tranquilizing. Sports teams sometimes paint the locker rooms used by opposing teams bright pink so their opponents will lose energy.

Blue
Peaceful, tranquil blue causes the body to produce calming chemicals. Blue can also be cold and depressing. Blue symbolizes loyalty. People are more productive in blue rooms.

Green
Green is the easiest color on the eye and can improve vision. It is a calming, refreshing color. Green also symbolizes fertility. Dark green is masculine, conservative, and implies wealth.

Yellow
Cheerful sunny yellow is an attention getter. While it is considered an optimistic color, people lose their tempers more often in yellow rooms. It is the most difficult color for the eye to take in. Yellow enhances concentration. It also speeds metabolism.

Purple
The color of royalty, purple connotes luxury, wealth, and sophistication.

Brown
Brown is solid and reliable. Light brown implies genuineness.
Engaging the Senses

Edward Hopper

“The eye is the organ of separation and distance.”

-Juhani Pallasmaa

Loneliness is felt in Edward Hopper’s paintings due to the exaggeration of light. Hopper paints the minimum detail for his subject to be understood while painting the light with great intensity. The heightened awareness of light and shadow is heard with the eyes as quiet. Visually, the awareness of light emphasizes the acute separation between people or buildings.

Hopper’s paintings make the viewer so intensely aware of the visual sense through his use of light that it is almost as if the other senses (hearing, smell, taste and touch) cease to exist in the world of his paintings.

When interviewed about his paintings, Hopper rejected the idea that he aimed to represent loneliness or solitude in his paintings saying, “the loneliness thing is overdone.” Instead Hopper said, “I like long shadows and early and late sunlight. I am very much interested in light and particularly sunlight, trying to paint sunlight without eliminating the form under it, if I can.”

Despite Hopper’s insistence that he did not intend to paint scenes of isolation, his desire to paint light results in a magnifying the visual sense in his paintings which evokes emotions of intense isolation and distance by disengaging the other senses. There is no feeling of interaction or connection, but rather a feeling of reclusiveness and introvertedness.
Affective System:

Affect is a system that makes judgments quickly, such as good/bad, safe/dangerous. When the judgement is conscious it is called emotion.

Cognitive System:

The cognitive system interprets and makes sense of the world.
Human Behavior

Three Levels of Processing

Reflective:
Rationalization and intellectualization.

Behavioral:
Pleasure and effectiveness of use

Visceral:
Concern with appearances

Three Levels of Processing (12)
child comes to the library for story hour and craft time and enjoys picking out books to take home for bedtime stories.

pta parent uses the time while waiting to pick up child to put together a bake sale flyer, compile meeting minutes from the last pta meeting while sipping on a mocha latte. if there is time left over will wander over to the travel books and dream about the next vacation or socialize with other parents.

teenager has to come to the library to use a reference book for biology class and use the computer to write a report. while there enjoys listening to new music at the mp3 station and socializing with friends.

office worker stops in after work while waiting for the bus for a cup of coffee and the read the newspaper or the latest issue of a favorite magazine, occasionally checks out a tom clancy novel.
senior citizen
lives in the neighborhood and comes to the library to use the computer. Has taken up foreign studies as a hobby and is taking a Spanish class at the library. The bridge club sometimes rents the community room as well.

researcher
is very interested in genealogy and traditions from family’s native country. With the help of a librarian is creating a family tree on the computer and has checked out some books on cultural traditions.

immigrant
new to the country and is trying hard to adjust to the new language and culture. is taking an English class at the library.

latch-key kid
walks over to the library for homework club after school lets out.
Emotions and design are intertwined. In his article, Emotional Design, Chris Travis said, "the unconscious world of emotion that lives within us must be a primary source for much of our design criteria" and "...architecture gains aliveness by reflecting the patterns of those who inhabit it." 17

I began to design using words, collage and sketch to create prototype spaces which would be conducive to the actions which take place in a library.
explore

to investigate systematically; examine.
to search into or travel in for the
purpose of discovery.  

search

to conduct a thorough investigation;
seek. look over carefully in order to find
something; explore. to come to know;
learn.  

imagination

the formation of a mental image of
something that is neither perceived
as real nor present to the senses. the
ability to confront and deal with reality
by using the creative power of the mind;
resourcefulness.
enlighten

to give spiritual or intellectual insight. to give information to; inform or instruct.

cocoon

a protective case of silk or similar fibrous material spun by the larvae of moths and other insects that serves as a covering for their pupal stage. a similar natural protective covering or structure, such as the egg case of a spider. to envelop in or as if in a cocoon, as for protection from a harsh or unfriendly environment. to retreat as is into a cocoon, as for protection from a harsh or unfriendly environment.
study
attentive scrutiny. a state of mental absorption. to apply one’s mind purposefully to the acquisition of knowledge or understanding of (a subject). 23

absorb
to involve the full attention of; to engross or engage wholly. to occupy or fill. 24

porous
penetrable, pervious, sievelike, riddled. 25

peruse
to read or examine, typically with great care. usage note: peruse has long meant “to read thoroughly” and is often used loosely when one could use the word read instead, as in the librarians checked to see which titles had been perused in the last month and which had been left untouched. seventy percent of the usage panel rejected this example in our 1999 survey. sometimes people use it to mean “to glance over, skim,” as in I only had a moment to peruse the manual quickly, but this usage is widely considered an error. in a 1988 survey, 66 percent of the panel found it unacceptable, and in 1999, 58 percent still rejected it. 26
discover

1. to notice or learn, especially by making an effort: to be the first, or the first of a group or kind, to find, learn of, or observe: to learn about for the first time in one's experience: to learn something about. to reveal or expose.

store

2. to reserve or put away for future use.
connect

to join or fasten together. to associate or consider as related. to become joined or united. to establish a rapport or relationship; relate.  

community

a group of people living in the same locality and under the same government. similarity or identity sharing, participation, and fellowship. a group of plants and animals living and interacting with one another in a specific region under relatively similar environmental conditions. a group of people having common interests.  

freedom

the condition of being free of restraints. ease or facility of movement.
labyrinth

an intricate structure of interconnecting passages through which it is difficult to find one’s way; a maze. something highly intricate or convoluted in character, composition, or construction. 32

gathering

to cause to come together; convene to accumulate (something) gradually to harvest or pick to draw into small folds or puckers, as by pulling a thread through cloth. to gain by a process of gradual increase to collect into one place; assemble. to come together in a group; assemble. 32

serve

to work for. to be a servant to. to prepare and offer. to provide goods and services for. to assist. 34
keep
to retain possession of. to maintain for use or service. to preserve. to remain in a state or condition.

gift
something given voluntarily without payment in return, as to show favor toward someone, honor an occasion, or make a gesture of assistance; present. the act of giving.

browse
to inspect something leisurely and casually. To read something superficially by selecting passages at random. to look for information on the internet.
The study of words and prototypes were reduced to the three basic actions to be found within a library. The organization of the library is based on the three acts: to sit, to wander, and to interact.
to sit

study
- enlighten
- discover
- cocoon
- look
- absorb
- porous
- read
- write

create
- imagination
- develop
- produce
- freedom
- compute

search
- labrynth
- explore
- conceive
- look
- peruse
- browse

store
- archive
- save
- protect
- collect
- keep

serve
- gift
- connect
- community
- gathering
- give
Tenley-Friendship Branch Library
Site Information

The site chosen for this design thesis is the location for the Tenley-Friendship Branch Library in Washington, DC. The existing library on the site has since been demolished and the city plans to build a new, upgraded library in its place. The site is on Wisconsin Ave, NW across the street from a Metro Station. There are elementary schools to the West and South of the library and retail along Wisconsin Ave. Much of the surrounding neighborhood, a block or two off of Wisconsin, is residential.

Map showing 5, 10 and 20 minute walking radii from site (14)
Process

Three Acts

to sit blue
to wander yellow
to interact red
Process

Three Acts

to sit                         creeky wood floor

to wander                      stone floor

to interact                    quiet red carpet
to sit  to wander  to interact
Process

Study Models
Process

Sketches
A Child's Memory of the Tenley-Friendship Branch Library
Building Overview

Level 3 Plan
Experiencing the Tenley-Friendship Branch Library
A visitor to the Tenley-Friendship Branch Library arrives at the library entrance on Wisconsin Ave. The lantern, which represents the act of wandering, is visible from afar and acts as signage. There is a book return where the lantern meets the ground.

The large canopy swoops out over the sidewalk and gradually compresses the visitor, with the lowest point over the entrance. A visitor is compressed further as they enter into the vestibule. The compression is released once the visitor has moved through the vestibule and opens the doors into the atrium.
The circulation desk is on the left when the visitor enters the library. The book return counter pulls back into the librarian’s sorting space, accepting books into the library. The book check out counter protrudes out into the wandering space, and under the lantern skylight.

Above the circulation desk, each floor has a counter to hold the electronic catalog search interfaces. The catalog counters on the upper levels take turns pushing out under the lantern skylight creating moments within the sitting volume where a visitor can overlook the library and her mind can wander while she searches the catalog.
Experiencing the Tenley-Friendship Branch Library

Monumental Stair

The monumental stair creates wandering space between the sitting volume, where the books are kept and an individual can enjoy them quietly, and the interacting spaces, which foster interaction between community members.

The stair wraps the main library elevator. The elevator shaft is wrapped in glass on three sides allowing the visitor within the elevator to experience her vertical journey. The fourth side of the elevator shaft is masonry providing for a variation in the interaction between the stair, the elevator and the atrium space as a visitor climbs the stair and increasing wandering potential.
Experiencing the Tenley-Friendship Branch Library

Columns move aside to create a space for human interaction within the library. This space has soft, absorptive surfaces for sound to decrease the user's self-consciousness of how much sound they make. This encourages them to make conversation with friends and neighbors. There is a visual connection to the street. Diffuse light from the North fills the space. The colors in this space are warm and vibrant. Sound clouds hang from the ceiling of the double height space and capture sound while further defining the limits of the living room.
The story hour room appears as a volume floating on light. The hearing sense is celebrated in this room. Hearing is an inclusive sense which unites the visitors to the room while allowing space for the imagination to dream along with the storyteller’s voice. Surfaces are absorptive to soften background noise and acoustics are engineered to emphasize the voice of the storyteller. The light in the room is soft and brought in diffusely, through corners and through a North facing skylight. Soft light mutes the visual sense to allow thoughts to travel freely. Colors in the space are calm, soft and warm.

Light sneaks out of the joints in the volume, inspiring a sense of wonder and intrigue for the more visually oriented wandering space below.
The reading porch is a place for quiet individual thought. It engages the field to the West of the library and gives a view to connect the visitor to the community and a quiet place to peacefully read a book.

The librarian can display select books on the display shelf leading out to the porch and a visitor can pull the sliding glass door shut to provide an auditory separation from the rest of the sitting volume.
The study alcoves are on the East side of the library. They receive intense morning light and diffuse afternoon light. A small window lights the desk while windows of varying sizes provide for, or limit, views to the street creating a unique experience at each alcove.
acknowledgements

thank you


3. Wiggins.


5. Wiggins.


7. Wiggins.

8. Wiggins.


10. Edward Hopper, Chop Suey. 1929. Oil on Canvas, 81.3 x 96.5 cm. Collection of Barney A. Ebsworth.

11. Edward Hopper, Nighthawks. 1942. Oil on Canvas, 84.1 x 152.4 cm. Friends of American Art Collection, 1942.51.


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9. Travis.

10. Pallasmaa, 26

11. Travis.


15. Norman.


17. Travis.


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