guiding the human psyche
architectural interventions for interaction, connectivity, & stimulation
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thesis statement & abstract
STATEMENT

A series of architectural interventions implemented throughout a college campus can serve as an additional resource for students to decompress from the stresses of college life. Performing as a spectrum of experiences, the interventions offer varying degrees of stimulation, connectivity to the surrounding environment, and social interaction to help students satisfy their needs and find their sense of belonging within the greater community.

ABSTRACT

Colleges in the United States today are facing a mental health crisis. Nearly one-third of students are diagnosed with a mental health condition, which is only aggravated by the stress of college environments. The alarming rate of student suicides indicates a need for increased support from institutions. Despite recent efforts across the nation to improve the accessibility and outreach of existing services, on-campus resources cannot sufficiently meet student needs. As a result, the majority of students suffering from mental and emotional distress are not receiving any form of counseling or treatment. Individuals who live with a serious mental illness are at higher risk for chronic medical conditions and typically have a shorter life expectancy, making treatment for these mental disorders essential to their well-being.

Architecture offers an opportunity to influence human behavior and cognition by exposing people to different worlds from their own. This thesis investigates the power of manipulating architectural atmospheres in affecting human perception. Experiencing a space is more than the visual perception of aesthetics and form; it involves the sensory experience of the body to evoke an emotional and physical response (Goodwin). Spatial qualities, like materiality, lighting, color, degree of enclosure and proportioning, contribute to the sensory experience of a space, informing how people feel in it. Manipulating these qualities to produce a sequence of spatial experiences, representative of a range of mental states, can help everyday people empathize with those suffering from mental illnesses, while offering an outlet for those with a mental health condition.
thesis statement & abstract


Panic
Feelings exhibited in anxiety disorders

Untitled
Feelings exhibited in depression
essay

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THE IMPORTANCE OF UNDERSTANDING MENTAL ILLNESS

The Stigma

Mental illness is known for its associated stigma in our society. The stigma contributes to a number of problems for the affected individuals, including discrimination, social isolation, negative self-concepts, and shame, all of which lead individuals to conceal their illnesses and avoid treatment (Byrne). As a society, we allow those who suffer from mental illness and display abnormal behavior to be treated differently in an act of discrimination ("Let’s Call Mental Health"). We categorize and label people according to their disorders, which defines their social identities and self-concepts (Byrne). Mental disorders are often interpreted as a deficit in personal character, making people feel shameful of their sickness, regardless of the ties to biological abnormalities in the brain ("Let’s Call Mental Health"). Our inability to openly discuss mental health in our society only reinforces the misunderstanding of mental disorders and strengthens the stigma.

Effect of the Stigma: Why Treatment is Necessary

Lack of treatment as a result of the public stigma not only impacts the well-being of the patient, but also puts a burden on the global economy. Mental illness impairs the biological functioning of patients, increasing their risk for physical health problems. People living with mental disorders often experience stress, either as a result of their inhibiting behaviors or from external conditions, which induce their illnesses (Hooley et al). Stress itself is linked to immune system repression, leaving people vulnerable to illness. Specific mental disorders also have their own physical health risks, including cardiovascular disease, chronic respiratory disease, diabetes, and cancer (Insel). Social isolation, as a side effect of the mental illness stigma, also increases risk for heart disease. In addition to physical illness, suicide is a major risk factor. Ninety percent of suicide cases are connected to mental illness, most often depression and bipolar disorders ("Risk of Suicide"). In addition to the impact of mental disorders on physical health conditions, mental illness disturbs daily functioning of patients. Mental disorders affect all aspects of a person’s life, from personal relationships to education and work. On a global scale, mental illness impacts the global GDP, accounting for nearly seventy-five percent of output loss (Insel). For all of these reasons, treatment for mental illnesses is critical.

stigma (noun)
(1) a mark of disgrace associated with a particular circumstance, quality, or person.
(2) a visible sign or characteristic of a disease

Survey of Perceived Public Stigma of Mental Health Services

“Most people feel that receiving mental health treatment is a sign of failure.”

46% agree
5% strongly agree
15% agree
26% somewhat agree
23% somewhat disagree
22% disagree
8% strongly disagree

“Most people think less of a person who has received mental health treatment.”

42% agree
4% strongly agree
11% agree
27% somewhat agree
23% somewhat disagree
26% disagree
9% strongly disagree
How to Improve Treatment Rates

The stigma of mental health inadvertently discourages people from seeking treatment (Byrne). Even with the advances in science that have challenged our existing knowledge of the causes of mental illness and improved methods of treatment, people are still skeptical of mental health care. This stigma is rooted in fear and misunderstanding, suggesting that education and exposure to people with mental disorders can help reconstruct our biased thoughts. Teaching about mental illness alone is not enough to alter people’s misconceptions, though. According to clinicians, empathy is more effective than sympathy in bridging the gap between people with a mental disorder and those without one (Byrne). This thesis aims to develop a narrative of atmospheric spaces that allows for users to empathize with people suffering from mental illness, helping to diminish the stigma through architecture. The greatest solution to reducing negative perceptions of mental illness and encouraging people to seek treatment is for people to be a part of an unbiased and open society. As an architectural undertaking, it is a great challenge to solve a societal problem through a building design; however, architecture can promote community and encourage a healthier social environment in which people feel comfortable addressing their mental health needs.

THE DEVELOPMENT OF THE STIGMA

Historic Views of Mental Illness

Many present-day views of mental illness and our methods of treatment are derived from practices in the past. History documents mental illness back to prehistoric times when negative views of people who displayed abnormal behavior originated (Hooley et al). Trephination, a primitive version of cranial operations involving a surgical opening in the skull through means of scraping, cutting, or drilling, was used as treatment to release the “evil spirits” believed to be responsible for abnormalities (Hooley et al). This belief of demonic possession in association with “madness” carried all the way into the Middle Ages with the fear of witchcraft in Europe (Hooley et al). Exorcisms continued to be carried out as an accepted treatment for the demonstration of abnormal behavior. This early link between a display of madness, now understood as mental illness, set the tone for mistreatment of individuals with mental abnormalities.
The Asylum

While this supernatural belief consumed many societies in history, other cultures and philosophers from 400 BCE to the Renaissance acknowledged biological and natural possibilities for the cause of mental illness (Hooley et al). No matter the causation, though, people with mental disorders have continually been mistreated throughout history. Mental illness was originally viewed as a domestic issue, intended for the individual and their family to address in private. Society could not deal with such issues of abnormal behavior, so people were quarantined and imprisoned for their behavior (“Let’s Call Mental Health Stigma”). By the 1800s, public insane asylums became an aggressive treatment option for restoring a healthy mental and physical balance (Yanni). The treatment of patients admitted to these “madhouses” was less than acceptable by today’s standards. People were chained as if in a penal institution and treated with electric shocks and other extreme methods. Asylums became a place for families to dump their spouses or relatives, especially wives, so families would not be burdened by their mental issues.

Mental Illness Today

Today, many people still regard mental illness as something that can be “shocked” out of patients. In general, we have the misconception that mental disorders like depression are just a mental state patients can overcome by changing their attitudes (Byrne). Our scientific understanding of mental illness has come a long way through decades of research, case studies, and observations of patients. We have evidence to support biological, sociocultural, behavioral, and cognitive factors that attribute to abnormal thoughts and behaviors. The DSM-5 is current version of the Diagnostic and Statistical Manual of Mental Disorders used to organize our understandings of mental illness in a classified system (DSM-5). Clinicians use this manual as a standard for diagnosing patients, as it provides a common language for disorders and lists of symptoms associated with each illness. This classification system is helpful for treating patients, but is also the main source for legitimizing the stigma against people with mental illness, providing the labels for the mentally ill (Byrne).
MENTAL HEALTH AND COLLEGE

The Mental Health Crisis

Colleges are known for fostering high-stress environments. Students moving away from home experience new challenges without their trusted social support systems, leaving them to learn how to deal with stress on their own. The 2014-2015 academic year received significant attention across the country for the concerning demand for mental health services on college campuses (2015 Annual Report). Mental health problems are highly prevalent among college students and seem to be steadily increasing.

Data shows the average demand for counseling services is growing more than five times the rate of enrollment across schools (2015 Annual Report). While the percentage of students seeking treatment for sexual assault, drug or alcohol dependency, and existing mental illnesses has remained somewhat constant, the percentage of students receiving help for suicidal thoughts, attempts, or non-suicidal self injuries is noticeably increasing. Since the 1950s, the suicide rate for young adults aged 15-24 has tripled (The Number of College Students). Nearly one-third of undergraduates qualify for a mental disorder diagnosis, yet most students do not seek any mental health services, even when readily accessible on campuses (“The Number of College Students). Institutions are cognizant of this current crisis, making efforts to increase the quality and availability of mental health services and to encourage students to seek help (The Healthy Minds Study).

Suicide Clusters

A recent phenomenon on college campuses is the occurrence of multiple suicides within a short period of time, known as a suicide cluster. Several prestigious schools have experienced this collective tragedy within the past decade, all of which have received attention from the media (Scelfo). Coverage from the media of one suicide instance is thought to encourage and provoke other students who are exhibiting suicidal tendencies to take their own lives after seeing fellow students succeed with certain suicide methods (Jacobs). The suicide clusters at two schools in particular were even committed through similar methods as a result of the media reports. Schools experiencing suicide clusters demonstrate a critical need for attention regarding mental health initiatives on campuses.
IDENTIFYING MENTAL ILLNESS

Prevalence

Of the 297 mental disorders classified in the DSM-5, depression, anxiety, and related disorders account for the largest percentage of mental illness diagnoses among adults in the United States ("Mental Health By the Numbers"). This data also holds true among the student populations on college campuses nationally (2015 Annual Report). Suicide, as a direct result of poor mental health, is a prominent issue on college campuses, serving as the second leading cause for deaths among college students ("Crisis on Campus"). People with depression are at a higher risk for suicide, and history of multiple mental health disorders doubles a person’s risk (Hooley et al). Suicidal thoughts and behaviors increase in prevalence beginning at age twelve and continue to increase into the early to mid-twenties. The rate of suicide death also increases into a person’s twenties, the period of time many young adults are away at college. Addressing suicide is an urgent need for colleges, which begins with treatment for students’ mental health concerns.

Anxiety Disorders & Mood Disorders

Depressive and anxiety disorders comprise similar disorders related through their symptoms or etiologies. As distinguished in the DSM-5, anxiety disorders have a close relationship to obsessive-compulsive disorders for their involvement with feelings of fear and anxiety, while depressive and bipolar disorders are jointly categorized as “mood disorders”.

These types of disorders are significant for their prevalence rates and persistence. Most anxiety and mood disorders begin in early adulthood, although children can also exhibit symptoms. Causes for the disorders are linked to biological factors like heredity and social factors, but are often brought on by external stressors (Hooley et al). The greater the stress placed on an individual predisposed to an anxiety or mood disorder, the more severe the symptoms. Chronic stress reinforces overwhelming feelings of fear and anxiety and exacerbates depressive and manic moods (Hooley et al), which is why college atmospheres tend to produce feelings of anxiety and depression in students. Most anxiety and mood disorders are diagnosed when specified symptoms are experienced for a period of at least 6 months. These disorders are persistent, sometimes lasting for over 2 years, and commonly reoccur throughout a person’s lifetime (DSM-5).
ADDRESSING MENTAL ILLNESS

Current Approaches

Various treatments are available for anxiety and mood disorders, ranging from pharmacotherapy to psychological therapies. Most colleges offer multiple resources as part of their mental health initiatives to help students who are struggling with mental health problems and to raise awareness on campus. Schools typically offer on-campus counseling services by appointment or 24-hour hotlines with direct contact to counselors for confidential support. Some colleges host mental health fairs to promote the school's services and to address the social stigma of mental illness (New). As a proactive approach to preventing suicide, many schools also train faculty, staff, and students to recognize warning signs of suicide and teach them how to empathetically manage such a situation (Wallace). Mental health is becoming a familiar topic of discussion on college campuses more than ever before, which is helping to reshape the conversation and diminish the stigma among students.

Architecture's Role

Architecture can also play a role in de-stigmatizing mental illness in troubled communities by fostering a strong sense of community for students and faculty. An architectural intervention that promotes a healthier social environment in which people can openly discuss their mental health concerns may help people seek treatment for themselves, or recommend others who are experiencing distress to seek counseling. An additional layer to this architectural intervention is a didactic intention that helps raise awareness of mental health conditions to those who do not live with a mental illness. This thesis investigates the abilities of a spatial narrative to act as an educational experience. The narrative of “over-stimulating” and “under-stimulating” spaces, discussed in the coming pages, reflects the range of mental states experienced in anxiety and depressive disorders. This spatial sequence would be an overarching theme uniting the various elements of the designed intervention.
GUIDING THE PSYCHE: THE HUMAN EXPERIENCE

The Psychological Spectrum

To understand the magnitude of abnormal thoughts and behaviors exhibited by individuals with mental illnesses, one must have an understanding of a relatively “normal” mind. Everyone experiences mental illness differently, which makes classifying and describing mental disorders a controversial and complicated task. In general, depressive and anxiety disorders fall within a range of mental states outside of the “normal” confines. This spectrum can be graphically explained in a linear representation, however, experiences of these disorders are not necessarily linear and may overlap with feelings of other disorders. Additional mental illnesses may also correspond to points along this spectrum, but are not specific to this thesis.

“Over-Stimulation” vs “Under-Stimulation”

This range of positive and negative mental states can be thought of in relationship to the level of stimulation the brain undergoes in each state of mental illness. The two categories of stimulation, under-stimulation and over-stimulation, describe the extreme emotional conditions of individuals with anxiety and depressive disorders (Kopec), intended to represent their varying states through a qualitative experience for this thesis. Under-stimulating environments may represent cases of depression, as patients are overcome by feelings of emptiness, apathy, and sadness (DSM-5). A lack of external connections and social support add to this unarousing environment. Over-stimulation is associated with states of general and specific anxieties. People in highly stressful environments are susceptible to greater levels of anxiety (Hooley et al).

Humans have a limited capacity for processing external stimuli, but people have different levels of stimulation they can handle before they are overloaded and become stressed (Kopec). The adaptation level theory suggests people can adjust to certain variables in their environment over time, which can decrease the influence of those elements on people’s perception of stimulation (Kopec). Some people may already be accustomed to high levels of stimulation, in which case they might experience discomfort or anxiety in under-stimulating environments (Zubek). Since people have different preferences for levels of stimulation, offering a variety of stimulation levels in the designed intervention will allow users to experience the range of spaces and also find a space that suits their personal needs, all while being a part of a communal experience.
Interpreting Our World

Manipulating spatial qualities has the ability to alter users’ experiences in a choreographed manner because of the influence built environments have on human cognition (Kopec). The human brain is perceptive to all of our surrounding contexts. Our senses capture our environments; what we see, feel, hear, smell, taste is all translated by our brains to produce emotional and physical responses (Sternberg). For decades we have understood the effects of our environments on our brains and bodies. Our built world, the buildings we inhabit, influences our cognition and behavior, whether or not we are conscious of it (Sternberg). Gestalt psychology is a field within environmental psychology that focuses on human’s environmental perception as a comprehensive production of our senses, personal experiences, and psychological factors (Kopec). Gestalt research suggests we perceive an environment in consideration of its surrounding context, rather than in isolation, which translates down to design concepts. Human’s conceptions of symmetry, balance, and continuity are explained by this theory.

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GUIDING THE PSYCHE: AN ARCHITECTURAL INTERVENTION

Defining Environmental Factors

For the investigation of this thesis, it is important to identify the key environmental conditions that can be manipulated to evoke feelings of over- and under-stimulation. General factors that affect the human perception of space vary from formal aesthetics to visual qualities (Sternberg). Most of these elements are intangible, yet are quantifiable and have been tested through research, primarily in regards to their influences in producing stress. These qualities are important for developing specific sensory experiences within a built environment, and understanding their implications can help reduce levels of stress and prompt pleasurable responses (Kopec). This thesis aims to distill these general qualities in alignment with the range of mental states to provide users with a variety of experiences within a unified community building.
Formal Aesthetics

Formal aesthetics of a building play a role in human perception and have been studied for their ability to create attractive and positive environments (Kopec). The relationship of the human body to the architecture is a major factor in people’s perceptions of a space. Spatial proportioning affects how users feel in a space, meaning the scale of the person in relation to the scale of the space (Kopec). Some people find smaller spaces more comforting than vast, open spaces, while others prefer the spaciousness.

Similarly, the degree to which a space is enclosed from its context or surrounding spaces can alter a person’s emotional perception. Windows and connections to the outside are important to healthy environments, especially when the view is of nature (Ulrich). The desire for enclosure between spaces may be determined by the interaction of users in the building. Social density, the ratio of occupants to the square footage of a space (Kopec), in combination with people’s personal space zones, influence preferences for enclosure. Edward Hall’s Interpersonal Distance Zones describes the degrees of interaction between people in situations from intimate settings to public interaction and the typical personal space desired by individuals (Hall). According to these zones, people with close relationships, like family or friends, can tolerate less personal space than strangers who are occupying the same space but have no association. These zones are important to understand when designing spaces which intend to foster community between people who are both friends and strangers.

Order of a space and formal elements of a building is another factor that can determine the pleasure value of architecture (Kopec). Related to the previously discussed Gestalt theory of perception, this formal aesthetic quality affects people’s responses to their environment. People innately prefer visual symmetry for its clarity and simplicity, although levels of aesthetic richness are also desired by people (Kopec).
EXPERIENCE SPECTRUM

<table>
<thead>
<tr>
<th>Use</th>
<th>Occupancy</th>
<th>Activity</th>
<th>Experience</th>
<th>Lighting</th>
<th>Sound</th>
<th>Materiality</th>
<th>Color</th>
<th>Texture</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 person</td>
<td>1 person</td>
<td>meditation; daydreaming</td>
<td>introspective</td>
<td>dim, diffused light</td>
<td>mute</td>
<td>wood, neutrals, white</td>
<td>soft; porous/textured</td>
<td>sound absorbent; comfortable</td>
<td></td>
</tr>
<tr>
<td>2 people</td>
<td>2 people</td>
<td>conversations</td>
<td>intimate</td>
<td>dim, diffused light</td>
<td>mute</td>
<td>wood, neutrals, white</td>
<td>soft; porous/textured</td>
<td>sound absorbent; comfortable</td>
<td></td>
</tr>
<tr>
<td>3-8 people</td>
<td>3-8 people</td>
<td>group gatherings</td>
<td>personal</td>
<td>directed natural light</td>
<td>sound</td>
<td>concrete &amp; wood</td>
<td>blues, greens; natural colors</td>
<td>soft; hard but porous</td>
<td>sound absorbent; comfortable; retains water</td>
</tr>
<tr>
<td>8-12 people</td>
<td>8-12 people</td>
<td>group gatherings</td>
<td>social</td>
<td>more external sounds</td>
<td>sound</td>
<td>steel &amp; concrete</td>
<td>yellow</td>
<td>hard</td>
<td>encourages activity</td>
</tr>
<tr>
<td>12-20 people</td>
<td>12-20 people</td>
<td>group discussions; playing</td>
<td>public</td>
<td>loud; exposed to all sounds</td>
<td>sound</td>
<td>painted steel</td>
<td>red</td>
<td>smooth, hard</td>
<td>sound reverberant, encourages activity</td>
</tr>
</tbody>
</table>

STRESS & THE HUMAN BODY

STRESSORS

ENVIRONMENTAL
- excessive noise
- crowding
- confinement
- poor air quality
- harsh lighting

PHYSIOLOGICAL
- illness
- sleep deprivation
- poor nutrition
- physical discomfort & pain

SOCIO-CULTURAL
- relationship problems
- social demands
- work

COGNITIVE
- emotional distress
- negative thoughts

ZONES OF INTERACTION

INTROSPICIVE
- for individuals in isolation
- in this zone: meditation, reflection, sleeping, daydreaming

INTIMATE
- for people with a close relationship: family, close friends
- in this zone: conversations, touching, hugging, whispering

PERSONAL
- for friends and family of less intimate relations
- in this zone: conversations, shaking hands, greeting

SOCIAL
- for strangers with whom you may interact; acquaintances
- in this zone: talking, greeting; sitting at a closer distance

PUBLIC
- for someone addressing a group of people; public situations
- in this zone: public speaking, teaching, observation

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This re-imagined hospital typology is indicative of the ideal characteristics for healthcare and human well-being today, which is significant to the investigation of the effects of spaces on people’s psychological and physiological states. The two-story clover-shaped form differs greatly from traditional hospital typologies. Hospitals of the past, like Alvar Aalto’s Paimio Sanatorium, are high-rise rectilinear masses that do not allow for the best treatment of patients.

This adaptation of the circle plan is designed for optimal human care by facilitating the exchange between patients and staff, all while centered around a major courtyard. Circular organization schemes create a sense of community, with one major circulation path that unites building components and users. It allows for visibility between the different spaces and across the center, while signifying the garden as the central focus. This arrangement begins to set up communication between the users of the building, which is an important concept to this thesis.

Typical circular plans are associated with issues of disorientation because of their symmetry and repetition, which can be problematic in hospitals where program requirements lend themselves to a regular arrangement of uniformly sized patient rooms. Although this disorienting experience is sometimes desired, like for its effect on human perception in Olafur Eliasson’s “Your Rainbow Panorama,” the hospital’s distorted circle plan alleviates that feeling of discomfort by offering variety and a sense of place. Understanding how architectural organization can evoke a sense of comfort or discomfort is important for how these schemes are implemented for intentional over- or under-stimulation of spaces.

The hospital heavily relies on nature as part of treatment, which is visible in the central courtyard with various gardens and continuous rooftop garden. Common in healthcare facilities today, the presence of nature is integrated into the architecture for its proven effects on mental and physical health. This hospital in particular responds to its surrounding context in northern Denmark, reaching out to the vast corners of the landscape. It derives its concept from native forest parks with clearings for parking lots in the way the central garden is cleared from the mass of the building.
case studies

Fig 3. low-rise hospital typology

Fig 4. transparency of ground floor to landscape

Fig 5. garden spaces for healing

Figures 3-5. https://www.herzogdemeuron.com/index/projects/complete-works/
The Sanatorium was designed as a sanctuary for people suffering from Tuberculosis in Finland. Its agenda was to heal patients through its architectural design, considered a “medical instrument” by Aalto. This building is recognized for its thoughtful detailing, user-focused design, and impressive totality.

The human-scale focus of the Sanatorium serves as inspiration for this thesis, investigating how users directly interact with architecture, specifically for health benefits.

While the program was originally intended for physically healing of Tuberculosis patients, its concepts are also applicable to promoting mental health. The idea for healing was centered around rest, exposure to sunlight, and connections to nature, which is scientifically known today to positively impact the human brain. Comfort was a main concern of Aalto, as he attempted to inject the building with a homey atmosphere. Interior common spaces were kept light and airy, filled with soft, cheerful colors like yellow, blue, grey, and white. In patients’ rooms, ceilings and walls were painted in green, blue, and grey hues to reflect the importance of nature and for practicality, to ward off glare from expansive windows. Aalto invested time into studying how light would affect patients in bed, orienting all the patient rooms to the south for optimal sun exposure. In addition to large windows with a view, sun balconies were integrated into the design, for greater connection between humans and the surrounding landscape.

The detailed moves of the Sanatorium exemplify some important architectural elements that affect human perception and health conditions, which are important to the investigation of this thesis.
case studies

Fig 4. bright and “cheerful” atmosphere

Fig 5. patient sun deck for maximum sunlight exposure
The Jewish Museum, in its program and architectural form, recounts the history of Jewish culture in Germany. Situated in the center of Berlin, the museum is an important reminder of Jewish citizens’ contributions to the city’s history. Its powerful symbolism provokes reflection and raises questions.

While the program and specific narrative of the Jewish Museum is far removed from those of this thesis, its approach to orchestrating narratives through architecture and atmospheric experiences is relevant to the research of this thesis.

The intent of the architecture of the museum is to create a long-lasting impression on visitors, achieved in part through the manipulation of sensory stimuli in the built form. The building is divided into three axial processions in plan, each of which tells a specific narrative of Jewish-German history. These prescribed routes lead to different destinations within the museum with exhibits depicting their given story. The routes themselves are symbolic of their stories: as seen in the first axis, which is shortest and leads to a dead end, the Holocaust Tower, as well as with the third and longest axis, which carries visitors up the Stair of Continuity to an exhibit that reinforces the extension of history into the present.

Spatial qualities are also significant to the overall atmosphere in the museum, informing how people emotionally perceive the spaces and symbolic information presented in the architecture. Lighting qualities are manipulated throughout the exhibits, as different instances of light help to depict certain stories, like symbolic glimpses of light in darkness. In addition, restraint of materiality beyond reinforced concrete evokes a cold sensation to visitors, contributing to the desired expression of emptiness.
case studies

Formal symbolism also occurs throughout the building to convey tension and the feelings associated with Jewish-German history. Disruptive concrete elements obstruct spaces, and while most spaces are intentionally void of windows, some instances reflect that tension in their equally disruptive manner. The museum leaves visitors with a lasting feeling of disorientation and discomfort, which achieves its intent.

The Jewish Museum is significant to this thesis for its abilities to manipulate architecture in such a way that impresses emotional states on visitors as a means of creating awareness, and provoking reflection about a social issue needing to be addressed.

Fig 3. formal symbolism

Fig 4. windows as jarring symbolic elements

Fig 4. http://libeskind.com/work/jewish-museum-berlin/
“FRAME OF MIND,” THESIS PROJECT
Louise Bjørnskov Schmidt | Panama City, Panama (unbuilt) | 2016

This ecological education facility set in a Panama rainforest is a response to what is believed to be a flawed education system in regards to teaching the significance of the rainforest's freshwater supply to Panama City's economy. The project intends to promote awareness of this vital resource to students and visitors.

The siting of this facility is essential to its effectiveness in communicating its intent. The integration of the built form into the landscape elegantly emphasizes the value of the rainforest. With a circular bridge inscribed into the natural landscape, the building frames the lake as a reminder of the vital resource of discussion.

The experience visitors have with the rainforest is important to establish a personal connection to the landscape and gain appreciating for its existence. This project is less about the phenomenological experience of spaces and more about orienting people in the context of the topic in order to place them in the conversation.

The panorama bridge is the major design decision in the project that promotes reflection and encourages discussion between users. Named the “learning path,” the bridge's circular form provides a continuous path for connection to the environment and an opportunity for human interaction. It also slows down movement to allow visitors to connect to the landscape through sensory information, providing a more meaningful experience.

Stimulating a conscious interaction between visitors and their environment is the main objective of the project, which is directly relevant to this thesis, although the topics differ.
case studies

YOUR RAINBOW PANORAMA, AROS MUSEUM
Olafur Eliasson | Aarhus, Denmark | 2011

Eliasson’s artistic addition atop the ARoS Museum relies on the play of color and its circular form to create a unique sensory experience. The panorama is a primarily a device for orienting visitors in the surrounding city and in relation to the museum. Its colored glass enclosure both distorts and intensifies this reality.

Movement through the panorama determines the visitor’s experience, from panoramic scope to an introspective quality. The greatest effects of the color spectrum are achieved with a fast pace. Maintaining this pace around the walkway allows each color zone to resonate in a vibrant image, while pausing in one color zone desaturates that color, but intensifies surrounding ones. This demonstration of how movement affects human perception, specifically visual, is important to implementing changes of pace in design for varying sensory experiences.

Your Rainbow Panorama is similar to Eliasson’s exhibit “Your Atmospheric Colour Atlas” also displayed at ARoS. Both pieces manipulate color experiences to test human perception of space, although “Your Atmospheric Colour Atlas” intends to disorient visitors through a dense fog. The lack of visual boundaries evokes a feeling of discomfort and emphasizes the role of color in way-finding.
The Blur Building was designed for a complete sensory experience of an artificial cloud created from misted lake water. Similar to the effects Transolar & Tetsuo Kondo Architects achieve in their “Cloudscapes” installation, the pavilion engages all the senses and challenges the human understanding of vision. A long ramp transitions visitors from land to the suspended pavilion over the lake. As visitors proceed into the cloud, they are overcome by mist, “blurring” their visual and acoustical perceptions. This procession is important for its ability to begin to transform sensory experiences, in this case depriving people of typical visual and acoustical stimuli.

The sequence through the building is one which does not direct movement, but encourages wandering until visitors encounter the a stair at the center of the pavilion, leading to the Angel Bar. This raised viewing area is above the cloud, exposing visitors to the sky for a connection to the surrounding waters and an opportunity for relaxation.

As an added layer of sensory interaction, visitors are given a special raincoat designed for the pavilion. The coats change colors between red and green to indicate attraction and repulsion among visitors, based on character profiles of each visitor. This feature emphasizes the reliance on visual stimuli for social interaction and stimulates conversation between people. The component of human relations is also influential on how humans perceive spaces.
case studies

SWISS SOUND BOX, WORLD EXPO
Peter Zumthor  |  Hanover, Germany  |  2000

Zumthor designed the Sound Pavilion as a representation of Swiss culture, forming its structure and materiality to its spaces for Swiss music, food, and performance. It is a place of repose within the exposition. The architecture does not have embedded symbolism typical of Expo pavilions, but instead provides spaces for reflection and “just being.”

The pavilion is made up of 99 timber stacks arranged in a woven pattern that is open-air with a few covered areas for cultural activities. The permeability of the structure allows for free-flowing movement, as opposed to prescribing a procession through the building. This maze-like configuration slows movement and offers the opportunity for discovery within the pavilion. The maze also disorients visitors’ sense of way-finding. In contrast, the repetition and order of the stacks provide rationale and comfort within the spaces, illuminated with natural light for added solace.

In evaluating the importance of the labyrinth system in human perception of spaces, the provided path of a labyrinth suggests one correct, intended experience that directs people in a reliable way. A maze, on the other hand, does not supply people with one solution, but challenges people’s sensory perceptions to evaluate their environments. The Swiss Pavilion is an example of how a maze system can be pleasurable and activate different sensory experiences.
**inspiration**

**“IN INFINITY”, LOUISIANA MUSEUM OF MODERN ART (Fig 1)**
Yayoi Kusama | Humlebæk, Denmark | 2015
- induces intentional discomfort
- exhibit rooms distort sense of space
- installations are products of artist’s mental illness

**FLOAT TANK THERAPY (Fig 2)**
multiple locations
- float in saltwater for deep mind and body relaxation
- sensory deprivation for introspection & reflection
- too quiet to endure for more than 45 minutes

**DANS LE NOIR? RESTAURANT (Fig 3)**
Edouard de Broglie (founder) | multiple locations
- dining in complete darkness
- heightens other senses
- served by visually impaired waiters
- affects dining experience & human interaction
- gives insight into living with visual impairments

**“CLOUDSCAPES”, VENICE ARCHITECTURE BIENNALE (Fig 4)**
Transolar & Tetsuo Kondo Architects | Venice, Italy | 2010
- ethereal experience of touching clouds
- clouds obscure visibility & connections to surroundings

**“YOUR ATMOSPHERIC COLOUR ATLAS”, AROS MUSEUM (Fig 5)**
Olafur Eliasson | Aarhus, Denmark | 2015
- experience of dense color
- heightened awareness with lost sense of boundaries
- getting lost, and orientation challenges
- affects encounters with other people

**“MEETING”, MOMA PS1 (Fig 6)**
James Turrell | Long Island City, Queens, NY | 2008
- selective exposure/view out to exterior world
- contrasting colors of interior vs exterior
- unworldly experience of the natural world
inspiration
site

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CHOOSING A SITE

Mental health is a widespread and critical concern among college communities. Schools throughout the nation are taking various social and logistical actions to improve their mental health services for students. An architectural intervention within a college context would target the demographic of adults most troubled by mental illness and its effects. With the major issue of suicides occurring among college students, it is appropriate to site the intervention designed in this thesis at a university exhibiting extreme rates of suicide.

Tulane University has experienced a large number of student deaths from August 2015 to October 2016, four of which have been classified as suicides (Fitts). The University’s mental health and counseling services have received great attention since the occurrence of the deaths last year, as university officials investigate the quality and effectiveness of the existing resources. Improvements have since been made, increasing availability of counseling with a 24-hour hotline, implementing suicide prevention training, and regularly promoting services to students and parents (Jacobs). A new Health, Wellness, and Recreation facility for the university is being designed to strengthen accessibility of these resources for students and consolidate related services in one building (Beezley).
campus selection

TULANE UNIVERSITY

New Orleans, LA

Tulane University is a long, linear campus that stretches from St. Charles Ave to South Claiborne Ave. The main academic area is situated in the historic front of campus, home to the majority of academic schools, as well as some important student services, currently including the CAPS on-campus counseling center. At the middle of campus sits the Lavin-Bernick Center (LBC) for student life, strategically located at the junction of the major pedestrian paths connecting the main academic campus, student housing, and the Newcomb academic campus. The LBC is an important hub for its food court, the campus bookstore, meetings spaces, study spots, and various student services and programs. Current locations for student health services, however, are at the periphery of campus in less frequented areas. The student health center is located beyond the corner of the Newcomb campus in the campus services programmatic zone. A division of the health center for health promotion, The Well is integrated into the student recreation center at the back of campus, although its presence on campus stretches beyond its home base.

A proposal for a new student Health, Wellness, and Recreation facility is currently in the preliminary design phase, which will include space for the CAPS counseling services (Beezley). This building is a new construction to be located in a more prominent area on campus to reflect the increase in demand for mental health services and to better serve student needs.
campus analysis

Major zones of campus

Programmatic zones of campus with key services for student health and well-being
campus analysis

- Pedestrian pathways between zones of campus
- Open green spaces

Diagrams by author

- Major pathways connecting zones
- Secondary pathways through zones

- Lawns

- Student housing
- Newcomb academic campus
- LBC student center
- Main academic campus
- Athletics
- Student center
- Newcomb Quad
- Student housing
- Johnstons Quad
- Warren Quad
- Monroe Quad
- Bruff Quad
- Gibson Quad
- Josephine Louise Quad
- LBC Quad
site selection

SITE CONCLUSIONS

As determined from the general campus analysis, the areas most frequented are those that support the daily functions of students: areas that contain academic classes and study spaces, student housing, food, and major student resources. McAlister Dr is a pedestrian-only road through the middle of campus that connects most of the student housing to the main academic campus. This path experiences high traffic at all times of day, and is undoubtedly the most important path through campus. Many essential buildings are located along or near this street. The presence of the LBC at the connection of McAlister to the second major path to Newcomb campus sets up a condition for a student hub. The LBC supports functions that occur at all hours of the day, designating that area of campus as a destination for students. Other buildings on campus that experience high use day and night include the Graduate Business School at Goldring/Woldenberg Hall II, the School of Architecture in Richardson Memorial Hall, PJ’s coffee and lounge at Willow St, Howard Tilton Memorial Library, and the Law School at Weinmann Hall. These places mostly fall within the middle of campus and along McAlister Dr or Freret St, another defining street. The School of Architecture is the only anomaly, drawing some students to the main academic campus after regular class hours.

While the middle of campus is heavily programmed for student life and successfully draws users in at all hours, the main academic campus and Newcomb academic campus are lacking in resources for student life. These academic areas are primarily used during business hours and while classes are in session. They experience some of the highest traffic on campus, despite not being used after hours. An intention of siting the architecture intervention in either of these zones would be to increase life and activity in additional parts of campus at night.
site selection

CONDITIONS FOR SITE SELECTION:
1. Must be within the college campus
2. Easily accessible to all users and overtly positioned
3. Must be integrated in the daily experiences & pathways of students
4. Has a relationship to the natural environment (lawns, gardens)
5. Must not be obtrusive to existing structures or oak trees

INTENTIONS OF SITE LOCATION:
(BY RECOMMENDATION OF THE UNIVERSITY PLANNING OFFICE)
1. “Locate community serving functions along McAlister to reinforce high pedestrian activity, human scale and encourage increased personal communication”
2. “Improve links between spaces using built or landscape elements to create transitions between adjacent outdoor areas; create a network of open spaces rather than a collection of isolated outdoor areas.”
A potential site for the project proposal lies within the main academic campus. This zone is most frequented by students for academic classes during the weekdays. All of the surrounding buildings are fitted for academic use and student and university services. The central path extending from McAlister Dr receives high foot traffic in mornings and afternoons to academic buildings. Pedestrians use this path through campus for access to the streetcar on St. Charles Ave at various hours of the day and on weekends, however, organized activity rarely occurs within the campus itself, even on Johnston Quad. Siting the intervention in this area would engage students with this otherwise desolate part of campus, bringing social and recreational value to this part of campus at night.

This site would continue the agenda of locating community program along McAlister through the extension of this path into the academic campus. The proposed building can be situated within the regular flow of pedestrian traffic, insuring users will experience the building in their everyday routines. It also has an adjacency to Johnston Quad for a connection to nature as desired for some spacial components.
SITE OPTION 2

Another potential site for the intervention is set in the middle part of Tulane’s campus alongside the LBC and facing the LBC Quad. This site is at the intersection of a common footpath between the library and the LBC, as well as adjacent to the major path towards Newcomb. It benefits from the existing traffic and the program belonging to the student center. The middle part of campus already has high levels of social activity and is thriving with student life. Placing the intervention in this location would ensure a high number of users at all times of the day.

SITE OPTIONS 3

A third site option is at another less-frequented end of Tulane’s campus, behind the Newcomb building. It is at the border of the campus, which means it does not receive much use besides students walking to or from off-campus residences. To either side of the site is a dorm; placing the intervention in this area would help contribute to the newly-reinforced program of student life at this end of campus. A challenge with this site location is establishing a sense of life in an unpopulated area.
program

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program proposal

PROGRAM NARRATIVE

In an effort to alleviate the negative atmosphere surrounding mental health on Tulane’s campus, the program of the proposed intervention is intended to strengthen the school community and promote a healthier social environment for students. The primary goal is to foster an open dialogue between students in a nonjudgmental social atmosphere so students feel comfortable discussing mental and emotional health in their community. The proposed building is a student community center, serving as an annex of the LBC, featuring various gathering spaces and resources that encourage a strong sense of collectivity beyond the LBC at the middle of campus.

Based on an analysis of current resources on Tulane’s campus and an understanding of successful social spaces on college campuses in general (Manzella), several key actions were determined to be essential for the proposed program to achieve an enriching community: gather, learn, relax, and play. The program elements that fall into these categories will best serve the area of campus where the intervention is placed, making them valuable to building a campus community. To attract students to the academic campus after class hours, the building will be accessible to students at night. These spaces are also part of the narrative of under- and over-stimulating atmospheres, acting as a commentary on mental illness as described in the essay portion of this thesis.

SOCIAL NEEDS ON ACADEMIC CAMPUS:

Gather
- Café with indoor and outdoor seating
- Coffee/wine bar

Learn
- Study lounge for individual and small group study
- Covered outdoor classroom

Relax
- Lounge with TVs
- Yoga/meditation room

Play
- Game room with board games, ping pong tables, pool tables

[Diagram by author]
The Kamadhenu Yoga Studio is a yoga studio turned community center. The building serves as an educational facility for children in the community, with arts and cooking workshops in addition to its yoga studio. The yoga studio, with enough space to comfortably fit 30 students, overlooks the natural landscape for a peaceful setting.

**PROGRAM COMPONENTS:**

- Yoga room: 1120 sf (20.5 ft x 50.5 ft, 37 sf/person)
- Kitchen
- Living Area
- Restrooms
- Patio
- Exterior deck: 338 sf (main space: 15.5 ft x 59 ft)


diagram by author
program analysis

MCCORMICK TRIBUNE CAMPUS CENTER, IIT

OMA | Chicago, Illinois | 2003

KEY PROGRAM COMPONENTS:

- Welcome Center: 1675 sf
- Bookstore
- Food Court
- Café/Coffee Bar
- Auditorium
- Meeting Spaces
- Lounge: 3300 sf
- Convenience Store
- Hermann Hall Ballroom

student center floor plan
program analysis

THE SHACK
Gensler + Barnard + Columbia Design for America | unbuilt | 2013

As part of a summer studio design charette, interns designed an architectural solution to the challenge of fostering community that many college campuses face. The Shack is intended to engage students in recreational activities together. The modular structure holds gear for gardening, board games, sports equipment, a grill, and projector with group seating. Students have the ability to rent out the equipment using their smartphones for easy transactions.

The Shack in use

annotated bibliography

“We are not just a pair of eyes floating through space; we have bodies, senses, emotions, expectations and memories.” - Professor Philip Ursprung

Sensing Spaces documents the seven architectural installations present at the exhibition “Sensing Spaces: Architecture Re-imagined” at the Royal Academy of Arts in London. It opens with commentary by Philip Ursprung, a professor of History of Art and Architecture in Zurich, on the presence of architecture. He discusses the atmosphere and aura of architecture in relationship to the human body, naming examples by Peter Zumthor and Olafur Eliasson, whose works are prime examples of sensational atmospheres relevant for this thesis. Then the curator, Kate Goodwin, interviews the architects featured in the exhibition. Each speak of their designs, most including discussion of enhancing the human experience. Responses to this task include material choices, connection to the natural world, and sequence of movement through space, which are important areas of investigation in this thesis.


This textbook overviews the theories of environmental psychology and explains the science behind human behavior, which is essential to this thesis. It is ideal for its marriage of psychology content with architecture and design concepts. Areas of interest include Stimulation Theories on sensory information in spaces and human perception of design, which includes aesthetics, color, and gender preferences. The majority of the book covers common environments and how to best design these spaces, of which healthcare environments will be most informative. The Gestalt Laws Related to Perception will be important to understand in terms of design. While the book touches on human perception of different environmental conditions (like noise levels, lighting, and scale of space), it does not clearly identify which conditions are essential to human comfort or well-being, and may vary according to the type of environment.


Steven Holl opens the book with his memory about a discussion on the phenomenology of architecture with Juhani Pallasmaa. He describes Pallasmaa’s work as “phenomenologically insightful”, as it is concerned with the interaction of architecture and all the body’s senses. Pallasmaa’s theorizes that “touch is the sensory mode that integrates our experience of the world with that of ourselves.”
annotated bibliography


Healing Spaces: the Science of Place and Well-Being approaches the study of “healthy” spaces through a scientific lens with research studies and findings, supported by anecdotes. Although the book never addresses the role of architecture in healing spaces, the main aspects outlined in the chapters are directly applicable to designing spaces for well-being. Elements associated with “healing spaces” in this book are comparable to those discussed throughout Kopec’s Environmental Psychology for Design. The strength of this book is its reliance on research and proven facts, which link human perception and sensory experiences to scientific explanations of brain functions during these experiences. It is valuable to understand how our sensory experiences affect our bodies on a biological level, in connection to the psychological reactions we each personally experience, in order to begin to manipulate environments to evoke certain reactions or moods.


The Architecture of Madness details the environment typical of asylums in the United States, which once housed people who were “mentally ill.” Its insights into life in the asylums and the architectural conditions attributed to the negative experiences in mental hospitals are important to understand for their value in designing positive architectural experiences. The role of asylums has changed throughout history, but the concept of environmental determinism, the idea that “the environment, including architecture, shapes behavior,” still exists. Unfortunately, most of this book is concerned with the historical role of architecture in mental hospitals, as asylums no longer exist in the present day. It discusses architecture at the institution level, comparing asylums to universities, prisons, and medical hospitals, but does not address how architecture can influence mental health at other scales, like in the home, where the architecture is designed for individuals rather than groups of people.

Zumthor defines his approach to creating “quality architecture,” atmospheric architecture that has the ability to “move” people emotionally. He identifies ten qualities or conditions characteristic of emotional atmospheres. The areas of particular interest to this thesis, as defined by Zumthor, include material compatibility, the temperature of a space, the sound of a space, seduction of architecture, levels of intimacy, light and shadow, and architecture as its surroundings. These topics have influenced the direction of investigation in this thesis of how these qualities can be implemented in the design of sensual spaces. The magic of this book is the way in which Zumthor discusses his topics, directly transcribed from his lecture at a Festival of Literature and Music in Germany. His passion and spontaneous language intensify his points about evoking an emotional atmosphere.
references
references


references


project proposal

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siting

TULANE UNIVERSITY: PROGRAMMATIC ZONES

resources for well-being

TULANE UNIVERSITY: ACADEMIC CAMPUS

segmented green spaces areas that support social interaction
sitting

Pavilion 1
large, open area
adjacent to heavy foot traffic
intersection of multiple shortcuts
used for many large group gatherings
area of high activity

Pavilion 2
small, open area
adjacent to heavy foot traffic
intersection of multiple shortcuts
used for small & large group gatherings

Pavilion 3
sheltered, dimly lit area under oak tree
between busy footpaths
used for individual, private moments of rest

Pavilion 4
small, open site
adjacent to heavy foot traffic
intersection of multiple shortcuts
used for small gatherings

Pavilion 5
large, open area
adjacent to heavy foot traffic
intersection of multiple shortcuts
used for very large group gatherings
area of high activity
pavilion 1

Nestled beneath the canopy of the largest oak tree on campus, this pavilion offers the lowest level of stimulation for complete refuge from the daily bustle of campus life.

Users transition from the crowds of pedestrians on the sidewalk through the low-hanging tree branches into an intimate retreat, exclusively designed for individuals.

Cozy reclined wood-clad seating directs the user's gaze towards a skylight that frames the underside of the oak tree's canopy, allowing for moments of self-reflection and meditation.
pavilion 1

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<th>interaction</th>
<th>experience</th>
<th>enclosure</th>
<th>lighting</th>
<th>sound</th>
<th>materiality</th>
<th>color</th>
<th>texture</th>
<th>effects</th>
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<td>internalized</td>
<td>highly enclosed</td>
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<td>mute</td>
<td>wood</td>
<td>neutrals, white</td>
<td>soft; porous/textured</td>
<td>sound absorbent; comfortable</td>
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pavilion 3

Centrally and overtly positioned on Gibson Quad, this pavilion becomes part of students’ daily commutes to and from class, rather than a destination.

The pavilion opens up to engage the exterior context, inviting people to walk through on a covered path and connecting to the elements of nature for a more stimulating experience.

A special experience within the pavilion is reserved for rainy days when seated users gain a more private gathering spot behind a curtain of rainwater, which collects in a small retention basin below the path through the pavilion.
pavilion 3

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<th>color</th>
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<td>soft; hard but porous</td>
<td>comfortable; retains water</td>
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pavilion 5

As an integral part of facilitating social interaction on Gibson Quad, the largest pavilion is situated in an area most frequented by large quantities of students, from outdoor classes to people engaging in outdoor games and activities. Large enough to accommodate a group of 20 people, the pavilion is an open platform for inter-student connectivity, while also providing moments for individuals to rest and pass through. The vibrant interior material treatment enlivens the segment of the quad, encouraging higher levels of activity for healthier student users.
pavilion 5

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