

I have always been interested in how interactions with places can affect us, specifically through art. I am drawn to different artists and how they approach this question through their art. How can I evoke more emotion through a space? How do people respond to their environment? I studied the impact of sound, light, temperature, objects, and colors in a space. I am exploring this topic through my own art, by working in installation. Choosing installation art gives me the flexibility to work with multiple mediums. Through installation you can change a space into something entirely different. I will create a space that focuses on triggering the senses. We have a more impactful experience when all of our senses are stimulated. "We humans are inherently sympathetic to our environments" (Ernst Haeckle). By manipulating the senses to trigger emotion, I will create an installation that will enhance the overall experience of the viewer.

LIGHT

"Light is nature's way of transferring energy through space" (Bill Blair). Light is an electromagnetic radiation whose wavelength falls within the range to which the human retina responds. They respond to all the colors in the spectrum, from violet light to red light. The spectrum tells us there is no color without light. Each color in the spectrum has its own individual wavelength and reacts to certain color differently. For example, black light absorbs all of the colors in the visible spectrum, and doesn't reflect any, which is why it appears black. White light reflects all and absorbs none; that is why it is seen as white. If the three colors of light—red, blue, and green—were reflected onto a red surface, only the red would reflect. This is because the red surface absorbed the green and blue. When you mix equal amounts of all the three primary colors of light, you make white light. To make black you mix the three subtractive colors—cyan, magenta, and yellow. There are two different types of color mixing. Adding different color wavelengths together with a prism is called additive color mixing. Additive color mixing explains how the eye interprets light wavelengths in the perception of color. The other way of producing color mixtures is called subtractive color mixing. In subtractive color mixing, wavelengths are removed from a mix. Light defines color in a space. It can be used to enhance the colors through brighter mixtures, creating a more dramatic or lively scene; or, turn the scene more dark and ominous.

"Light creates ambiance and feel of a place, as well as the expression of a structure" (Le Corbusier). There is no good lighting without proper darkness. Without darkness, there is no light. We see light as something contrasted with darkness. The use of darkness wouldn't be as strong in my places, such as the Pantheon in Rome; the building is known for its use of light, by revealing a great hole in the center of the ceiling, light can be shown through. Light can create different moods; it can exaggerate objects, and give direction to a space (Robert T. Gonzalez). For example: in theatre, "down light" is used to create the illusion of depth, and can also be used to isolate one person from another. This is usually done with a spotlight. Ambient luminescence can do the opposite by dissolving all details, to give a comfortable and calming experience.

Light has been used to manipulate people's feelings and even physical health. The United States Library of Medicine is the world largest medical library. It is located in Bethesda Maryland. They use light therapy to help their patients get better. Light therapy has been used with a verity of medical illnesses, but there are two common ones. The first is seasonal affective

disorder (SAD), a type of depression that happens once a year, usually in the winter. Light therapy can use a special lamp with a very bright light that mimics light from the sun. The patient sits in front of the light box for thirty minutes each day; this is usually done in the morning to mimic the sunrise (Fred K. Berger). The other use of light therapy is Bili light. Bili light is a type of light therapy that is used to treat newborn jaundice. Jaundice is a yellow coloring of the skin and eyes caused by too much of a substance called bilirubin. The substance is created when the body gets new blood cells. Treatment involves shining fluorescent blue light on bare skin. A specific wavelength of blue light can break down bilirubin into a form that the body can dispose of through excretion (Neil K. Kaneshiro). We now know that by manipulating the amount of blue light put into an environment we can allow for someone to fall asleep, or stay awake. Blue light is used mostly as a stimulator; high amounts can give more energy to patients. By abruptly lowering the amount of blue light during the night, your body falls asleep much easier. This is because it affects the melatonin in the body, which is what helps one get to sleep, or wake up (R.M Hochella). The amount of brightness has a large effect on the mind. A bright space makes it easier to make sense of one's environment and increases coherence, making it a pleasant space.



In this painting, *Narcissus*, by Michelangelo Merisi Da Caravaggio, one can really

understand the way he controls light within his artwork. The choice to make the overall background dark really exposes the brightness in the figure. The brightness leads the viewer through the narrative. He guides us with the use of manipulating the figure in the reflection to appear significantly darker than the actual figure. Having the figure brightly lit and having a black background gives no room and appears to be disconnected with anyone other than himself. "He is encapsulated perfectly in the monomania of love" (Delilah Des Angels). The manipulation of light suggests the idea of "light as good" and "dark as bad." The bad and good in people is a widely known idea, just by the use of lighting, we can receive much more than what the narrative gives us. The darker figure gives off a much more unsettling mood, because of the amount of information the viewer is not able to see and because of the overall darkness in the character. The fact that the important features are highlighted gives a sense of realism. The knee in the paining stands out more than the hand, and although it isn't as important, it draws viewer's attention throughout the painting. The brightest part of the painting is the sleeve on his left arm. The brightness draws the viewer's attention toward the hand; this is about to fall into the water. Michelangelo leads the viewer's attention throughout the painting through his use of lighting. This creates a space that has darker messages about narcissism.

SPACE

Space is a continuous area or expanse that is free, available, or unoccupied. Humans have strong associations with spaces they're familiar with, like homes or churches. Places that people associate with happiness tend to be homes; we value a physical presence. Humans respond strongly to an environment, that feels threatening. This is why people pay so much attention to designing spaces that feel comfortable. We can manipulate space through design. This becomes a space which both a moment and process can be shared. Smaller or cluttered environments make people unsettled because of the lack of possible movement or escape; this can also make a more intimate environment. Large empty space can make people feel more calm, or alone. Loneliness can also be easily changed to sadness, or feelings of yearning.

Places affect more than one's mood; they can affect your overall health. This is because places determine what someone's exposed to. It determines what kind of physical or chemical agents you might be exposed to, or what kind of social environment you are in. Being in stressful environments, like a stressful job or unsafe neighborhood, causes major health issues. Too much stress can cause heart attacks, depression, and many other illnesses. Sometimes, we think of improving health by simply changing behaviors. But environments often limit the choice of the individuals.

"I may not know who I am, but I know where I from" (Wallace Stegner). Humans are attached to certain environments. This attachment is often considered to be both inherent and invariant in the human species. Architectural writers like Bloomer and Moore, claim this is because we equate buildings with the human body. We like to know which sides are the entrance and the exit, and where the roof and the ground are. Other writers think it's because of human evolution and the change of interaction with our environments. Some claim because humans were originally mammals and hominids that respond to place-specific stimuli, we prefer environments similar to those of critical evolutionary stages. Paul Shepard claims that the human visual preference for right angles is a result of our early hominid time spent in the trees; it reflects branch structure, as well as the critical need to distinguish between up, down, and

sideways. Shepard also sees the environment as a survival resource and an educational tool of human development (Robert B. Riley).



In this installation piece, *Blind Light*, by artist Antony Gormley, he completely transforms ideas about what a space can represent. By just filling a glass room with light and water vapor, he creates a space where you can completely lose sense of the environment around you. This piece takes away all of the distractions and surroundings, as well as yourself. "Upon entering, you lose all sense of direction, finding it nearly impossible to find the exit" (Sean Kelly Gallery). The only way to find the exit is to follow along the glass walls. The viewer becomes the viewed, by the people on the outside of the glass. By not being able to see anything but this white space, the viewer is forced to use other senses and really think about the environment they are in. The interactive aspect, of having other people in this same space as you but not being able to fully see them, gives a sense of mystery. The space features meditations on physical space and the mind capacity to stretch beyond its limits.

SOUND

Sound is a transfer of energy caused by any vibrating material. It is transmitted by longitudinal, or compressed waves. In order to travel, molecules like air or any physical transmitter must be present. The louder the noise, the bigger the wave. Low-pitched notes produce a low frequency soundwave, which also produces less waves per second, compared to high-pitched notes. The human hearing frequency range is between 14 Hz- 20,000 Hz. Anything below is an infrared sound, and above is ultrasound. Human ears work as sound waves funnel into the ear via the ear canal, which then hits the tympanic membrane (eardrum). Then, the compression and rarefaction of the wave puts the membrane into motion, causing the middle ear bones to move. The vibrations displace the basilar fluid in the cochlea, causing the Sterecilia to vibrate. The Sterecilia line the cochlea from base to apex; their stimulation gives indication of

the sound. The information is then gathered from hair cells and processed in the brain (Media collage). By being able to understand how the human ear works, people are able to manipulate sound to specifically affect the reaction of the person listening. Manipulating an individual is much easier than manipulating a large collection of people. This is because each person has a different tonal preference. We are able to hear a huge number of tones with different combinations. Humans tend to focus on a small amount of scales, around five or seven tones (Dr. Purves and Dr. Gill). This is why music usually uses the same scale. The tones are just used in different ways.

Tones do more than attract an individual. Certain soundwaves can have an effect on your emotional and physical state. Sound is always there; it provides an early warning system, an emotion driver. It changes how you respond to situations. By taking a single note of a sound and shifting it, people can change others' emotional state. Changing a well-known sound from minor to major can startle or shock the listener. Humans tend to associate the major scale as happy and the minor scale as sad. The reason we gravitate toward certain sounds is because of biology. Sounds we gravitate toward give us more information. For example, if someone is in nature, the sounds they would likely capture would be animal sounds and other human sounds. This is why we are mostly attracted to music with vocalization. "Rock is especially popular because it emphasizes the musical intervals whose frequency relationships are those we hear in the human speech" (Dr. Purves). Rock gives off upbeat vibes, different from classical, which is more calming. Manipulating tones in different ways is key to controlling the mood of a space.



<http://www.youtube.com/watch?v=sh1Av1a02Wo>

The amount of daily noise we hear is mostly blocked from our mind. This causes us to lose a lot of the information on the environments we are in. Artist Florian Hecker uses this to his advantage. He transforms an ordinary space into a variation of emotions, just through the use of sound. He makes us solely listen to the noises an empty room, which enhances the experience, and doesn't allow for distractions. He uses uncomfortable sounds, at loud levels, and can create either a comforting or disturbing environment at different times. By taking noises we usually associate with discomfort or pain, he can control the viewer's experience. He uses unfamiliar sound at a sharp high pitch to the sense of pain. He builds tension by gradually amplifying the amount of different noises he compiles together.

The sounds are exhilaratingly chaotic, highly processed, and consist of an unknown arrangement of tones. The listener is guided through four discrete explorations of different states of auditory perception. "In each work, Hacker deliberately disrupts or distorts the usual order of our listening experiences, constructing a series of events in which fixed points and final decisions about what is heard slip out of reach" (Christan Hale). He uses the effects of unknown sounds to peak our interests. We are attracted to noises that give us information. Through his work, he is presenting us with ideas that we want to listen to further to acquire more information. This makes the overall space interesting and attracting.

SMELL

Everything has a fragrance, and we smell fragrances through the molecules an object gives off. When molecules are released into the air we can pick up senses through a small patch of tissue in our noses called the olfactory membrane. Inside of the olfactory membrane are receptor cells; each cell is sensitive to a particular receptor cell. When the correct molecule goes into the matching receptor cell, it activates a nerve impulse, which connects to the brain. We are able to smell up to 10,000 scents. Smell is the sense mostly associated to our memory because it is tied into the limbic system. A favorite smell is most likely a smell from a happy memory from childhood. Everyone has their own unique smell, because we are covered with major histocompatibility complex, a set of cell surface molecules encoded by a large gene family in all vertebrates (MHC). We tend to be attracted to people or things that smell different than us. People associate smells differently based on memories. Most people associate the smell of chlorine with happiness. Though a person who might have almost drowned might associate the smell with panic or fear (Sarah Dowdey).



Artist Ann Hamilton incorporates scents into her installation pieces. This work, "Privation and Excesses" has several different aromas. The scent comes from; copper and honey that's faced by the gaze of three sheep, along with a seated figure, hands wringing over a hat filled with honey. The uncomfortable smell of copper, mixed with the overwhelming sweetness of honey, creates an uncomfortable and unpleasant environment. The sheep odor, clashes a very unpleasant natural scent with a materialized scent, which adds more discomfort, and makes a more impactful experience. Unpleasant smell adds to the unpleasant message of human biological and industrial reproduction and distribution of animals (Ben Blackwell). She uses very subtle undertones through scent to add to her less subtle overall message. This transforms the space to be more impactful.

COLOR

Light happens in a paper-thin cell in the back of your eye called the retina. In the retina there are two different types of cells: the rod and the cone. The rods helps with low light conditions, though there are three cone cells for red, green, and blue light. When you see a color that has any of the three major colors, it sends a signal to your brain, which then will interpret what color you're seeing. Say you see the color yellow; this means that your green and red cones are being activated and are sending waves to your brain, which together make the color yellow, When you are in low light, your retina is activated, and it only has one color, which is white or black (color or no color).

The color wheel shows the relationships between colors and which colors work well together. Complementary colors are colors on opposite side of the color wheel, like red and blue, or yellow and purple. Colors are also greatly associated with mood and emotions. Red tends to

be used for anger or passion, making it a much more vibrant color. Blue, on the other hand, is much more soothing and slower, which can make a more calming experience (Rob Sheppard). Each color has an emotional association that can be manipulated.

The mixture of colors is used by artists and companies to trigger human perception. For example, colors can appear different to the human eye as a result of the background color they are presented on. Color combinations can make objects look closer or farther away, larger or smaller, and enhance or distract the eye. For example, many bright colors are used to look pretty, but after time, can become tiresome or confusing to look at.



Artist Mark Rothko really shows the great use of contrasting colors. In this work, he is using complementary colors of red and blue, but by making them more deep and rich, it enhances the experience and makes the colors more vibrant. If he were to tone down the colors and make them more muted, the piece wouldn't be as great. The fact that he uses color on an emotional level is what is interesting. The colors in the painting blur after time. Though that is not the only intention to his work. He exploits the use of color, by having the viewer interact with the piece, standing in front of a painting for long amounts of time in silence. This brings the viewer into a transcendental state. This relates to a spiritual or nonphysical realm...going beyond the limits of ordinary experience. He accomplishes much more than that by manipulating colors to blend perfectly in his pieces.

MY WORK

In my piece, *Incurable*, I have created two corners of two rooms that are connected. In one room there are red and black walls that surround a mother figure; she is reaching for a bottle of alcohol. Next to it is a small child in a room of blue; she is pouring alcohol down a sink, in protest of the mother's actions. The use of color for the walls helps navigate the viewer's emotions. By having the red and black walls, the colors give off dark and angry connotations. The use of having glossy walls lets reflect more light off the walls, creating an uncomfortable and unnatural feeling towards the wallpaper. In the blue room, the walls are less glossy but are more hectic. The blue symbolizes sadness and disconnection from the environment around the child. The walls are hectic and confused, like the relationship towards the child's mother. The sound is an arrangement of noises that might have been heard throughout the space—the pouring of liquid, the static of an old TV, or the anger of a young girl. The sounds collide with each other to create an unsettling place that helps deliver my message. I used tones that clash to further exploit the chaotic space. The overall installation delivers a statement about alcoholism and what type of damage it can do.

CONCLUSION

I have explored how you can physically manipulate a space to change one's emotional state. This information is useful, in not only manipulating art, but lifestyle and health in general. Through my research I gained ways in which to activate different senses in the most impactful ways. I will further explore these topics in the future of my artwork. I hope to create a space that can be memorable and stimulate a person physically. I want to use subtle undertones in my work to manipulate emotions. The viewer can take in all of the experience without feeling controlled. I want to explore how to really push these ideas into a form where I no longer need narrative figures to represent my intentions.

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