HOW THE PROPERTIES OF COLOR EFFECT VISITOR EXPERIENCE IN AN EXHIBIT SPACE.

CREATIVE PROJECT
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# Table of Contents

Abstract .................................................................................................................. 3

Chapter 1

Introduction ............................................................................................................. 4
  Conceptual Framework ......................................................................................... 4
  Color Properties .................................................................................................. 4
  Exhibition Design ............................................................................................... 7
  Visitor Experience .............................................................................................. 11
  Research Goals .................................................................................................. 13
  Research Questions ............................................................................................ 14
  Creative Project Process ...................................................................................... 14

Chapter 2

Methodology .......................................................................................................... 20
  Data Collection .................................................................................................. 20
    Survey ............................................................................................................. 25
    Observation ..................................................................................................... 25
  Data Recording .................................................................................................. 26
    Survey ............................................................................................................. 26
    Observation ..................................................................................................... 26
  Validity ................................................................................................................ 26

Chapter 3

Results ..................................................................................................................... 27
  Findings .............................................................................................................. 27
    Knowledge of Color Theory ............................................................................. 27
    Style of Painting vs. Perception of Background Color .................................. 28
    What Color Property Attracts Us More Than the Other .............................. 30
  Discussion .......................................................................................................... 33
  Limitations .......................................................................................................... 35
  Conclusion .......................................................................................................... 35

References ............................................................................................................... 37

Appendix ................................................................................................................. 39

Figures ................................................................................................................... 40
Abstract

Colors have been proven to affect people emotionally first and secondly by the visual environment (Jalil et al, 2012). The effect of color is important in the influential power it has over people’s mood, behavior, and emotions. The power of color in art museums has the ability to enhance the art and transform the space. The study of color is such a complex area that there is still limited research on specific properties and effects. This creative project focuses on how visitors react to color properties affecting different styles of paintings in an exhibit space. By looking into the combination of how colors affect people emotionally and visually specifically in an exhibit environment, this project uncovers how different styles of art against varying color properties of orange can evoke specific preferences in the visitor.

Keywords: color properties, exhibition design, art museum, visitor experience, interior environment
Chapter 1

Introduction:

Color is an everyday element of our lives that becomes a subconscious concept the more we are exposed. Whether we are aware of or not, color relationships affect our behavior and emotions. The three basic properties of color; hue, value, and intensity/chroma, have intense power to influence color association. Variation of any of these properties could influence human behavior, emotion, or the functionality of a space. Jalil et al (2012) explains color has a subtle stimulation that highly affects human lives physically, psychologically, physiologically, and sociologically each and every day. It can be seen differently to every individual depending on how they perceive color. Each color’s hue, value, and intensity affect human mood in its own individual way creating unlimited possibilities of color perception.

Conceptual Framework:

The existing literature for this project surrounds topics such as the properties of color, exhibition/museum design, and visitor experience. The background color of a space especially in an art museum/gallery setting can often be overlooked because there are other elements that require more “focal” attention. Hugendubel (2010) explains that unless a particular color is in our home or an area we navigate daily, a wall color in public spaces often go unnoticed.

Color Properties: Behbahani (2011), states that color serves four main functions: 1) to catch attention, 2) hold attention, 3) convey information, and 4) make information memorable. Its function is determined how it is perceived in the space. As Josef Albers states, “In visual perception a color is almost never seen as it really is – as it physically is.” (as cited in Hornung, 2012, pg. 60) Color is a visual perception of light bouncing off objects, it is a relative term meaning color changes or interacts according to the relationship with its surroundings.
describes color having three basic properties which are hue, value, and chroma (intensity). These qualities, at any variation, can influence the awareness or behavior of a person. The perception of color also takes into account viewing distance and angle, type of ambient light, and all other surrounding colors. These factors can be altered, specified, or controlled according to the viewing conditions.

Every hue is organized in its own category which can range in saturation or intensity. The spectrum of colors contains an infinite number of hues, each one unique in wavelength (Hornung, 2012). The 12 hues are shown in Figure 1 as a wheel continuum. Our conception of each hue can shift on the spectrum according to our personal preference. Hornung (2012) uses an example explaining that one person’s concept of “pure blue” sky might be different on the hue spectrum that another’s. The blue hue zone in fact extends from blue green to blue violet so specifying just blue does not necessarily determine which end of the spectrum that blue hue is perceived.

![Hue Continuum](image)

**Figure 1**: Hue continuum divided into 12 hues (Hornung, 2012).

The value of a color is one of the most influential factors in space perception. Dark colors appear to reduce the size of a room but depending on the location of that color, it can be
perceived differently within the same space (Forrest, 2014). For example, a dark colored ceiling may seem oppressive but, on the floor, that same color can embody a sense of security and support. A light color in value can reflect light making the space appear larger and brighter (Forrest, 2014). The value continuum shown below in Figure 2 contains infinite variations ranging from dark to medium to light.

![Value Continuum](image)

**Figure 2: Value continuum (Hornung, 2012).**

Saturation, chroma, or intensity is described as the percentage of a hue in a color. (Behbahani, 2011) The intensity of a color distinguishes the purity of the hue. The intensity is the most difficult property to characterize since it is similar to the value of a color. The levels of intensity can create muted colors or gray versions of that particular hue. Figure 3 shows the hue/saturation color wheel and how the color become more muted the closer each one moves to the center.

![Hue/Saturation Color Wheel](image)

**Figure 3: Hue/saturation color wheel (Hornung, 2012).**
These color properties can alter the perception of a color to the human eye. Color symbolism is evident in how individuals associate color with different objects or even physical space (Kaya and Epps, 2004). For example, the color blue green can be associated with the sky or ocean causing a calming effect for the individual (Kaya and Epps, 2004). However, past experiences for a separate individual could cause an unsecure or negative feeling towards the same color. Lighter colors have been proven to be associated more with positive emotions and dark colors associated more with negative emotions (Kaya and Epps, 2004). This shows how each color property can have such an important influence on how humans perceive color.

This knowledge of color theory requires much more of an understanding about perception but also the way in which people interact with color and how it is incorporated into our daily lives and specific spaces.

**Exhibition Design:** Exhibition spaces can mean many things to many people. Art museums, galleries, and critique spaces are all considered exhibit spaces. Numerous factors are involved in the design of an exhibition space. Lighting, visitor circulation, layout, and color are all elements that are included in the strategic planning of an exhibit. The spatial atmosphere in which the art is displayed impacts the exhibition a great deal. The function and ideology of the art exhibit is a relatively new research topic that creates a more thorough evaluation where the actual exhibition acts as the medium (Cline, 2012).

A study was done in which observational methods focused on human visual quality towards artwork in a gallery exhibition (Wahab et al, 2013). The variables of visual performances and visual comfort were observed analyzed in three categories; space planning, luminance effect, and interior and material finishes (Wahab et al, 2013). This study proved that human visual quality should parallel the value of artworks and the physical space.
The style of art during a specific time period can often influence the use of the physical space in which that art is displayed. During the 1920s and 1930s, exhibition design in museums became a communication technique for mass media (Staniszewski, 2001). The 1920s avant-garde interest was described as the “total environment” according to Staniszewski. This concept integrated dynamic experiences in the interiors with the installations of the art. Alexander Dorner was an innovative curator who started creating “atmosphere rooms” (Staniszewski, 2001). These were intended to immerse the visitor in the specific era of art. Galleries containing Baroque style artwork were covered with red velvet and gold framed paintings to enhance the dramatic time period represented. Color schemes in the Rococo galleries were pink, gold, and white to harmonize with the ornate style of artwork. As shown in Figure 4, the hanging textiles created a sense of grandeur in the gallery space for this Renoir exhibit in 1920.

![Figure 4: Renoir exhibit established in 1920. (Gee, 2018).](image)

In the era of conceptual art in the 1960s and 1970s, the idea of presentation for the artwork started pushing boundaries (Cline, 2012). This created more creativity in means of exhibiting artwork but also more controversial works. The artwork started to become an
experience with theatrical components directly engaging with the viewers forcing them to really analyze the display (Cline, 2012). Since then art exhibits have become more diverse, unique, influential, and interactive.

During the 19th century, museums became more aware that they isolate artwork on walls to avoid overcrowding and visitors having to crane their necks (Cain, 2017). Placement of artwork began to appear more at eye level leaving the walls emptier and the color of the wall becoming more apparent in the space. Figures 5 and 6 show the evolution the National Gallery in London from a painting representation in the 1800s to a virtual look inside the Sainsbury Wing today in 2020. The distinction focused on the visitor’s comfort visually and physically than just stuffing artworks in one space, thus giving the appreciation to individual works of art.

![Figure 5: Painting representation of the first painting collection at the National Gallery in London in 1838.](image1)

![Figure 6: Virtual look at the National Gallery in London today.](image2)

In the later part of the 20th century, the White Cube concept, a style which emphasized the artwork focusing on the relationship between space and visitor became a popular form of exhibition design. This approach minimized visual distractions with the use of bare spaces, white walls, and minimalist frames (Rodini, 2019). Figure 7 shows a contemporary gallery space in
Chicago in 1990 which visualizes the white cube effect. The idea was that the artwork should speak for itself and impact the viewer without the surrounding distractions.

Figure 7: Gallery space at the Art Institute of Chicago in 1990 (Kaplan, 2017).

O’Doherty (1986) describes the White Cube concept as a place deprived of location, a concentration of mind preserving the possibility of art.

In 2012 an exhibit was done using technology and human presence to create a unique atmosphere within an interior space. *Rain Room* explores human interactions and nature with a constant rain filling a whole room while keeping the visitors dry (Chalcraft, 2012). Represented in Figure 8 this demonstrates the evolution that exhibition design has endured over the years to provide a more unique and interactive interior atmosphere for the artwork.
Designing an exhibit is a form of communication perceived differently to each visitor. The exhibition space becomes a space of experience for a specific audience. That space can be influential or unpleasant, the success of the exhibit depends on the visitor’s experience. The spatial attributes of lighting, visitor circulation, layout, and color are just as important as what is on display.

**Visitor Experience:** Exhibits are successful based on the visitor experience; visitors give museums a purpose and the design of the space influences the visitors throughout the exhibit space. When it comes to visitor experience it is best represented through patterns in which the visitors relate to the exhibits. Design of the exhibit can influence visitor flow, the level and quality of social interactions, visitor attention, and affective responses (Forrest, 2014). Wall color, organization of the artwork, and the direction in which the visitors are guided throughout the space are all factors that create the overall spatial atmosphere that influences a visitor’s mood or behavior (Forrest, 2014). These atmospheric variables include all contribute to the perception of the overall exhibition environment.
A key component when studying visitor behavior is to remember that museum exhibits are a place of learning. According to Forrest (2014) there are two main areas of research that involve visitor studies: what visitors do in the exhibition space and what visitors learn and experience in the exhibition space. A tracking and timing technique for studying this behavior can be used to determine the duration a visitor spends at an exhibit (Forrest, 2014). This technique determines the level of engagement the visitors give to the exhibition space. Kaplan (2017) states that different studies have determined that the average person spends about 15 to 30 seconds observing an art piece in a museum. This does not leave much time for the viewer to fully experience the work let alone the full exhibit space, thus navigation throughout an exhibition space is critical. Navigation can be determined by certain design cues such as accessibility, connection or separation among exhibitions, and sequencing and grouping of elements (Forrest, 2014). These factors play a significant role in the route visitors take within the museum, what they see, what they miss, and how the overall interpretive message of the space.

As quoted in Doering (1999), "Visitors make use of museums for their own purposes, and from varying perspectives. The museum can influence these outcomes but cannot control them" (p. 80).

Technology is another aspect of design that can increase the visitor experience within a space. Technology introduced in art museums, are making the visitor experience more immersive and interactive. For most visitors today this means mobile technology which can be utilized through Augmented Reality technology or AR. This type of technology connects the physical environment directly alongside computer stimulated virtual objects through a smartphone or tablet device (Ding, 2017). Museums are using this tool to adapt to the growing population of people on their mobile devices. A well-developed AR app today is ArtLens 2.0 by Cleveland
Museum of Art seen in Figure 9 (Ding, 2017). This app allows viewers to obtain knowledge of the displayed artworks in a unique and educational way. There are numerous features including a catalogue of artwork with detailed information on each piece as well as a wayfinding option for visitors to easily find their way throughout the space increasing the positive visitor experience (Ding, 2017).

The design of the exhibition and visitor experience play important roles in the exhibition spaces, as do the properties of color in the exhibition. However, given the survey of literature, there is limited research on the specifics of color properties in exhibition design and how these properties affect the visitors.

**Research Goals:**

Engaging color properties, exhibition design, and visitor experience is the purpose of this creative project to understand how color affects visitors in exhibit spaces by understanding the influence of atmospheric variables in the exhibit environment, specifically background color. Color contains such an unconscious emotion that is uncontainable however, color choice in a museum exhibition is a conscious decision. This research seeks to understand the relationship of
that color choice within the exhibit environment. The intention of the project is to explore the human reaction to different styles of paintings against each color property within an exhibit space. Through the physical exhibits I created, I am able to fully engage the viewer and comprehend their reactions.

**Research Questions:**

Originally this creative project sought to understand how much influence color has when designing an art exhibit; however, in a pilot study, the research question was discovered too broad due to the many elements that can provide color. Does the color of a space have the power to affect the artwork? Is there a certain value, intensity, or hue that attracts us more than the other? Throughout the project more questions started to arise; does the style of the painting in the exhibit effect the perception of colors within the space? Ultimately, the research question was refined, and this creative project seeks to understand, how do the properties of color affect visitor experience in an exhibit space?

**Creative Project Process:**

To determine how the properties of color affect visitor experience in an art gallery space, an exhibit prototype was set up. The exhibit space is located on the second floor of the art and design building on Mount St. Joseph University’s campus in Cincinnati, Ohio. The second floor is where a majority of the classrooms are located as well as the faculty offices, and the walls are usually filled with student projects. The classrooms hold graphic design, painting, and drawing students, freshman through senior have a class on the second floor.

Figures 10 and 11 show the space where the exhibit was eventually installed. The neutral background and existing pin-up space afforded the ideal location for the prototype exhibit. The
lighting creates an even consistent light with the use of angled fluorescent fixtures. Therefore, acceptable as a sufficient exhibit space for this creative project.

Figure 10: The gallery space before anything is installed.  
Figure 11: The lights create an even consistent light against the wall.  

Upon review of the space, the decision was made to utilize the corkboard like walls and pin different colored fabrics against it to act as the background colors. The plan was to hang different colored pieces of fabric to act as the background colors for the paintings that would hang in front. With the help of the gallery director, I pinned 6’x4’ pieces of fabric on the wall with T-pins which is demonstrated in Figure 12. After hanging the fabric, I realized there was too much excess wall space and the exhibits were not being represented individually as intended. The hanging fabric was unprofessional, temporary, and did not provide that professional exhibit needed to conduct this study.
After much deliberation about how to construct a professional exhibit space without distraction from other surroundings, I settled on building three separate exhibits that could stand as their own. This way each color has its own environment and gallery space. The constructing process involved building tri-fold exhibit spaces with 6 ½’ tall pieces of plywood. The middle panel is 4’ wide and each side panel is 2’ to create an exhibit engulfed with each wall color. After sanding and priming each piece of plywood, I painted all nine pieces of wood with the hue, intensity, and value of orange. Each one also contains six hinges in order to fold them. Figures 13 – 19 show the process of constructing the tri-fold exhibits.
Figure 13: Sanding the wood was the first step to create a smooth surface.

Figure 14: Next was priming each piece so the color would stay on the surface of the wood.

Figure 15: All the pieces drying from the primer.

Figure 16: Painting the color after the primer was dry.

Figure 17: The bright orange hue drying after the second coat.

Figure 18: Installing three hinges down the middle after the paint is dry to create the folding exhibit.
Three tri fold exhibits were constructed, and three distinct colors selected. A monochromatic scheme, using variations of orange was selected. The paint colors were chosen from an assortment of color-aid sheets, as shown above in Figures 20 – 24, and taken to a
hardware store to be individually mixed according to the cards. The bright orange hue (Figure 20) was selected because of its bold saturation and attention-grabbing capabilities. The warm orange color was chosen intentionally because according to Bailey et al. (2006), warm colors tend to appear nearer in depth to the viewer so this would encourage the focus of the experiment to be the wall color rather than solely on the painting. This is due to the theory that the eye can adjust quicker to warm colors because of the longer wavelengths (Bailey et al. 2006). The intensity (Figure 21) is a toned down or muted version of the orange hue which causes the saturation to decrease. The value (Figure 22) is a lighter version of the hue which happens when white is added to a color. After each exhibit was built and painted; they were transported to the gallery space to be set up (as seen in Figure 23).

Figure 20: Orange hue  
Figure 21: Orange intensity  
Figure 22: Orange value
Figure 23: All three exhibits set up before the paintings were hung.

Chapter 2
Methodology

Data Collection

The prototype exhibit was setup for two weeks; one week for a well-known traditional painting and one weeklong for a contemporary abstract piece of art. These two particular styles of art were chosen because of their distinct features. A van Gogh painting (Figure 24), in which many recognize, is in the style of Impressionism which revolves more around an abstract visualization of a particular subject matter. A contemporary art piece (Figure 29) takes that one step farther with a completely geometric abstract image. The color palettes of both paintings
remained similar so that only the style of the artwork was a factor in visitor experience not the color of the artwork itself.

For the first week, van Gogh’s painting, “Wheatfield with Cypresses”, shown in Figure 24, was hung in each exhibit. This famous artist was chosen because of its familiarity to most audiences especially in a setting of art students and faculty. This way the focus in the exhibit was less on the artwork and more about the relationship between the wall color and the artwork. The particular painting was selected due to the balance of warm and cool colors again to give the majority of the focus on the wall color without having too much one area of the painting stand out. Figures 25 – 28 show all three exhibit spaces set up in the given gallery space with the single painting hanging in each. Figure 25 demonstrates how the exhibit space was set up before it was decided to switch the order to value, intensity, then hue to ease the viewer into the exhibit. Only one piece of art was decided upon avoid connecting multiple paintings together as a series which could distract from the main objective.

Figure 24: “Wheatfield with Cypresses” by Vincent van Gogh (1889)
Figure 25: First week of the experiment with all three exhibits set up before they were switched to the order value, intensity, then hue.

Figure 26: Labeled the “first exhibit” in the survey, the value of orange.

Figure 27: Labeled the “second exhibit” in the survey, the intensity of orange.

Figure 28: Labeled the “third exhibit” in the survey, the hue of orange.
During the second week of the experiment another set of paintings were hung in each exhibit space. An original contemporary painting, each hand painted by the author of this study, was hung to inquire if the style of art in the space affected the visitor experience via color. The size (12”x16”), orientation (landscape), and color palette of my painting remained the same so that there was consistency throughout the study.

For the contemporary painting, colors were taken from van Gogh’s “Wheatfield with Cypresses” painting in order to create a similar color palette. The initial design layout and color scheme was created in Illustrator and then mapped out on each canvas with tape. Figure 30 shows the original Illustrator design. After the design was mapped out, acrylic paints were mixed, and each canvas was hand painted in the same layout as the digital file. Figures 30 – 33 displays the three contemporary paintings in the exhibit spaces.

Figure 29: Layout design of my contemporary painting done in Illustrator.
Figure 30: The second week of the experiment featuring my original contemporary painting.
The collection of data involved a survey for participants of the study as well as an onsite observation. Before any of this was done, an initial literature review directed research into topics like color theory, museum design, and visitor experience.

**Survey:** There were 14 questions composed in the survey represented in Appendix A. Demographic questions, close-ended, Likert scale, and multiple choice were all the different types of survey questions utilized for this particular survey. The goal of these questions was to figure out which exhibit was most preferred and least preferred during each week of the experiment. I wanted to see if age or level of color theory knowledge was also a factor in determining how the individual responded. The survey was the same for both weeks of the experiment.

**Observation:** A junior level class in the art and design department held a class discussion near the exhibit, level of color theory knowledge and specific area of study was completely unknown to me. It occurred during the second week of the experiment so that they were able to compare both the van Gogh painting as well as the contemporary style painting. This observation
was done during an Advanced Drawing class where only two of the five students normally in the class were in attendance. At first, they were tentative, not really into the discussion, but the professor was persistent with some starting topic points. After a while we all sat on the ground in front of the exhibit discussing different points about each one.

**Data Recording:**

**Survey:** The survey questions were created through a website called, Zoho Survey. The questions are a series of multiple-choice questions created specifically with the student and faculty audience in mind. Then a QR code was generated so that the participants could scan it with their phone to access the survey as they walked throughout the space. I was the only one that had access to the results on the website which were organized in graph and chart images.

**Observation:** The observation was done during an Advanced Drawing class. During the observation I stood in the background letting the students and teacher discuss their opinions about the exhibits. I took written notes on how they examined each exhibit and what their preferences were which were later compared to the survey results.

**Validity:**

The triangulation of multiple sources improved the validity of my research. Mixed methods of data collection were used to ensure a correlation of data through a literature review, observation, discussion, and surveys. The exhibition was set up for a period of two weeks, in that time the survey was being utilized and an observation took place along with a class discussion. All of these methods of data collection were combined to determine the results of the study. The biggest issues of validity in my research came from the class discussion in which there were only two student participants and it only took place during the second week. Having more participants
and a discussion every week to compare the student’s thoughts on each painting would have strengthen the data.

Chapter 3

Results

Findings:

This chapter highlights the results from the creative project study. There was a total of 32 participants in the first week survey, 20 in the second week survey, 15 students in the observation, and 2 students in the discussion portion of the observation. This provided enough information to correlate a few themes that when combined with the literature, help to emphasize the purpose of the study.

Knowledge of Color Theory: One of the questions in the survey, how much do you know about color and its properties, was asked to figure out the basis of color knowledge from the participants. The collected data from this particular question was then cross referenced with other questions in the survey to determine if there was a correlation in the viewer’s choices. The graphed data confirms that having a substantial amount of color theory knowledge, or none at all, does not affect that viewers opinion on the exhibit that attracts them the most or the least. During both weeks of the experiment, it was proven that the level of color theory knowledge did not determine which exhibit the participants would be most or least attracted to.

Figure 34 contains data from two questions; “Which exhibit attracts you the least and How much do you know about color and its properties?” The chart demonstrates how the majority of participants in the first survey voted that the third (hue) exhibit was their least favorite and a majority of those participants considered themselves to know an adequate amount about color theory. However, the other two exhibits received marks from participants that
indicate similarly on their knowledge of color theory. This proves that the level of color theory knowledge does not correlate how the viewer feels about the exhibit.

Figure 34: Correlation of two survey questions regarding color theory knowledge and least attractive exhibit.

**Style of Painting vs. Perception of Background Color:** From the survey it was determined that the exhibit that least attracted the viewers was the third exhibit or the hue orange. Based on both weeks of the study, a majority of the participants would not likely return to an exhibit of this wall color. The graphs below (Figures 35 and 36) represent survey results from each week asking if the wall color from the exhibit they were least attracted to takes away from the actual artwork. From the results it can be concluded that the background color of the
third exhibit was found to be too distracting for the viewers causing the color to be more prominent than the actual artwork. The two graphs side by side also demonstrates that the style of painting in the exhibit does not necessarily affect the perception of colors within the space. In both weeks, the color of the second exhibit (intensity) was found not to take away from the actual artwork by a majority vote. The first (value) and third (hue) colors were said to take away from the artwork by the participants. A prediction was made that the third exhibit with the bold hue color would appeal more to the contemporary painting style than the van Gogh, however, the survey results show that this is not the case.

Figure 35: Results from survey 1 comparing questions; which exhibit attracts you the least and do you feel the wall color of that exhibit takes away from the actual artwork?

Figure 36: Results from survey 2 comparing questions; which exhibit attracts you the least and do you feel the wall color of that exhibit takes away from the actual artwork?
**What Color Property Attracts More Than the Other:** The second survey received only 20 participants but with some changes to the initial predictions. The second exhibit (intensity) still turned out to be the most preferred exhibit with 50% of responses in favor. Only 5% answered that they were very likely to return to an exhibit with the orange hue background color paired with the contemporary painting. During the same week, 55% of viewers felt overwhelmed by the exhibit while only 15% felt captivated or indifferent. The bar chart shown in Figure 37 expresses that during the first week’s survey, a majority of people reported feeling distracted, overwhelmed, or anxious in this exhibit. The orange hue was so overwhelming and distracting that it was universally the least appealing exhibit with 84% in the first week and 65% in the second week agreeing.
Figure 37: Bar chart results referring to the survey question, “when stepping into the third exhibit, how does it make you feel?”

Figures 38 and 39 represent how the participants felt when stepping into the first exhibit during each week of the experiment. It is shown that the first week with the van Gogh painting, the first exhibit was seen as calm and captivating by over half the respondents. During the second week with the contemporary painting, the reactions vary with calm still receiving a majority but indifferent closely behind. It could then be concluded that the first exhibit with the value of orange became less captivating and more overwhelming when the contemporary painting was hanging in front.
A higher percentage of viewers also stated that they would more likely return to the first week exhibit than the second week with the value of orange as the background. This exhibit showcasing the value of orange contains the most drastic changes in data collection from week to week out of all the exhibits. The results from the other two exhibits had very similar reactions each week but this exhibit has a much different range in responses.

Figure 38: Bar chart representing the survey question, “when stepping into the first exhibit, how does it make you feel” from the first week.

Figure 39: Bar chart representing the survey question, “when stepping into the first exhibit, how does it make you feel” from the second week.

The second exhibit, the intensity, seemed to be the all-around most popular exhibit to return to from both weeks of the experiment. Below (Figures 40 and 41) shows the survey results
from both surveys asking how likely it is the visitor would return to an exhibit of this wall color. In the first survey with the van Gogh painting, 21 of the 32 respondents reacted with either a 1 or 2 on the Likert scale, this is about 66%, meaning they would most likely return to an exhibit with this wall color. In the second week, with the contemporary painting, 13 of the 20 respondents or 65% reacted the same way toward the second exhibit. With these numbers, the second exhibit is consistently the exhibit visitors are more likely to return to than the others no matter what painting hangs in front.

After calculating all of the results, it was found that the exhibit that viewers were most drawn to during both weeks of the study was the second one the intensity of orange. This was the exhibit that participants were most likely to return to no matter which painting hung in front.
Among the 32 students, staff, and faculty that participated in the first survey, 50% preferred the second exhibit, the intensity of orange. This coincides with the predictions made regarding the third exhibit.

**Discussion:**

A majority of the student discussion revolved around the third exhibit or the hue color probably due to its intense boldness. One student indicated that the style of painting did not affect their feelings toward the wall color, the hue orange was still distracting. The other student stated the hue did not seem as harsh as it did when paired with the van Gogh. When I asked the question what color palette the painting should be in order to feel more appropriate to the hue of orange, I received mixed answers. One student said the colors should be more saturated and bolder to go with the contemporary feel of the bold orange. Yet another wanted the colors to be more muted and neutral so that orange wasn’t so overbearing in the exhibit. These discussion points brought up were not entirely predicted but introduced interesting topics for future research.

The aim of this research was to explore how specific color properties affect visitor experience in an exhibit space. Through the findings it was discovered that a majority of participants would return to the intensity color property of orange in the second exhibit, regardless of what painting was hanging in front possibly because they were more captivated by the wall color and it made them feel calmer. This suggests that perhaps the toned-down version of the orange color is what makes the visitors feel more comfortable in the exhibit versus the boldness or lightness of the orange color in the other exhibits. This bright, bold orange hue was chosen purposely to cause an extreme reaction from the viewer. Going from such a subtle light orange, almost yellow exhibit, to a vibrant orange exhibit produces the most genuine reactions
from the viewers. The bold orange is almost an unexpected exhibit that causes the visitor to really ponder the colors of the exhibits. Utilizing a color from the cool side of the spectrum could produce a completely different set of results. Typically, cool shades appear lighter than warmer colors and tend to recede into the background. This type of study can help designers determine the exact hue, intensity, and value of a background color in an exhibit setting.

Limitations:

The biggest limitation of my study includes the uneven amount of participants in both surveys. One week had 32 and the second week had 20, this creates a lack of correlation in the data collection. The evidence would have been more solid if there was the same number of participants in each survey. There were also several participants that skipped certain questions during the first survey which makes it challenging to record an accurate number of responses.

Only having two participants in the class discussion also limited the feedback I received on the exhibits. If the study was expanded, I would have a wider audience for a discussion, different age groups and more than one discussion that way I had broader range of data to configure correlations.

Additionally, since I was the contemporary artist in this experiment it would be more ideal to have a different artist participant that way the study can benefit them as an artist as well. By observing how gallery viewers react to your artwork in this environment, the artist can become more aware of their own color choices and even provide opinions when the designer is creating the exhibit.

Conclusion:

Seeking to understand how the properties of color affect visitor experience in an exhibit space, three tri-fold exhibits were constructed and painted with three distinct colors and placed in
a well-known pin-up/exhibition space in an art college for two weeks. The first week of the experiment a famous Post-Impressionist painting by Vincent van Gogh, “Wheatfield with Cypresses” (1889) was hung inside each of the tri-fold displays. The second week featured contemporary abstract style painting using a similar color palette to van Gogh’s painting and placed in each display.

Through the engagement color properties, exhibition design, and visitor experience, the purpose of this creative endeavor was to determine if the style of art hanging in the exhibit affected the response to the wall colors. The prediction was that the contemporary style painting would appeal more to the bright hue of orange instead of the van Gogh painting. The size, orientation, and color palette of the paintings remained the same so that those factors would not sway the viewers. The prediction was that perhaps the colors of the artwork is not what influences the visitor experience, but the style of artwork paired with the color of the space.

Findings reveal that the style of painting did not entirely affect the reaction to the color property. The orange intensity exhibit was the exhibit most attracted to no matter the art style, placed within. Bringing understanding to the research question, “how do the properties of color affect visitor experience in an exhibit space?”, this creative project concludes that the overall color of an exhibit is more than just a painted wall, it creates a feeling that determines whether visitors will return or not. The style of the artwork is a factor that creates this feeling but so is the color properties of the actual interior space.

Future studies will involve the use of a cool color combination in the tri-fold space instead of a warm color combination, using the same two paintings from this project to note the differences in how the visitors feel. Additional research will then study paintings with more of a variation in color palettes and styles (on both the warm and cool tri-folds) to determine if a
certain color properties does in fact affect visitor experience within an artistic environment more or less.
References:


Appendix A:

Properties of Color in an Art Gallery

1. Are you a student, faculty, or staff?
   ○ student  ○ faculty  ○ staff

2. What year are you?
   ○ freshman  ○ sophomore  ○ junior
   ○ senior  ○ graduate

3. Are you a part of the art & design department?
   ○ yes  ○ no

4. To which academic department do you belong?

5. How much do you know about color and its properties?
   a great deal  nothing
   1  2  3  4  5

6. When stepping into the first exhibit, how does it make you feel?
   ○ overwhelmed  ○ calm  ○ anxious
   ○ captivated  ○ indifferent  ○ distracted

7. How likely are you to return to an exhibit with this wall color?
   very likely  not at all
   1  2  3  4  5

8. When stepping into the second exhibit, how does it make you feel?
   ○ overwhelmed  ○ calm  ○ anxious
   ○ captivated  ○ indifferent  ○ distracted

9. How likely are you to return to an exhibit with this wall color?
   very likely  not at all
   1  2  3  4  5

10. When stepping into the third exhibit, how does it make you feel?
    ○ overwhelmed  ○ calm  ○ anxious
       ○ captivated  ○ indifferent  ○ distracted

11. How likely are you to return to an exhibit with this wall color?
    very likely  not at all
    1  2  3  4  5

12. Which exhibit attracts you the most?
    ○ 1  ○ 2  ○ 3

13. Which exhibit attracts you the least?
    ○ 1  ○ 2  ○ 3

14. Do you feel the wall color of that exhibit takes away from the actual artwork?
    ○ yes  ○ no
Figure 1:

Hue continuum divided into 12 colors (Hornung, 2012).

Figure 2:

Value continuum (Hornung, 2012).

Figure 3:

Hue/saturation color wheel (Hornung, 2012).
Figure 4:

Renoir exhibit from 1920 in Paris, France (Gee, 2018).

Figure 5:

Painting representation of the first painting collection at the National Gallery in London in 1838.

https://www.nationalgallery.org.uk/about-us/history/about-the-building
Figure 6:

Virtual look inside the Sainsbury Gallery at the National Gallery in London.

https://www.nationalgallery.org.uk/visiting/virtual-tours/sainsbury-wing-vr-tour

Figure 7:

*Rain Room* installation in London (Chalcraft, 2012).
Figure 8:

Gallery space at the Art Institute of Chicago in 1990 (Kaplan, 2017).

Figure 9:

Example of AR technology with the ArtLens 2.0 app in the Cleveland Museum of Art

https://www.clevelandart.org/artlens-gallery/artlens-app
Figure 25: “Wheatfield with Cypresses” by Vincent van Gogh in 1889 (Gombrich, 2016)