

UNPACKING SPATIAL NARRATIVES: UNIVERSAL MUSEUM DESIGN

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The Undersigned Committee Approves the Project Report Titled
UNPACKING SPATIAL NARRATIVES: UNIVERSAL MUSEUM DESIGN

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Abstract

Some of the most valuable assets for encouraging curiosity in STEM include hands-on and immersive learning experiences. Science centers such as The Tech Interactive devote their energy to creating space that allows for children and families to “hang out, mess around, and geek out,” a concept they refer to fondly as HOMAGO. Public cultural institutions such as science centers, museums, etc., are often simultaneously reflective of the region where they reside. This becomes problematic in an area dominated by technology, yet the industry’s demographics are disproportionate compared to the population. In this study, I evaluate the spatial narrative of The Tech Interactive’s current lobby space to provide insight for future renovation with the goal of identifying what elements contribute to a welcoming and inclusive environment to encourage more interaction and learning opportunities.

Acknowledgements

I would first like to thank my parents, Taras and Corinne, for supporting me through my educational journey and for equipping me with the skillsets I would need for success. It is because of them that I became the inquisitive person I am today and because of them that I had this unique opportunity.

A special thanks to the San Jose University Anthropology Department for their ongoing mentorship. I would specifically like to thank Dr. Jennifer Anderson for initiating some needed self-discovery and starting me on my journey as an undergraduate. Dr. Anderson was one of the first professors who not only encouraged passion in our work but exemplified it daily. I would also like to thank Dr. John Marlovits for encouraging me to keep chasing curiosity and to enjoy when things get challenging as it often leads to discovery. Finally, I would like to thank Dr. Melissa Beresford for her invaluable mentorship and friendship. There are no words to express my gratitude for the apprenticeship experience – it has been magic.

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CHAPTER 1

DISNEYLAND, IMMERSIVE EDUCATION, AND HUMAN CENTERED DESIGN

Introduction

The Happiest Place on Earth

Experience based learning is becoming more and more common especially with leading science centers such as the San Francisco Exploratorium, the San Francisco Academy of Sciences, and the Monterey Bay Aquarium. Facilities like this aim to educate through immersive activities that provide real life experiences in otherwise niche situations. However, immersive education is not always readily available to everyone and often is perceived as being inaccessible; especially in an area that is both expensive and largely dominated by white men in tech. Public cultural institutions such as museums and science centers lose purpose if the general population does not feel comfortable or experiences real (or perceived) barriers when walking through the front door.

Sparing the details of what could only be described as the longest, hottest journey ever on the I-5, visiting Disneyland started the basis of what would become this project. While in line in the late-August heat, we would look up the history of each ride, top facts, the historical inspiration, and any information we could soak up which immensely added to our experience. In doing so, a mad obsession erupted over how design impacts people. Each line is intentional, each trashcan is perfectly placed, right down to the paint color. Every ride is rich with history and tells a story as it weaves the real and the mythical. Disneyland is the living history of Walt Disney and life in LA during the mid-century; it also shares perceptions of the era and flavors of outside locations that may not be readily accessible (like the Swiss Alps).

Back in the Bay Area, our region is so deeply rooted in technology that museums and cultural institutions that capitalize on Silicon Valley's technological history, such as The Tech Interactive, are not unlike Disneyland. They create a semiotically-dense and narratively-saturated environment that, consciously or not, conveys forms of knowledge, value, and identity central to interlinked ethnic, economic, and technological dynamics of the region. Donna Haraway notes the intersectionality within public cultural space as she describes the Museum of Natural History in New York City. She writes, "The building presents itself in many visible faces. It is at once a Greek temple, a bank, a scientific research institution, a popular museum, a neoclassical theatre" (Haraway 1984, 21). Similarly, The Tech Interactive in San Jose, California is a science center, a historically significant building, home to an IMAX Dome theater, event space, and currently features a partnership with Body Worlds. Within the science center, visitors experience a taste of Silicon Valley as they get to experience each of the activities the space has to offer – some of which even feel like theme park rides. But what happens when the environment imposes a narrative or spatial identity that does not match the people the institution wants to reach?

Partnership

Applying the Theme Park Mindset

The Tech Interactive is an experience-based science center in San Jose, California. Their goal is to educate the public in STEM in an immersive space that allows children and families time to explore different topics and activities. When I applied to SJSU's MA Anthropology program, I was set on applying my theme park mindset in some way – that is, understanding a space as a reflection of the region and its culture as it simultaneously imposes

other knowledge. After describing my interests to Graduate Coordinator, Dr. A.J. Faas, he provided me with feasible, community partner options where I could apply myself without giving up my spark for design. Some of these options included: The Winchester Mystery House, The Rosicrucian Egyptian Museum, and The Tech Interactive. All of his suggestions were appealing and he had direct connections to The Tech Interactive which he recommended to me as the “best fit” option. Promptly, we set up Zoom meetings to see if The Tech could utilize a graduate student partnership and if I would be able to apply my interest in design to something of value for them.

The Tech Interactive

In the heart of Downtown San Jose, California, there lives a bright orange and purple building amongst the glass business buildings and the repurposed historical properties; just barely a block from the old Sainte Claire (now The Westin) hotel. Designed by Mexican architect Ricardo Legorreta, The Tech Interactive stands out vividly against the downtown cityscape. Inside, visitors find a family-oriented science and technology center that prioritizes hands-on activities and experiences to promote learning. The Tech Interactive’s main goal: to inspire the innovator in everyone (The Tech Interactive 2022).

As Silicon Valley’s involvement in tech grew from the first tech “start-ups” back in the early 1940’s to being the center of technological innovation by the late 1970’s, The Tech began as a simple garage in 1990 on San Carlos Street. Proposed by The Junior League of Palo Alto and The Junior League of San Jose, the idea was to educate the children on what technology was in development in a hands-on manner. It proved to be a valuable teaching resource and eventually moved to the permanent building where it currently resides (The Tech Interactive

2022). The Tech Interactive's history of engaging children's education in technology and highlighting regional innovators makes its engagement with diversity and inclusivity vital for building a multicultural and universally welcoming future.

I recall visiting the science center back when I was in elementary school – a typical field trip for young students here locally. My top memories of The Tech (then, the San Jose Tech Museum) included the Rube-Goldberg-like ball machine that exists on the facade of the building (currently blocked by city construction) and experiencing an earthquake simulator that allowed visitors to feel different levels of movement, the magnitude of significant historical earthquakes such as the famous 1989 Loma Prieta quake. Since my time in elementary school, The Tech Interactive has changed and the earthquake simulator is no longer an active exhibit, but they have incorporated new and improved activities and exhibits that still awaken the innovator within. I was excited about the potential partnership and the opportunity to contribute to a place that emphasized the fun in learning while using experienced based methods.

The Inclusive Research & Development Team

Dr. Faas introduced me to Prinda Wanakule, Senior Director of the Inclusive Research and Design team at The Tech. Once we confirmed our interests were aligned, Prinda introduced me to Lisa Incatasciato, Inclusive Research & Development Project Manager. Prinda and Lisa were kind enough to arrange for me to act as an intern on the team and participate in a community listening workshop where we interviewed local people and brought back what we learned about how The Tech Interactive could better support the local community. Between the workshop and meetings with Lisa and Prinda, it came to my attention that The Tech

Interactive is undergoing a rather large-scale remodel project over the course of the next few years and they are interested in re-imagining their lobby space to better support guests. It was also brought to my attention that The Tech Interactive is experiencing an imbalanced demographic in visitation. Prinda and Lisa identified to me that after conducting a study on visitor demographics, they found that they have fewer guests who identify as being part of the Hispanic/Latine/x, LGBTQ+, and Vietnamese groups. Historically, minority demographics have been underrepresented in STEM and business (Gascoigne 2022; Apple 2021; Amazon 2021; Google 2021; McIntyre 2021; Williams 2021) and this is something The Tech Interactive strives to change by exposing the public to STEM in an exciting way.

Keeping the idea of community listening in mind, I created a project that would incorporate community listening/co-creation and design in order to inform the renovation for The Tech's lobby space. Between three different (and sometimes overlapping) demographics, I thought the best course of action was to run focus group sessions to identify what constitutes a space of welcoming and inclusivity. In defining what makes a space inclusive, I would be able to make sound design suggestions to the Inclusive Research & Development team in regards to their public space.

A Qualitative Approach

I wanted to keep the methodology for this project extremely precise and straight to the point. When I took a qualitative methods course with Dr. Melissa Beresford, I was subjected to exactly the right literature and tools I needed in order to conduct this study both properly and effectively. Dr. Beresford was a vital asset and the final key in guiding me through

understanding best courses of action, sample sizing, and overall, how to collect, store, and analyze qualitative data in an efficient manner.

Problem Statement

Silicon Valley is known for its diverse demographics and innovation in technology. Unfortunately, the diversity of the area is not represented or reflected in the tech industry. Over the years there have been studies completed surrounding prominent tech regions that express marginalization and lack of diversity in the STEM industry (Amrute 2020; Tsing 1994). Since at least 2020, there has been rising awareness to the disproportionate demographics. Silicon Valley boasts diverse demographics, yet the big five – Facebook (Meta), Google, Apple, Microsoft, and Amazon report rather low and disappointing statistics compared to the population of the area (Gascoigne 2022; Apple 2021; Amazon 2021; Google 2021; McIntyre 2021; Williams 2021). From these reports, it is clear that the industry is largely dominated by white male employees.

For Downtown San Jose, The Tech has identified some of these marginalized groups as including LGBTQ+, Spanish-speaking, and Vietnamese communities. Creating diverse and inclusive learning experiences for children is vital as there is a well-documented lack of diversity in STEM in the U.S (Douglas 2017) and certain ages have proven to be pivotal in science education. Further, studies show that diversity and inclusiveness impact student experiences as well as their success and persistence in a program – especially STEM. In predominantly white climates, students who do not identify as white often experience alienation and isolation (McCoy 2014; Suarez-Balcazar et al. 2003; Winkle Wagner 2009; Winkle Wagner and McCoy 2018).

Currently, there is a limited amount of current anthropological study completed surrounding a community co-creation model to address what spatial elements foster connections and belonging, particularly for public cultural institutions. There have been efforts made to co-create with communities and understand similar topics such as the relationship between gender and STEM (Low 2020), but few to identify what design elements specifically constitute a public space of welcome and inclusion. The Inclusive Research and Development Team at The Tech Interactive has concluded from previous community listening projects that they can better tailor their public space to the community's needs as well as create a more welcoming/inclusive environment through co-creation. Additionally, this project identifies what constitutes an inclusive space in the Downtown San Jose setting that may be used by other institutions.

Literature Review

Design Anthropology

Whether we notice it or not, design has a large impact on us and our actions and behaviors. The design of a space can single-handedly move a person around a space and instill a positive or negative feeling. Examples of this surround us in daily life from fun activities we may partake in to tasks such as going to the grocery store. If you have ever walked through Ikea or a strategically built environment such as a casino or stadium, you have definitely experienced this. Critical design is a thought to material application of developing an ideal space (Escobar 2018, 206). Imagining an ideal space with the community to better understand how to make it a reality is step one in approaching the topic of inclusive design (Escobar 2018). In the context of this project, imagining an inclusive lobby space directly with minority

community members should yield results that better define what elements comprise inclusive and welcoming design.

Lindley, Sharma, and Potts (2014) use anticipatory ethnography to understand how the audience perceives the ideal design and its overall content in order to operationalize critical design. Further, understanding user ecosystems, as studied by Youngblood and Chesluk (2020), have positive impacts on design and accessibility. They describe user ecosystems as stakeholders, direct, and indirect users of a product or service and how they interact. They use the example of meeting with riders, passengers, and pedestrians to “envision future states of scooter services” (Youngblood and Chesluk 2020, 34). The Tech Interactive has clear design objectives, and understanding their user ecosystem with its direct and indirect users will better inform design updates and contribute to an elevated experience.

Human Centered Design

Human or user centered design can be used to identify what factors are contributing to a positive or negative user experience. A similar study recently completed by Mine Koyaz and Aslihan Ünlü assessed the relationship between users and façade design. Results of this study revealed the effects of environment and perception, and how design affected the user in terms of comfort and satisfaction (Koyaz and Ünlü 2020). While this study surrounds the topic of adaptive façades, it can easily be applied to other user experience environments as it demonstrates a relationship between comfortability and human perception. Because there is in fact a relationship between comfortability and user experience, environment may also have an impact on whether or not someone feels welcomed and represented at an institution such as The Tech Interactive, or any other public building space. Keeping this in mind, it would be

best to follow this study's example and collect data from the source – the users. By surveying the demographics that The Tech wants to engage more with, factors that impact comfortability and inclusivity can be identified. Although Koyaz and Ünlü's study took a more quantitative approach with their data, I take a more qualitative and open-ended questionnaire approach in hopes of gathering more detailed data as opposed to numeric/statistics.

Goals

The purpose of this project is to evaluate what can be done to design a more welcoming and inclusive lobby experience for minority community members at The Tech Interactive in Downtown San Jose, California. The primary goals or research questions of this study are as follows:

- What can be done in design to create more welcoming lobby elements?
 - What elements create a welcoming space versus barriers?
- What can the science center do to increase community connection with local minority groups?
 - What aspects of the space foster connections and belonging for minority groups?

The data collected from this evaluation yielded community opinions on inclusion and diversity in the museum/science center setting and will propose changes/new protocol for future data collection, design, and programming. Knowledge gained will benefit queer and inclusive design anthropology studies as well as provide a methodology for other businesses to evaluate their own public spaces using the lens of inclusive design.

Methodology

Data Collection

The primary mode of data collection included participant observation of the science center lobby area and focus group sessions. Focus groups included 12-15 members of each community group pre-identified by The Tech Interactive. Each group contained at least 4-5 individuals, or about one third of the 12-15 sample size. This sampling strategy follows the recommended minimum sample sizes to reach theme saturation in the focus group data (Hennik, Kaiser, and Marconi 2016; Guest, Namy, and McKenna 2017; Hennink and Kaiser 2021).

In order to familiarize participants with the lobby space, the participants completed a short (approximately 15 minute) wayfinding activity to simulate the current lobby experience. We asked each individual to locate a list of locations and observed their navigation. After the activity, each group participated in a semi-structured focus group style interview session. Everyone was given a copy of the interview questions and wrote out their responses before group discussion began. During discussion, myself, Lisa, and Jhaid asked additional questions and took notes for clarity. Each focus group was asked the following:

- What places made you feel comfortable/uncomfortable? Why?
- What did you like/not like about the space? Please explain.
- How easy/difficult was it for you to find your way around the space?
- How accessible did the place feel/seem? Did you notice any barriers/limitations for you, family/others?
- Do you feel welcomed/represented at The Tech?

Analysis

Once the data collection was complete, I used MAXQDA to inductively code for themes across all interview responses and field notes as outlined by Ryan and Bernard (2003). I then used metatheme analysis (Wutich et al. 2021) to extract themes and patterns that were present across both datasets to answer the key research questions. The metathemes that emerged allowed me to provide The Tech Interactive with specific areas of improvement for their lobby space whereas group-specific themes from each community underlined areas of importance for each community.

Deliverables

Findings from this study have been shared with the Inclusive Research and Development Team in short presentations that summarize the overview of the project, what was completed, and how the results translate into recommendations. The team will also receive a copy of this project report. Recommendations include suggestions for design as well as next steps in research.

Road Map

This report is divided into three chapters. The second is a complete article for Practicing Anthropology that shares a digestible, shortened overview of the project, the data, and outcomes of the study. The final chapter covers the outcomes and recommendations for The Tech Interactive and other public cultural institutions to take into consideration. I conclude with a reflection on the study, its anthropological impact and its limitations. I also suggest future work on the intersection of anthropology and spatial design.

CHAPTER TWO

CREATING INCLUSIVE MUSEUM SPACES: LESSONS FROM “THE TECH”

Abstract

The following describes my partnership experience with The Tech Interactive – a local interactive science center in the heart of Downtown San Jose whose goal is to promote STEM education via experienced based methods. My collaboration with the Tech Interactive and their Inclusive Research and Development team focused on the relationship between inclusivity and space. More specifically, what factors influence inclusivity, which of those elements translate into spatial design, and how they can harness those elements to create a more welcoming environment. Through sampling key demographics that The Tech pre-identified as having lower attendance, I present their thoughts and ideas on what constitutes inclusivity, what the groups’ key concerns are, and how the science center can use these findings to inform their lobby renovation. I conclude by sharing next steps The Tech Interactive may take given the data.

Keywords: Spatial Design, Museum Design, Inclusivity, Programming

Introduction

Silicon Valley is one of the undisputed tech capitals of the world as it hosts Apple, Google, Facebook (Meta), Amazon, and Microsoft. The Bay Area is also known to be one of the most diverse areas loaded with all sorts of cultural history. The tech industry is not representative or reflective of this - studies have been completed surrounding prominent tech regions that express marginalization and lack of diversity in STEM (Amrute 2020; Tsing 1994). Despite overwhelming diversity in the population, the big five – Facebook (Meta),

Google, Apple, Microsoft, and Amazon report rather low and disappointing statistics compared to the demographics of the area (Gascoigne 2022; Apple 2021; Amazon 2021; Google 2021; McIntyre 2021; Williams 2021). From these reports, it is clear that the industry is largely dominated by white male employees.

The Tech Interactive, a science center located in Downtown San Jose, strives to educate via immersive STEM experiences. The Tech Interactive started as a garage back in the 1990's on San Carlos Street before moving to its current permanent location in the center of downtown where it showcases current work in STEM and encourages children to get involved. The main goal of the institution is "to inspire the innovator in everyone" (The Tech Interactive 2022). In examining visitor demographics and understanding the disparity in employment demographics, The Tech has identified some of these marginalized groups as including LGBTQ+, Spanish-speaking, and Vietnamese communities. Because there is well documented lack of diversity in STEM across the U.S. creating diverse and inclusive learning spaces and experiences for children is crucial (Douglas 2017). Moreover, there have been studies that identify a relationship between diversity/inclusivity and student experiences in regards to their success and continuation in a program. There have been several documentations of students who do not identify as white, in predominately white climates, who experience alienation and isolation often impacting drop out (McCoy 2014; Suarez-Balcazar et al. 2003; Winkle Wagner 2009; Winkle Wagner and McCoy 2018).

Currently, there is a limited amount of current anthropological study completed that has utilized a universal design lens and co-creation model to understand what specific elements make a space inclusive and more engaging in the context of public cultural institutions and

STEM education. There have been studies completed on similar topics such as the relationship between gender and STEM (Low 2020), but few that also address the spatial design of a facility and the unseen narrative or knowledge that space imposes. While others have studied the gender gap and user experience with exhibits, I have yet to see many studies surrounding STEM education and the first environment that people walk through – the lobby. If people do not walk through the front door and feel included or welcome, public cultural institutions lose purpose and less of the population is exposed to experience-based learning opportunities that could have impacted diversity in STEM as an industry. The data from this study that defines what elements create an inclusive space may also be applied to other institutions and their own public space.

The Inclusive Research and Development Team at The Tech Interactive has concluded from previous community listening projects that they can better tailor their public space to the community's needs as well as create a more welcoming/inclusive environment through co-creation. Additionally, this project identifies what constitutes an inclusive space in the Downtown San Jose setting that may be used by other institutions.

Study Outline

The Tech Interactive is a science center located in the heart of Downtown San Jose. It is known to many by the wonderful field trips options that The Tech provides for schools all over the Bay Area. I initially met with Prinda Wanakule, Senior Director of the Inclusive Research and Design team at The Tech. After confirming we shared similar interests, Prinda directed me to Lisa Incatasciato, Inclusive Research & Development Project Manager, and I met my spatial design twin. With Lisa and Prinda, I acted as an intern for their team to get a

sense of what I could bring to the table for them in terms of a project design and deliverable. Lisa and I met weekly to bounce ideas off of each other as I completed a community listening project with the department. Upon completion of the community listening sessions and through discussions with Lisa, I learned that The Tech Interactive was planning to renovate their lobby. I applied methodology introduced by Dr. Melissa Beresford in her qualitative methods course, as well as my former research on spatial design as it applied to theme parks. I proposed a focus group style study that fixated on defining what constitutes inclusive design for the groups that The Tech Interactive wanted to reach: the LGBTQ+ and Hispanic/Latine/x communities. The results from the study would provide data that could translate into areas of improvement for the lobby space as well as design recommendations.

Central Research Question/Problem

This project evaluates what could be done to design a more welcoming and inclusive lobby experience for minority community members at The Tech Museum in Downtown San Jose, California. The primary goals or research questions developed in collaboration with the Research and Development Department Project Manager, Lisa Incatasciatio are as follows:

- What can be done in design to create more welcoming lobby elements?
- What can the science center do to increase community connection with local minority groups?

The data collected from this evaluation yielded community opinions on inclusion and diversity in the museum setting and suggested change and new protocols for future data collection, design, and programming. Gained knowledge benefits queer and inclusive design

anthropology studies as well as provide methodology for other business to evaluate their own public space using the lens of inclusive design.

Methodology

To address these questions, I used a comparative ethnographic research design to investigate the views and perceptions of two key community groups in the San Jose area pre-identified by The Tech Interactive's Inclusive Research and Development team: Latinx and LGBTQ+.

Data Collection

The primary mode of data collection consisted of focus group sessions and participant observation of the science center lobby space. I selected a focus group model for this study because 1:1 interviews could have been uncomfortable for some participants and I wanted to create an environment that did not feel too pressured. As it turns out, we even had groups who mentioned they would not have participated if it was not in a group format because they would have felt uncomfortable.

To construct the focus groups, we recruited 12-15 members of each pre-determined community to participate in this study. The Tech Interactive utilized their connections with The Mexican Heritage Plaza and Billy DeFrank in order to find participants. Recruitment in these two communities consisted of networking with The Tech Interactive's pre-existing contacts and allowing them to guide us to other interested members of the community. After recruiting participants from these two groups, each participant group was composed of 4-5 people, or approximately one third of the 12-15 sample size. This sampling strategy follows

the recommended minimum sample sizes to detect themes in focus group data (Hennik, Kaiser, and Marconi 2016; Guest, Namy, and McKenna 2017; Hennink and Kaiser 2021).

Each focus group began with a 15-minute wayfinding activity designed to introduce the participants to The Tech Interactive's space. We asked each participant to locate a list of locations and we observed them navigating the space while taking detailed field notes of their behaviors and reactions to the space. Following the wayfinding activity, each group participated in a semi-structured focus group interview session. Each person received a copy of the interview questions and completed the page before group discussion where myself, Lisa Incatasciato, and Jhaid Parreno took notes to ensure clarity. The following questions were asked in all focus group sessions:

- What places made you feel comfortable/uncomfortable? Why?
- What did you like/not like about the space? Please explain.
- How easy/difficult was it for you to find your way around the space?
- How accessible did the place feel/seem? Did you notice any barriers/limitations for you, family/others?
- Do you feel welcomed/represented at The Tech?

While discussing as groups, we (myself, Lisa Incatasciato, and Jhaid Parreno) asked questions to clarify responses and allowed the group to add to their written responses if they thought of something more during discussion.

Data Analysis

Once data collection was completed, I inductively coded themes across both focus group data sets and field notes following techniques outlined by Ryan and Bernard (2003). At

first, I began highlighting instances of comfort and discomfort. I then used metatheme analysis (Wutich et al. 2021) to identify metathemes that cut across both data sets and themes to answer the key outlined research questions. By categorizing the different elements that made a visitor comfortable or uncomfortable, it became clear what areas of the space could be better. Metathemes that emerged allowed me to present to The Tech what aspects of the lobby space can use improvement; group-specific themes from each community data set allowed me to understand and outline areas of importance for each community specifically.

Study Outcomes

Key Observations of Participant Behaviors in the Tech Interactive's Lobby Space

Each group had a different approach to navigating the space. In groups where participants knew each other, they would sometimes work together to navigate the lobby. The most challenging location to find for all groups appeared to be “a place to plan your visit.” Several participants stopped and asked to clarify what this meant. There is no one particular location to plan your visit; however, we were curious if participants would be able to find information for planning in general. In truth, there are several ways and places to plan a visit to The Tech Interactive such as the membership desk, the ticket desk, online, and any volunteer could provide information for planning a visit.

Restrooms were also somewhat difficult for participants to locate. All groups ended up locating the bathrooms, however participants noted that they were out of the way and not really visible until they made a point to search for them. Further, our LGBTQ+ participants noted that the key code on the single gender-neutral restroom was off-putting as it forces visitors to speak to an employee to gain access. This could be problematic for those who may need

assistance, have trouble communicating, or would prefer to use the bathroom without needing to ask someone.

During the sessions, there were key notes that kept appearing across all groups. They included representation, information regarding what was available, and what could be done in design to make the lobby space more inviting. LGBTQ+ participants immediately recommended re-designing the bathrooms so they are welcoming to everyone regardless of gender, and looking into LGBTQ+ official signage for the front doors and desks. Both the LGBTQ+ groups and Hispanic/Latine/x groups also recommended including a rotating spotlight that could feature a figure in STEM who also represents a minority. Other comments and recommendations from the focus group sessions included direct design recommendations.

Thematic Findings from Focus Group Data

Analysis of the data revealed key theme clouds which directly answered the study's main question of what constitutes inclusive design. Between focus group responses and notes taken by myself, Lisa, and Jhaid Parreno (Community Coordinator for the team), the main umbrella themes included "*inclusivity*", "*comfortable*", and "*uncomfortable*". The *inclusive* theme cloud included subthemes of *representation, familiarity, friendly interaction, and design elements*.

The *uncomfortable* theme cloud directly outlined what inclusivity and welcoming is not. The most common subtheme for this cloud was *confusion*. Between the two communities, there was a similar sense of not knowing what to do, where to go, or what The Tech Interactive offers. Other key points with this tag included *accessibility* issues – both physical and

linguistic. One of the main uncomfortable aspects from the focus groups included the overall design of the lobby and bathroom areas because of the sense of confusion it instilled.

Contrastingly, the items tagged *comfortable* helped identify what makes a space welcoming, suggesting what might contribute to a sense of inclusivity. Within this chain, themes began graduating to the inclusivity tag and recommendations popped. Some of the main ideas within this cloud included design recommendations, how to better accommodate guests, and what they already like about the existing space such as its size and generally decent lighting.

The *comfortable* theme cloud and points from the *uncomfortable* theme cloud manifested into what made up the *inclusive* cloud. Hispanic/Latine/x focus groups included salient themes of familiarity and the LGBTQ+ focus groups placed an emphasis on representation. Both communities had similar responses addressing both of these concerns. It would appear from the data that there is overlap between the two themes. It should be noted that increased representation is logically an avenue to increased familiarity. LGBTQ+ individuals were very clear about showcasing inclusivity through signage, promoting LGBTQ+ colors and symbols, and highlighting queer individuals in STEM. Hispanic/Latine/x individuals similarly also suggested highlighting Hispanic/Latine/x individuals in STEM, but they were also focused on a seamless experience. They advocated for familiarity from a planning perspective as well as representation. The LGBTQ+ community members also suggested additions to programming such as LGBTQ+ events and invites, otherwise they would not have known The Tech Interactive was not only for children.

Across the board, *friendly interaction* appeared as another key contribution as to whether or not an individual felt welcomed/included. Different focus group sessions experienced different volunteers and friendly interactions at the door always received praise. When it was absent, there were recommendations for greeters to welcome guests and direct them should have any questions. There were also recommendations made by focus groups to include name tags with stickers to increase a sense of representation and familiarity as well as to identify who someone might be comfortable talking to and ensure they could communicate without language barriers.

Finally, the *design element* theme included direct design recommendations made by the focus groups. Specifically, there were repeated recommendations for exhibit teasers, cozy seating areas, more language/communication options, and a gender-neutral restroom design.

Discussion of Study Findings

The findings from this study suggest that inclusivity is comprised of a few key factors: *representation/familiarity*, *friendly interaction*, and *design elements*. These factors came through for both the LGBTQ+ and Hispanic/Latine/x community groups. There are many ways for museums and other businesses to build on these elements in order to create a more inclusive and welcoming space for the whole community. Right away, thoughtful design features such as seating areas with device charging capabilities, gender neutral bathrooms with single floor to ceiling stalls, and friendly interactions appear to be a quick and impactful way to alter an environment. Adding in local representation and creating a seamless experience may take more time and thought, but will also make a large impact according to the data.

Recommendations for The Tech Interactive

From these conclusions, I would immediately recommend that The Tech Interactive considers adding local representation such as a rotating exhibit or longer-term installation featuring minority individuals who have made an impact in STEM, and/or a permanent feature for Ricardo Legoretta, the architect of the building. I would also recommend that The Tech prioritizes creating more thoughtful lobby features such as seating areas with plugs for public charging, a mall-style map at the front for individuals who prefer to view the layout of a space and what is offered up front, as well as updating the bathrooms as previously stated.

In terms of design elements, the data did show that individuals were not keen on the orange and purple color scheme; however, this is integral to the building and its history. Because of the colors' significance, perhaps considering a more neutral version, such as a more pastel orange and purple, might produce a more positive reaction. Additionally, participants recommended different patterns behind different desk areas to help differentiate areas/functions (i.e., where you can purchase admission, information, and membership stations). This could be accomplished with a either painted design or wallpaper.

I would urge The Tech Interactive to create excitement in the lobby space by providing some teasers. Providing an interactive element in the lobby, posters, or rotating installations based on existing exhibits will keep things fresh and interesting for both new and returning visitors. Participants of the sessions noted that having a teaser at the front would also give them a taste of what The Tech Interactive is about – something that is a bit lost in translation currently. Along with the teasers, more interactive events and invitations to different community groups would also help in defining the science center as more than a place for kids

and the nuclear family. During one of the sessions, there was an event happening where visitors could play with cats that had a large impact on the experience of that group – they expressed a feeling of welcome and safety from this.

Challenges

After running a total of six successful focus groups with LGBTQ+ community and Hispanic/Latine/x community members, we (myself, Lisa, and Jhaid) struggled to recruit volunteers to provide input for the Vietnamese community. Although we had several individuals sign up on our online form for our sessions, most of them did not identify as Asian/Asian American/Pacific Islander. Those that did received a confirmation email for their participation in the study, however they were all under the impression that our focus group sessions were virtual and did not feel comfortable attending in-person with the recent outbreak of Monkeypox on the rise. With time being of the essence, we discussed the option of scouting a new demographic such as parents of neuro-diverse children, however we were not able to develop new relationships in a few short weeks.

Under the guidance of Dr. Melissa Beresford, we decided to continue the study with the data collected from the LGBTQ+ and Hispanic/Latine/x communities. The Vietnamese community and neuro-diverse families are still demographics that The Tech Interactive should attempt to reach so that the design of the lobby space can be as universally inclusive as possible. By integrating the recommendations outlined as well as continuing community listening, The Tech Interactive should be able to achieve a welcoming and inclusive design for the science center as well as increase their visitation.

Conclusion

This study has been the first step in identifying what makes up an inclusive environment. While this will likely be different depending on location, it provides the groundwork for other institutions to identify how they can make their space more welcoming and encourage diversity. With the application of these findings, more welcoming programs and spaces may be created which stand to have an effect on marginalized individuals. In terms of The Tech Interactive's lobby space, a child who might not have otherwise been exposed to the field may decide that they have a drive and interest in STEM because it was made to feel possible.

Biography

Andriana Bodrouk (andriana.bodrouk@sjsu.edu), M.A., is a recent graduate from San Jose State University and Lab Manager for the NSF-funded Culture Economy, and Environment training laboratory at SJSU. In this role, she supports and evaluates research methods teaching and training for undergraduate students. She is a cultural anthropologist whose research focuses on design and programming as well as their outcomes.

CHAPTER 3

UNIVERSAL, INCLUSIVE DESIGN

Outcomes & Findings

The research question of this project asked: what design elements create a welcoming space for diverse audiences in the Tech Interactive? Fundamentally, the study suggests that representation/familiarity, friendly interaction, and design elements (exhibit teasers, cozy seating areas, language/signage, and restroom design) impact the visitor experience. From the different groups we spoke with, representation and familiarity play one of the biggest factors. Both the LGBTQ+ and Hispanic/Latine/x groups frequently mentioned representation being a key factor however they articulated this in different ways. The LGBTQ+ folx were clear about LGBTQ+ representation in signage and design such as gender-neutral bathrooms, however the Hispanic/Latine/x folx added the factor of a seamless family experience. They often referred to being more or less “familiar” with a space in addition to wanting to see more representation in the space. Both groups had similar suggestions for increasing representation/familiarity as well by adding a mall style standing map at the front, inclusive signage (official LGBTQ+ decals and language accessibility), as well as adding universally comfortable features such as more seating for families, plugs for charging phones, a simplified front desk/information space, and a calmer color palette.

Friendly interaction between our focus group participants and volunteers also impacted their experience. There was one instance where an older gentleman was volunteering and he made sure to welcome everyone who walked in and asked each person if they needed help finding where they were going. Several participants commented on how kind the gentleman

was and that it made them feel more comfortable in the space. In other sessions, when volunteers did not interact as much with the participants, they noted that the lack of interaction made them feel less welcomed in the space – especially for the LGBTQ+ folx. Because this came up as a top theme under the umbrella of inclusivity/welcoming, I would advise The Tech to consider having volunteers posted near the front area specifically for welcoming and wayfinding questions. The participants' experience with that one volunteer really had a positive impact on their lobby experience and others noticed when there was not someone around to help them should they need assistance.

Finally, four specific design elements had the ultimate impact on our participant. The major elements included exhibit teasers, cozy seating, language/signage and restroom design as being the most impactful on the focus groups. Overall, the main feelings noted from our questionnaire included confusion. Currently, visitors are finding the lobby area difficult to navigate and one participant noted that it felt similar to “brutalist design” with harsh edges and no smooth transition from the current entry to the information desk. Linking this back to familiarity and representation, our participants highlighted this as an easy area of improvement by adding a rotating exhibit to acknowledge minority folx in STEM.

- *“Rotating installments would be cool – The Tech used to do this.”*
- *“The MLK Museum had events for pride month/rotating exhibits, and partners with local places.”*
- *“Proactive imagery is important to all minorities, especially LGBTQ’s”.*
- *“To see representation in reality is like a discovery.”*

The Tech could have a dedicated area for a rotating exhibit and it would also act as something new for returning visitors to see.

Lastly, in order to immerse visitors into the experience and familiarize visitors with what the science center has to offer, our participants suggested having exhibit teasers that could be either permanent or rotating. Teasers would give families something to try if it's their first time there, could keep kids occupied while parents are purchasing tickets, and it would add something fun to get visitors in the door. Most importantly, some of our participants said that this would increase excitement for the exhibits upstairs and downstairs. With the current lobby space, the way it is, visitors are not quite sure what to expect.

- *“I’ve been here before multiple times and I particularly like when the lobby gets “converted” to have more signs and exhibit pieces.”*
- *“Interactive features at the front would be beneficial.”*
- *“It would be nice to have something to touch and play with.”*
- *“Murals and small exhibits would be nice to see for kids while they wait and would get them excited.”*

Impact and Anthropological Difference

This study and future studies like it will impact design anthropology as well as add to queer anthropological work. In a changing world, universal design (creating for everyone) is becoming the most practical approach. When addressing welcoming and inclusivity, environment plays a large role in how a space is perceived. If we can create welcoming and inclusive public spaces, we can begin to bridge the gap between some of the overwhelming disparities. Further, this study may be used as a model for other public cultural institutions to

assess the overall perceived inclusiveness of their spaces. This work is not limited to cultural institutions; any institution or establishment that has a public space can also assess their space in a similar fashion.

Limitations of Research

This study specifically focused on demographics identified by The Tech Interactive as having lower attendance. Additionally, the focus groups were also meant to sample part of the Vietnamese community, however rising health concerns at the time of sampling prevented potential participants from wanting to volunteer. We also faced the issue of confusion – all the participants who did sign up for our Vietnamese community sessions either did not identify as Asian/Asian American/Pacific Islander or assumed that our focus group sessions were occurring online. Because we had a difficult time recruiting participants for this community group, we considered trying to reach another community – families of neurodivergent children. Unfortunately, we were sticking to a timeline and our plan did not allow for enough time to cultivate a significant relationship with this community to ask them to participate. Because of these limitations, this leaves room for The Tech Interactive and San Jose State to continue research with other local minority communities.

The Future

The limitations of this study illuminates avenues for further research to be completed. The Tech Interactive could continue to create relationships with the Vietnamese community and families of neurodivergent children because their experience as visitors of the science center could provide further recommendations and insight. This approach would also provide

information for a sensory map, which would positively impact the experience for neurodivergent children.

There have been two presentations given to the Inclusive Research and Development Team regarding these findings which have been very well received. The department is excited to better understand our community and implement efforts to improve visitor's lobby experience. Further, they understand what next steps they can take for future research and other demographics they may consider gathering feedback from.

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