Prospectus

Guiding the Design of Inclusive Playgrounds through Needs Assessment and Materials Selection
(Technical Topic)

Past Park Exclusive Design Methods Towards People with Disabilities
(STS Topic)

By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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People with Disabilities in an Exclusive Society

It can be said that some of the most memorable experiences children have growing up revolve around social-shaping events such as playing with their peers in a communal space to use their imagination, experience the world around them, and feel safe while doing so. These types of communal spaces exist today. They are found at parks or playgrounds or in neighborhoods. And while they vary in many degrees, they all share the common goal of existing to serve as that communal space. Now, what if a group of individuals was denied access to these positive, quintessential adolescence experiences with their peers? What kinds of repercussive effects could this have on their social development among other aspects? Unfortunately, this exclusive type of situation exists for many groups of individuals, as a majority of playgrounds around the world can only be used by a limited audience that often excludes users with various disabilities.

The term "disability" is defined by The International Classification of Functioning, Disability and Health by the World Health Organization (2020, p.3) as an "umbrella term for impairments, activity limitations, and participation restrictions." This definition provides a broad sense of how disability can have a wide range of interpretation. Specifically, people with disabilities are often susceptible to exclusionary designs and vulnerable to becoming disadvantaged in many areas of their lives, not excluding playgrounds. For instance, individuals with vision impairments are often limited to relying on using touch or hearing in order to enjoy walking through a park, though such amenities like tactile paving or auditory access devices are not always present (Kin Wai, 2013). Or as another example, people with mobility limitations may not be able to enjoy certain features of a playground if there are limited turn radii on features such as ramps (Mejeur et al, 2013).

Many playgrounds in use today, are not designed inclusively. Today, many professionals specializing in special education fields perceive accessible playgrounds as problematic in terms of carrying out the idea of inclusion (Stanton-Chapman et al, 2016). As a concept, inclusivity can briefly be described as the removal of physical, social, and cognitive barriers and encouragement of equal opportunity. Meanwhile, exclusion can be defined as the concept of barring [someone] from participation, consideration, or inclusion (Merriam-Webster, 2020). However, sometimes instances occur where there is a mixture of both inclusion and exclusion present in the design of entities like playgrounds. With such combinations being difficult to fully define, it becomes vital that frameworks be applied to aid in the design process in order to identify aspects of a playground that promote inclusivity or increase exclusion.

Pursuing a similar challenge, Bennett's Village, a Charlottesville-based nonprofit, is seeking to dive deep into what inclusivity looks like in a playground setting.

Figure 1: Bennett's Village Official Logo. (Image Source Bennett's Village, 2020)

The organization's official mission is to make the world a more inclusive place and they first plan on taking on this challenge by working "to build a multi-generational, all-abilities playground in Charlottesville and advocating to change the way [their] community sees inclusion" (Bennett's Village Mission and Vision, 2020). The park is to be located at Pen Park in Charlottesville, Virginia (Bennett's Village Implementation, 2020).

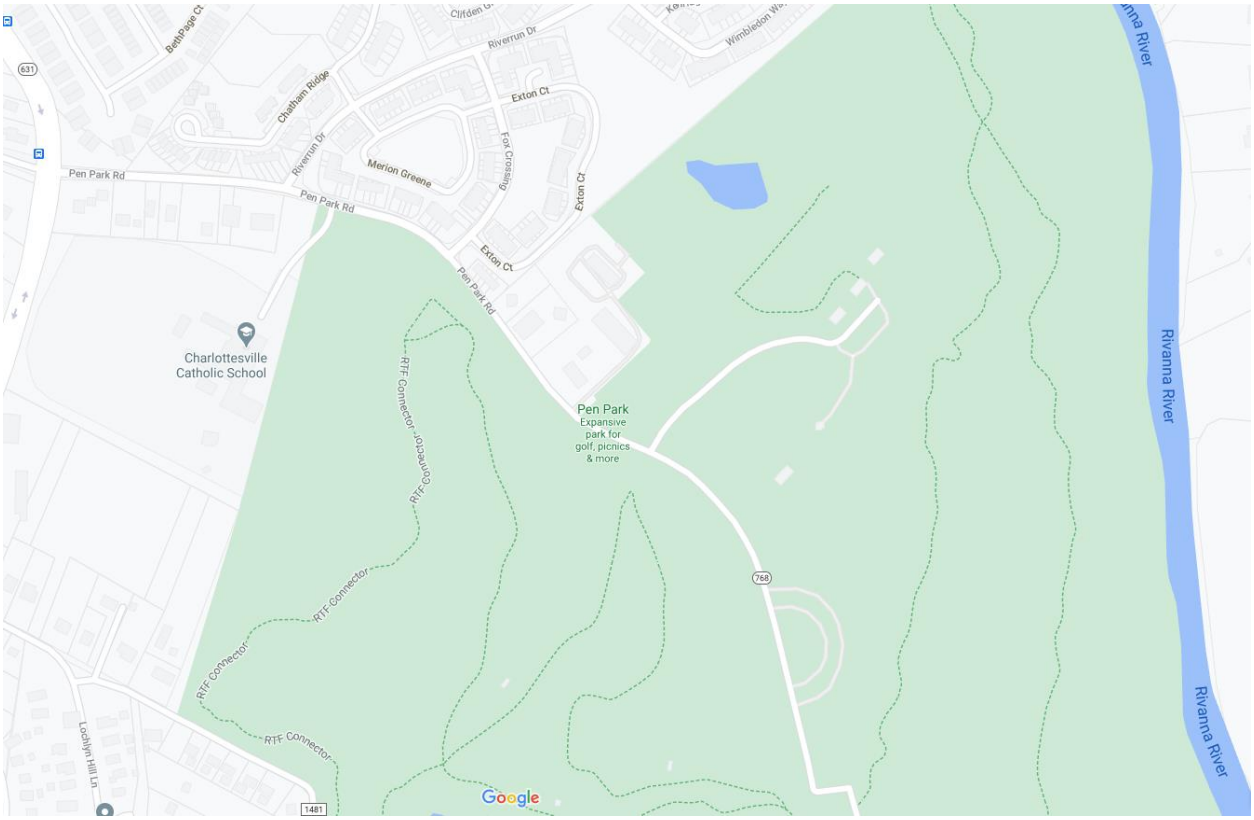

Figure 2: Aerial View of Pen Park (Image Source: GoogleMaps, 2020).

Partnering with Bennett's Village, our Capstone team will be centering our project around supporting the organization in their project's development through multiple means that

will ultimately aid the organization in ensuring inclusivity in the design and implementation of design. In scope, the project team will be studying and conducting interviews with a demographic group to ensure the inclusion of age range into the playground through the UVA IRB-SBS, investigating and later recommending a proper surfacing material for the park, and assisting in the marketing and publicity of Bennett's Village within the Charlottesville community. Meanwhile, I will also be investigating the practices, or lack thereof, for design that individuals have previously used within the past 40 years when addressing inclusion in the design of playgrounds. Culminating, the objective of the Capstone project is to determine proper design methods and certain design elements that will best convey a message of inclusivity in the creation of this playground.

Technical Considerations in Designing an Inclusive Playground:

In 1996, the United States Access Board created a committee to specifically address access for play areas within the United States, named, Play Areas Regulatory Negotiation Committee (Yanchulis, 2020). However, it was not until 2004 that guidelines for play areas became integrated into the Board's ADA (Americans with Disabilities Act) and ABA (Architectural Barriers Act) Accessibility Guidelines that are in use today (Yanchulis, 2020). Within those guidelines, it is required that playgrounds be accessible in ways such as having accessible ramps and provided an appropriate surface beneath equipment (Falstad, 2017). Such types of standards are used to govern the accessibility of playgrounds; however, these broad standards are not completely satisfactory, and often certain users remain excluded in many ways. This topic on how to go beyond the basic physical required design elements for playgrounds has

just become a recent topic of conversation in the last decade or so. With such a conversation growing, the complexities associated with determining the best methods moving forward also grow.

As an organization, it becomes rather clear that Bennett's Village is taking on quite a complex project, and with such complexities, individuals working for the project must be willing to take on a wide range of tasks varying from engineering to business. Our team expects to experience this wide range within our own particular scope of work with Bennett's Village. As far as the technical dimension for the area of study, the three main aspects of the project will be conducted in phases. The initial phase and bulk of research to be completed is researching the user group to be interviewed. This first phase involves organizing contact lists for conducting interviews, researching existing literature on the user group, researching methodologies to conduct interviews, applying for IRB (Institutional Review Board) Approval, and holding interviews with the user group. The second phase involves researching existing inclusive playground surfacing materials, contacting professionals who have been involved in the design of past playgrounds or similar projects, researching the needs of the park, researching various modes of mobility, and investigating material factors. Lastly, the third phase involves researching and contacting connections to bridge Bennett's Village with publicity platforms, in order to help the public become more informed about the project and its future impact.

Getting into more detail, as mentioned, our team will study and interview a targeted demographic group and then determine how to ensure the inclusion of the demographic into the design at Pen Park. The demographic group to be interviewed, consists of adolescents between the ages of 12-26 years old of all abilities, an age group our clients do not currently have research and information on. For the purposes of conducting formal interviews, the group will be

split into two participant groups: “minors”, under 18, and “young adults”, 18-26. By gaining insight into what exactly the playground’s intended audience might enjoy seeing in the space, as well as gaining knowledge about their experiences with playgrounds, our team will be able to better serve this group and tailor the playground design to fit their types of needs. In effort to perform inclusive design, it is critically important to participate as designers in this type of conversation with individuals who will be using the finished product. Carrying on this idea, Julie Fleck, a strategic access advisor, describes the importance of such actions: “Improving our knowledge and skills and learning to embrace inclusion and diversity seem fundamental to dismantling the physical barriers that already exist. Recognizing that we need to continually expand our knowledge, skills and understanding of how to design for inclusion is key” (2019, p.249).

Secondly, we will research materials for the playground surface and a track loop feature for the park. This will be accomplished by undergoing thorough research into the needs of the park, including how materials can aid in inclusion. Some aspects of the materials we will consider are: durability, longevity, environmental impact, maintenance requirements, cost, local availability, ADA compliant, suitability for various modes of mobility, suitability for all weather conditions, impact, shock absorbency/impact testing, and more. Once all aspects of the materials have been researched, we will conduct a cost-benefit analysis to determine what material best suits the needs for Bennett’s Village. Accordingly, once a conclusion on this matter has been drawn and data has been organized appropriately, our team will present the findings and recommend materials to the client. For the purposes of designing an inclusive playground, surfacing can be a defining feature in determining actual levels of accessibility users will have due to its control over mobility access. These types of spaces in particular get a large amount of

use by a “vastly diverse population”, a design that is “accessible and usable” for everyone is crucial (Sungur et al, 2018.). Therefore, when considering design elements such as surfacing material, it will be important to find a suitable material that may be accessible to all.

Additionally, the final phase to be conducted will include the team’s aid in the marketing and publicity of Bennett’s Village within Charlottesville, the University of Virginia, and potentially broader communities. We will help build connections between Bennett’s Village and publicity platforms so the public is more informed about the project and its potential future impact. We plan to carry this out through connecting with different media types, such as social media and newspapers. Some specific contacts we are seeking to reach out to include, Cavalier Daily, UVA Today, and UVA Alumni Association. This will provide the client with new avenues for connecting deeper within the community and the team is hopeful such connections will aid in providing future feedback to Bennett’s Village as well.

Inclusion as a focus for Socio-Technical Analysis

Over one billion people in the world live their daily lives with some form of disability (WHO, 2020). That translates to over one seventh of the world living in unique circumstances, experiences, and lifestyles. It also means there are over one billion individuals who will most likely at some point in their lives be affected by times where they are excluded from experiencing the same experiences that the people around them have the privilege of enjoying. Additionally, that one billion can also be multiplied many times over by including the number of people who have witnessed their friends, families, or peers with disabilities be excluded in some

form. Socio-technical topics are often centered around an encompassing idea that technological decisions will impact large populations usually on a grand scale. Furthermore, it is often the case that many times, these types of decisions can be said to impact the majority of the world population in some form either directly or indirectly. Therefore, when considering how technology in general can affect people groups on a world level, it becomes impossible to pretend that one seventh of the population simply does not exist. From this conclusion it is clear that there should then be great importance placed upon considerations made advocating with the 15% of the world population with a disability.

Specific to design of parks, in its nature a human-centric area of practice, considerations advocating for park users with disabilities create a unique space that provides straightforward benefits to the user group; but can also lead to the creation of long-lasting impacts on these individuals' lives as well. These types of secondary benefits can range from physical, to social, to even physiological positive impacts for the user groups. In detail, some of these benefits may be play based interactions resulting in social development for children with Autism Spectrum Disorder, or could be children with mobility impairments gaining a fuller range of physical mobility through play (Grant, 2017).

Further into the design realm, disability is often associated with "quick-fix" solution terms such as "accommodation" or "accessible"; however, these terms do not often provide users with disabilities satisfactory products. This frequently happens because disconnection can occur between the designer, the design methods, the design, and the users with disabilities. For example, confusion can occur in the misuse of terms between "accessibility" versus "inclusivity", as it is assumed by many that with accessibility, comes inclusivity. Two well written definitions distinguish between these two terms, where "accessible" is "the removal of

environmental barriers" while "inclusive" is also "the removal of social barriers" (Woolley, 2013). Related, it is therefore important for the designers to often place themselves within the role of their user groups in the attempts to use logic as a form of understanding the users' experiences (Masiulanis, 2017). In a more formal manner, a socio-technical analysis may be performed to qualify the methods in which inclusive design may be carried out. The framework that will be used to conduct such an analysis is the Universal Design framework.

As a concept, Universal Design can be described as "'the design of products and environments to be usable by all people, to the greatest expect possible, without the need for adaptation or specialized design'" (Hums et al, 2016, p.40). The framework was developed in 1997 by a group of architects, product designers, engineers and environmental design researchers, among whom some themselves have disabilities (NDA, 2020). The framework consists of seven principles which are intended to guide existing designs, the design process, and to educate both designers and consumers (NDA, 2020).

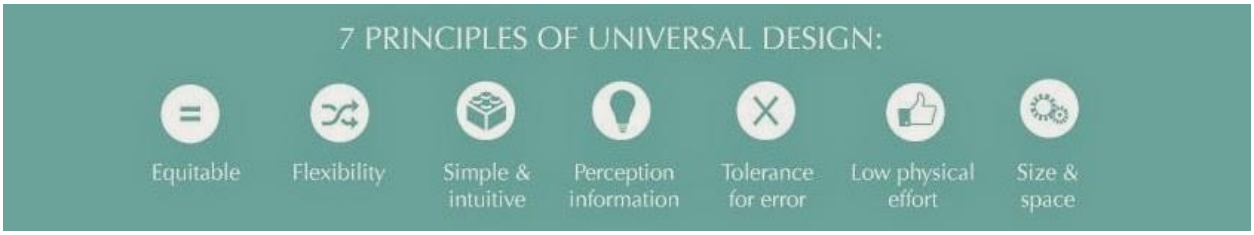

Figure 3. Seven Principles of Universal Design (Image Source: IFLA, 2020).

The first four principles of Universal Design touch on Equitable Use, Flexible in Use, Simple and Intuitive Use, and Perceptible Information. The first principle describes the design as useful and marketable to people with diverse abilities. Meanwhile the second principle outlines how design may be flexible in accommodating a range of preferences and abilities. The third

principle emphasizes the use of design be easy to understand. And the fourth principle touches on how design should communicate necessary information to the user.

The last three principles of Universal Design highlight Tolerance for Error, Low Physical Effort, and Size & Space for Approach and Use as described by the National Disability Authority. The fifth principle speaks on minimizing hazards and unintended actions. Meanwhile, the sixth principle touches on how design can be used efficiently with minimum fatigue. Lastly, the seventh principle explains that design should be appropriate in terms of size and space. The theory of Universal Design is applicable particularly to inclusivity in the area of playground design methods as it describes well the guidelines in which designers may increase their knowledge of abilities inclusion.

Research Question, Data Retrieval, and Analysis

Anticipating the ways in which designers should perceive inclusion and ensure such qualities are exemplified in their product in future settings, motivates my research question: How have past design methods for parks excluded individuals with disabilities? This question can be rotated onto a larger scale in terms of specifically inclusive design and how the concept can improve upon areas in the past where there has been a lack of inclusive presence or furthermore, the use of exclusionary practices. Universal Design will serve as the primary framework for forming ideas and analyzing the topic of addressing different user groups, such as people with disabilities within the design considerations of parks. The principles of Universal Design (NDA, 2020) will be applied specifically in the context of case studies & case comparison as well as for historical analysis.

In a socio-technical sense, I will be exploring the methodologies used in the recent past of playground design. In the process of gathering evidence to explore this topic of past design strategies for parks, particular methods will be utilized for data collection. These methods will be secondary sources including the use of previous literature, policy documents, and agency reports. Previous literature will serve the purpose of providing a basis of what information regarding inclusive design considerations there have been in past scenarios for creating design methods of parks. I plan to use literature investigating specific cases of playgrounds that exists in the U.S. as well as within other regions such as the United Kingdom. Policy documents will also serve as a useful data source, especially in providing research context and considering what narratives about addressing disabilities exist within different jurisdictions and governmental powers. I plan to use policy documents such as the Americans with Disabilities Act and similar type documents. Similarly, agency reports will also provide useful data related to past and current actions being taken to address inclusivity by different entities. I plan to use reports from agencies such as Virginia Board for People with Disabilities (VBPD).

Once appropriate evidence has been collected, the next step of action will be to analyze the gathered data. Methods for analyzing this evidence will include the use of historical analysis along with the use of case studies and case comparison. The method of historical analysis will be used with the intent of analyzing patterns and transitions in the recent past as well as interpreting the temporal evolution of considerations regarding individuals' and organizations' biases of people with disabilities. Additionally, the methods of case studies and case comparison will be performed as analyzing methods in the context of attempting to identify instances in design method scenarios where similar definitions of what inclusive design means were used in practices, as well as drawing patterns based on similar and dissimilar scenarios where designers

would have had to have taken some position on how they view inclusive design. To explain, these types of instances are where actions either took an inclusive route, an exclusive route, or somewhere in the middle.

The timeline below provides references to the expected completion dates for components of this topic.

Project Deliverables	Expected Completion Date
Statement of Topics	October 2020
Annotated Bibliography	October 2020
Prospectus	November 2020
Signed Prospectus	December 2020
Demographic Research	January 2021
Recommendation Material Research	January 2021
Media Research	January 2021
Outline for STS Research Paper	February 2021
Rough Draft for STS Research Paper	March 2021
Final Draft for STS Research Paper	May 2021

Table 1: Timeline for completing Project Deliverables.

Expected Results and Impacts

The technical deliverables for the Capstone project include the analysis and presentation of data gained through our demographic research, the recommendation of surfacing material for the referenced playground features, and comprehensive contact list of media connections for Bennett's Village. However, it is expected that throughout the course of this project, our team is likely to encounter instances where design decisions made might not be able to be fully aligned with every aspect of universal design. Instead, our project aims at optimizing inclusion in design, but recognizes the potential obstacles we may face when making our recommendations. Meanwhile, through utilizing universal design, this paper will bring to light the areas of design where design methods have struggled to define inclusivity in their own form. Additionally, this paper will broadly serve as a future reference for these types of considerations.

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