GUIDING THE DESIGN OF INCLUSIVE PLAYGROUNDS THROUGH NEEDS ASSESSMENT AND MATERIALS SELECTION

IMPACT OF COMMUNITY-BASED PLAYGROUND RESEARCH ON ADOLESCENTS' SELF-CONCEPTS

An Undergraduate Thesis Portfolio
Presented to the Faculty of the
School of Engineering and Applied Science
In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science in Systems Engineering

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May 6, 2021

SOCIOTECHNICAL SYNTHESIS

Community playgrounds may positively guide childhood development, but the needs of playground users with disabilities are not typically considered in existing design standards. Since this exclusion can harm development into adulthood, the technical and STS research projects will address the underrepresentation of those with disabilities in the playground space. The technical project involves a partnership with Bennett's Village, a Charlottesville-based nonprofit, in supporting the design of an all-abilities, multigenerational playground through a needs assessment and materials recommendations for playground surfacing. The STS research project is focused on evaluating the impact that community-based participatory research may have on adolescents with disabilities using the Actor Network Theory (ANT) framework. The technical and STS projects are tightly coupled and must be conducted in tandem to understand and push for change in a space that has significant influence on children's lives.

One portion of the technical project involves user research on the adolescent and young adult populations through surveys and interviews to meet the immediate goal of filling the knowledge gap in Bennett's Village's research to create an age-inclusive playground experience. For the needs assessment, the team used conventional content analysis to analyze semi-structured interviews and open-ended survey responses and descriptive statistics to analyze close-ended survey responses. Another portion of the project, the materials recommendation for the playground surfacing, served the immediate goal of building a playground in Charlottesville within the overall goal of creating inclusive play opportunities. For the materials recommendation, the team analyzed unitary materials using a life cycle assessment for quantitative cost data across a ten-year period and cost-benefit analysis for qualitative data.

Through interviews and survey responses, four key themes emerged: motivations, layout, desirable features, and undesirable features. Participants looked to playgrounds for a sense of community and relaxation, which could be facilitated through open, flexible-use spaces or features such as seating areas and natural features. Specific undesirable features included metal structures and loose surfacing materials. Through the materials analysis, poured-in-place rubber was identified to be the best option in terms of factors such as high permeability, durability in various weather conditions, and high usage/traffic. This information can be employed by Bennett's Village and other playground designers in future all-abilities, multi-generational playgrounds but requires further research to account for the small sample size and the dissimilarities in research participant demographics with local communities.

The STS research uses peer-reviewed literature to analyze how engagement with adolescents with disabilities through community-based playground research may impact their self-concepts. To support the hypothesis that adolescent involvement in community-based research will lead to a positive feedback loop for their internal and social self-concepts, unequal play experiences were examined in terms of how they may negatively impact youth's self-concepts. The inclusion of adolescents with disabilities in research, which is supported by the new paradigm for the sociology of childhood, can be used to alleviate the effects of these gaps.

Community-based research offers a negotiation space, a crucial aspect from the ANT framework, for those in the playground design network to understand social factors in adolescents' lives. Adolescents with disabilities would be given an opportunity to share their experiences, which would make them feel more empowered through these negotiation spaces, leading to positive internal self-concepts. Findings from community-based research can be used to create inclusive playgrounds so that adolescents with disabilities can reap the emotional and

functional benefits of outdoor play that are not usually given to them, which means they will feel a greater sense of belonging in the community, leading to positive social self-concepts. They may in turn be more open and compelled to share their experiences to contribute to the negotiation space, creating a positive feedback loop in terms of adolescents' self-concepts.

Mainstream playground designs fail to meet the needs of playground visitors with disabilities and those across different generations, so the needs assessment and materials recommendations from the technical project can be used to inform future inclusive playground designs. The analysis of community-based research and its impacts on youth's self-concepts through the STS research project further motivates the importance of involving the voices of adolescents and young adults in the playground design process. Therefore, both the technical and STS research projects are needed to understand the importance of playgrounds and how they may positively influence lives of adolescents and young adults with disabilities.

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