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Urban infrastructure accessibility in highly developed cities in North America

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Abstract: This paper analyzes urban infrastructure accessibility in highly developed cities using Feminist Standpoint Theory and related frameworks, arguing that infrastructure design reflects dominant perspectives and often marginalizes disabled and vulnerable populations.

INTRODUCTION

Major urban cities with high accessibility in transportation systems-- such as Washington, DC, New York City and Las Vegas are one of the places that are the most populated and most major tourists' destinations in the United States. With a wide range of metro stations, step-free platforms, a lot of buses and trains for public transportation, these cities are designed in ways that concentrate many major attractions within relatively accessible urban areas, making public transportation a critical component of urban mobility. At the same time, each city is shaped by distinct urban planning histories and design structures. As a result, different challenges related to infrastructure accessibility, maintenance, and expansion are bound to existence. These differences illustrate how urban accessibility is not only influenced by technology and transportation systems but also by the historical development of each city. Connecting to our biggest challenges, these so-called accessibility features such as elevators, ramps, tactile paving, and audio-visual announcements have become increasingly common and therefore, accommodations for those individuals with disabilities, elderly populations, and other travelers with mobility needs are in high demand. These developments are

strongly influenced by accessibility policies such as the Americans with Disabilities Act, which requires public spaces and transportation systems to reduce barriers for disabled individuals. This work is in partial fulfillment of the ENGR184 course using the blueprint curriculum in Ref [1,2] and captured in a collection [3].

METHODS

“Individuals with disabilities have the same rights to use the New York City subway system as every other person. The Court’s decision marks the end of the MTA treating people with disabilities as second-class citizens.” — Geoffrey S. Berman, highlighting how transportation accessibility directly affects equality in public life. To first evaluate these developments, the theory of feminist standpoint is applied in this study, which begins in the 1970s, emphasizing knowledge is shaped by social position and lived experience. Feminist standpoint theory emphasizes that marginalized groups—such as women, racial minorities, and disabled individuals—often possess unique insights into social systems and therefore, it advocates for equal rights, opportunities, wages, recognitions and social status. Up to this era, this standpoint theory has always been a part of everyday life and in every aspect of life. To be more specific, in the sector of urban life and infrastructures in most developed cities, it is not deniable that these cities offer a wide range of paths to a great starting point to a better future; however, for those who are struggling with unfair treatments, injustices and oppressed by the society, these so-called opportunities or pathways are not applicable to them because of their identities or the way they are right now. Because feminist standpoint theory tends to contribute socially values and knowledge in various branches as epistemology, methodological, while keeping a focus on power relations with the lives of the marginalized.

Consequently, despite feminist standpoint theory highlights on the importance of the limitations in how each city experiences its own challenges and difficulties and how there are unequal opportunities to everyone in the community. Therefore, the existence of accessibility policies and technological improvements, there are still rooms to be taken care of for those individuals with disabled minds and bodies. As a result, insights from Disability studies such as ableism, discrimination, and flexible or accommodation (crip time) show how these urban designs are built around assumptions or general standardization of abled-bodied mobility. Through thoughtful and detailed analysis on these feminist standpoint

theory and disabled studies, this research aims to find a better solution and the most efficient way to help those marginalized groups that are not accessible to high technologies and transportation in most urban infrastructures.

This interdisciplinary approach that combines feminist standpoint theory and disability studies can be used to examine accessibility in transportation infrastructures in major U.S. cities, including Washington, D.C., New York City, and Las Vegas. Rather than focusing solely on technical transportation performance, this research investigates how accessibility infrastructures are shaped by social power relations, urban planning decisions, and especially for lived experiences of marginalized groups.

Using Feminist Standpoint Theory, the analysis centers the perspectives of individuals whose mobility needs are often overlooked in urban planning, including disabled individuals, elderly populations, and those with limited mobility. Feminist standpoint theory argues that knowledge about social systems becomes more accurate as we apply this framework allows the study to question whose needs are prioritized in transportation design and whose experiences remain underrepresented.

From the point of view from disability Studies, particularly critiques of ableism and assumptions of able-bodied mobility embedded in urban infrastructure. Disability studies tend to consider disability as a social and structural issue created by inaccessible environments in that concepts such as ableism and crip time are idealized as how transportation systems often prioritize speed, efficiency, and productivity while failing to accommodate diverse mobility patterns and temporal needs.

In terms of methods, the research combines both qualitative and contextual analysis. First, the study examines transportation infrastructures and accessibility features in each case-study city, including metro systems, elevators, ramps, and step-free platforms. Second, the analysis compares how historical development, tourism economies, and policy frameworks influence accessibility across different urban environments. Finally, the study critically evaluates how accessibility policies such as the Americans with Disabilities Act attempt to address structural barriers while also identifying the limitations that remain.

Through this interdisciplinary approach, this demonstration about urban accessibility is not simply a technical design problem, but a broader social issue shaped by cultural values, economic priorities, and political decision-making. By integrating feminist standpoint theory and disability studies, the research highlights how transportation infrastructures can either reproduce social inequalities or contribute to more inclusive and equitable urban environments.

RESULTS AND INTERPRETATION

The analysis of urban infrastructure through Feminist Standpoint Theory reveals that accessibility challenges in highly developed cities are shaped by social and political perspectives in infrastructure design. Thus, many transportation systems, pedestrian networks, and public facilities continue to reflect assumptions about a “standard” urban user—typically an able-bodied individual following predictable commuting patterns. As a result, the lived experiences of disabled individuals, caregivers, elderly residents, and other marginalized populations are often overlooked in infrastructure planning.

On the other hand, Disability Studies and the Social Construction of Technology further demonstrate that accessibility barriers are socially produced rather than inevitable. For example, infrastructure such as stair-only transit entrances, limited elevator access, or poorly designed pedestrian crossings illustrates how design choices can exclude certain bodies and mobility needs. These findings suggest that infrastructure development reflects broader social priorities and power structures, rather than purely objective engineering decisions.

The research combines both qualitative and contextual analysis. First, the study examines transportation infrastructures and accessibility features in each case-study city, including metro systems, elevators, ramps, and step-free platforms, which are widely recognized as key components of inclusive urban mobility systems by organizations such as the World Bank and the World Health Organization.

Conclusion

This study shows that accessibility barriers in urban infrastructure are shaped not only by technical limitations but also by social assumptions embedded in design processes. Using Feminist Standpoint Theory along with insights from Disability Studies, the research highlights how infrastructure often reflects the perspectives of

dominant groups rather than diverse urban users. As a result, transportation systems and public spaces in highly developed cities can unintentionally exclude marginalized populations. Future work could examine additional cities and explore participatory planning approaches that involve disabled and marginalized communities in infrastructure design.

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