



UNIVERSITY TRANSPORTATION CENTER

RESEARCH BRIEF

Developing a Fuzzy-Logic Method for Evaluating the Accessibility of Disable People to Public Transportation in Rural Communities

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Background

Providing disabled people with equal transportation facilities and addressing their accessibility is a human right. The quality of accessibility depends on multiple factors including mobility, quality, and affordability of travel options, connectivity of the transport system, mobility substitutes, and land-use features. Failing to address the accessibility demands of disabled people is considered discrimination in society. The modern paradigm of accessibility is based on the three following major concepts widely accepted throughout the developed world: (1) What limits accessibility are not impairments, but it is the negligence of the environment and transportation by creating demands that disabled people cannot meet, (2) accessibility must serve all the population and groups of people through thoughtful design and predicting the requirements of different groups and providing them, and (3) transportation system must assist individuals in independence and accessibility as their rights.

While the literature has suggested multiple accessibility factors for disabled groups, there is not a comprehensive evaluation system that can score a transportation facility considering all accessibility indicators. Additionally, the existing methods do not adequately evaluate the accessibility based on meeting the demands of different types of disabilities.



Research Project

This research will introduce a method to evaluate the accessibility of public transportation services for disabled people in rural areas. The proposed approach will fill the gap of the existing evaluation methods by (1) transforming the existing transportation-quality evaluation to an accessibility-quality evaluation focused on disabled people in rural areas (2) evaluating accessibility for four major disability types, and (3) introducing a fuzzy-logic assessment that generates a quantitative score for the evaluation.

The research is expected to have the following benefits: (1) detecting the accessibility issues based on the disability type that leads to meeting the demands of people from various disability groups (not just wheelchair users), (2) maximizing the efficiency of the investments in improving the accessibility by prioritizing different measures based on scores with universal interpretations and, (3) contributing to the health, vitality, well-being, and economic independence of disabled people living in rural areas.



ABOUT THE AUTHORS

The research team consisted of Mohammadrush (Tommy) Tafazzoli of Washington State University.

ABOUT THE FUNDERS

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EXPECTED DATE OF COMPLETION

August 2021

FOR MORE INFORMATION

<http://depts.washington.edu/pactrans/research/projects/developing-a-fuzzy-logic-method-for-evaluating-the-accessibility-of-disable-people-to-public-transportation-in-rural-communities/>