Exploration of Transportation in Nordic Countries: Observations of Accessibility, Design, and Ease

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Abstract

• The purpose of this project is to highlight applications of user-oriented design in Nordic cities (Copenhagen, Stockholm, and Helsinki) that are used to improve commuter usability, satisfaction, and safety.

• To address this purpose, an observational methodology was used to code data from imagery and notes relating to satisfaction in predetermined categories (Safety Measures, Usability, and Weather).

• Results are indicative of applied means to improve commuter satisfaction and considerations of safety for commuters in this region and even for those in often underrepresented groups.

Methodology

Research was conducted in Copenhagen, Denmark; Stockholm, Sweden; and Helsinki, Finland. For approximately six days in each city notes were made on commuters utilizing active and non-active modes of transportation. Since this study was observational, field observations (note taking and photographs) were used to depict qualitative information. This information was categorized according to what was observed in the three cities using a matrix. Notes were written and organized on a mobile device via Google Drive, detailing the means in which transportation is designed to bring ease or accommodate commuters. This information was codified. In qualitative design, coding organizes and analyzes data which creates links within topics, which in this study was between facets of satisfaction and commuter accommodations (Allen, 2017).

Results

About 400 images were used to analyze transportation as it relates to components of commuter satisfaction within three cities. These images were given descriptions based on their purpose, physical appearance, and usability and were then coded into pre-determined categories (safety measures, usability and weather). These categories were further broken into subcategories where deemed appropriate (safety measures: traffic safety and personal security; usability: general ease and those with disabilities). The chart below shows main observations:

<table>
<thead>
<tr>
<th>Safety Measures</th>
<th>Walking</th>
<th>Biking</th>
<th>Cars</th>
<th>Public Transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Flow</td>
<td>Pedestrians have their own lanes and lights</td>
<td>Bikers have their own lanes and lights as well</td>
<td>There are roundabouts all throughout the city</td>
<td>On the train there are eight lines available to avoid being dangerously close to the ledge</td>
</tr>
<tr>
<td>Security</td>
<td>CCTV</td>
<td>CCTV</td>
<td>Cameras placed on intersections</td>
<td>There are cameras available on mirrors and buses as well as safety levers</td>
</tr>
<tr>
<td>Usability</td>
<td>General Ease</td>
<td>Ambiance walking room</td>
<td>There were some limitations made for the “line” encouraging walking in an orderly and organized fashion</td>
<td>There are automatic crossing Readers</td>
</tr>
<tr>
<td>Accommodating disabled users</td>
<td>There are raised lines on the sidewalk that are unobstructed by those that are visually impaired</td>
<td>Ample room: public transportation</td>
<td>Plenty of places to park,</td>
<td>Electronic displays available for buses with accurate arrival times</td>
</tr>
<tr>
<td>Weather</td>
<td>Coverage is provided in certain areas, offering protection from the elements</td>
<td>Ample room: public transportation</td>
<td>Parking priority is provided</td>
<td>Step buttons are available at lower heights</td>
</tr>
<tr>
<td></td>
<td>Drainage provided within the lanes closest to the shoulder in certain areas</td>
<td>Stop buttons are available at lower heights</td>
<td></td>
<td>There is plenty of seating and standing room. Those with disabilities are given seating priority. And there are handles at various heights</td>
</tr>
<tr>
<td></td>
<td>Coverage is provided in certain areas, offering protection from the elements</td>
<td></td>
<td></td>
<td>Lifts and ramps are made available</td>
</tr>
</tbody>
</table>

Conclusion

The results of this study show measures that accommodate commuters. They consist of security, urban design, and ergonomic means to address the needs of all members of society. Future studies could obtain data on commuter satisfaction as it relates to these themes and perhaps how it contributes to other facets of society. These measures are being implemented in the what is considered the happiest region on Earth, the next step could be to learn how to apply these themes to other cities to improve commuter satisfaction.

Examples of ease and usability

1. A rail is made available for bicyclists to go up the stairs with ease.
2. A stoplight shining green, letting pedestrians know that they can walk. Bicyclists have their own lanes and lights.

References


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