



METHODS TOWARDS UNDERSTANDING INDIVIDUAL MOBILITY BEHAVIOR:
SHIFTING THE STUDY FROM SYSTEMS **TO PEOPLE**

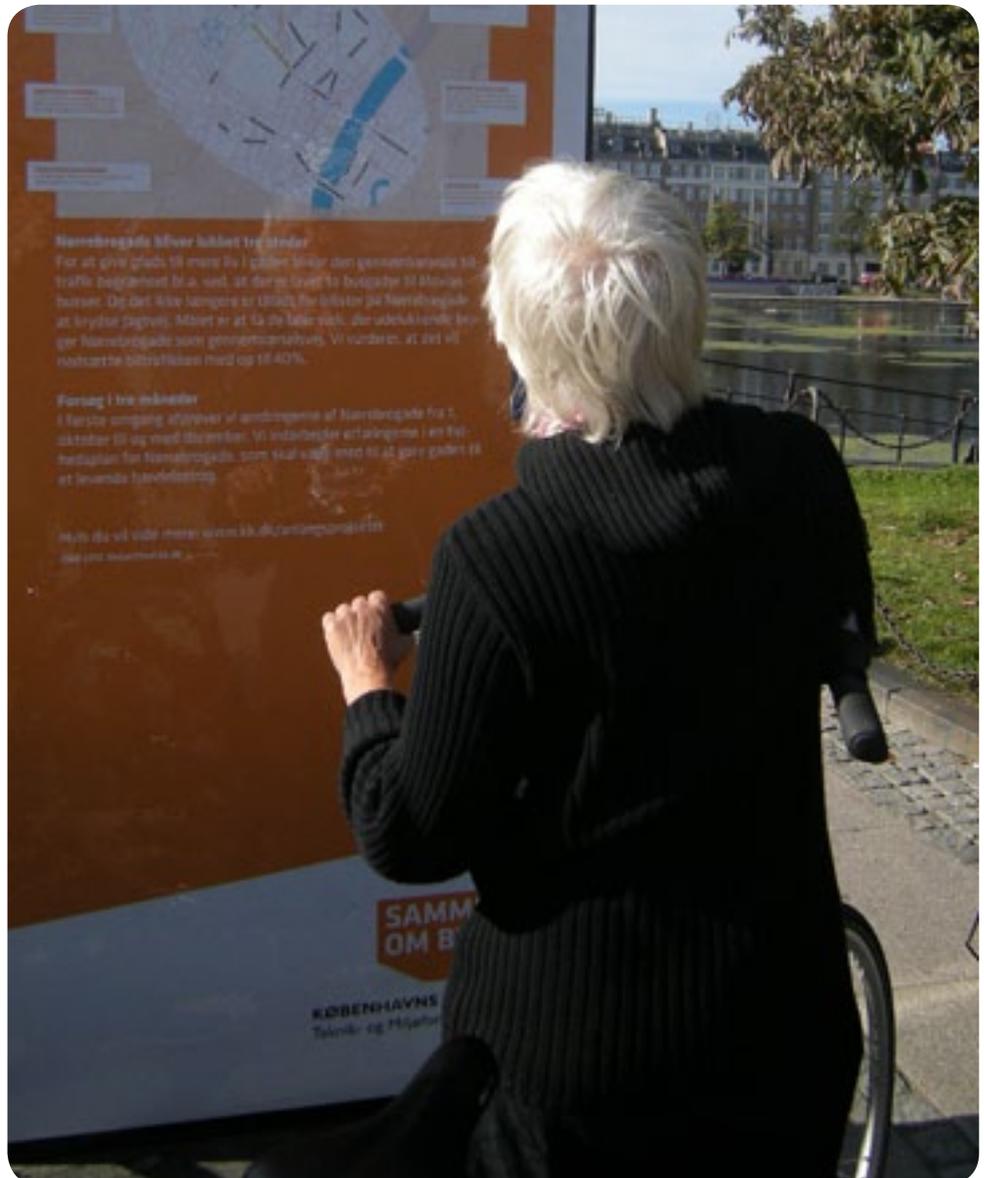


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CHAPTER 8. METHODS TOWARDS UNDERSTANDING INDIVIDUAL MOBILITY BEHAVIOR:

Perhaps more than any other mode of transport, cycling is strongly associated with personal safety, physical exertion, freedom, flexibility, and accessibility. These considerations can be at once selling or losing points, with the consequence that cycling programmes need to be designed with a full understanding of people's habits, fears and preconceptions. Planners must closely listen to their needs and suggestions. Moreover, people are not to be seen as a generic and homogeneous entity, but rather as a composite conglomeration of different age, cultural and socio-economic groups with diversified ambitions and necessities. Only the in-depth knowledge of such varying people-centred parameters affords the likelihood of success.



“Shopkeepers used to believe that most of their customers came by car. Shopkeepers now understand that car-free streets are more attractive to shoppers and understand that change was good.”

Jeanine van Pinxteren, Chair of the executive committee of the city-centre borough of the city of Amsterdam

SHIFTING THE STUDY FROM SYSTEMS TO PEOPLE

8.1 Shifting the focus from systems to people

Understanding individual choice can support increased cycling in cities as well as intermodal integration. However, people’s preferences, local culture and motivations can vary widely, making human behavior difficult to predict. As a result, many design professionals, and the local authorities or companies that employ them have typically shifted their attention to more concrete and measurable aspects such as technology and infrastructure.

To facilitate a change in mindset, local authorities need to become experts in human behavior to explore how design, both of the city and of the information surrounding it, can affect human behavior and how social science can inform design. A mindset shift embodies the perception of safety, accessibility for everyone, invitations for young and old, the fit and the unfit, and men as well as women. To accomplish these aspirations, we must begin to measure people and social outcomes such as health, happiness, and safety with the same rigor with which we measure systems and characteristics of things.

This shift of focus from infrastructure to human behavior and from macro to micro is complex. It requires a multi-disciplinary approach that marries analysis to design know-how. Technical measures go only part of the way in facilitating well-designed multi-stage journeys; investing in public transport is only worthwhile if people choose to use it, and investing in green technologies is only sustainable if people behave in ways similar to expectations. The shift in focus requires adaptation to the local context which includes local attitudes.

Every two years, Copenhagen, Denmark, carries out a survey of cyclists to assess the quality of its cycling facilities and to understand direct benefits to cyclists. Over the years, this survey, the Copenhagen Bicycle Account (CBA), has become more comprehensive and sophisticated. It now questions non-cyclists on why they choose not to ride, and aims to assess the perceived level of safety while cycling. Questioning non-cyclists rather than listening only to cyclists is important to get more people cycling. The CBA has helped to optimise municipal investments in cycling infrastructure and to ensure the success of campaigns.

Not surprisingly, the CBA provides insight into Copenhagen’s renowned success. In 2008, when asked why they choose to ride their bike in Copenhagen, the overwhelming 61% of respondents say it is convenient, fast, and simple - a much greater percentage than those who cycle because of health (19%), financial (6%), or environmental (1%) reasons. Stairs, illegible maps, overly complex stations, lack of bicycle parking and poor trip-planning opportunities from home are all relatively minor obstacles, and overcoming them will depend on the context in a given city. The key is to ask why and act on the responses. Here again, Copenhagen provides fruitful examples.

Gehl Architects have studied cyclists’ behavior in cities where they have already provided extensive cycling hardware and have the accompanying high levels of cycling. In Odense, Denmark, observation, surveys and interviews revealed to them other direct benefits. Almost all cited flexibility as a great advantage to cycling and 63% stated that making impulsive stops along the way to look in shops, take in a view or for a social exchange was a great advantage. The ability to take short-cuts and the sensuous experience it added to their day were also frequently discussed. Observing cyclists revealed that almost all around them well beyond the traffic at other people, shop windows and nature. Stimulation such as this can also affect perceived journey times compared to actual journey times - ‘time flies when you’re having fun’.



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“Soft mode... soft marketing! The focus should be on behaviour change - on ‘virtuous’ marketing.”

Denis Leroy,
Vice-President of La Rochelle Urban Community, France

8.2 Information Architecture

While we collectively strive to be healthier, wealthier and make wiser choices, can designers of the city help us by designing-in elements that support positive habit formation? New research suggests we need to focus on ‘instant gratification’ of a particular choice; in order to break a bad habit and create a new one we must appeal to the immediate benefit rather than the long term outcomes. Appealing to the immediate also works in changing behavior in line with how people want to behave. Feedback loops operate by providing people with information about their actions in real time, while providing insight into the consequences of these actions. If a viable alternative exists, this relevant info gives them an opportunity to improve those actions pushing them to better behavior. They have been very successful in a number of areas helping households reduce energy consumption, slow traffic amongst many examples. What is crucial is data - an opportunity to shift the behavior and then to measure the improvement. This could be an effective tool in increasing multi-modal individuals by collecting and exposing data on co-benefits such as calories burned, reduced CO2 emissions or data on our peers; for example, how many and who else is cycling to work that morning could potentially motivate us to cycle.



Framing travel times and costs is another powerful agent in promoting more sustainable and less wasteful modes of travel. If a journey timetable comparing two modes is present as in A, we do our own mental accounting which weighs pros and cons, financial and emotional, and we come to a decision based on a combination of those. If the journey is framed in gains as in B, we take note of the gain in our mental accounting, but it does not affect much and the likelihood is that the outcome will be the same as in A. Framed as a loss by car as in C, our cognitive accounting shifts. We want to prevent the loss and therefore are much more likely to choose the cycle ride. On the German Rail website, for example (DB), users can perform a mobility or environmental check showing the comparative financial / time cost for the train trip compared with car or plane.

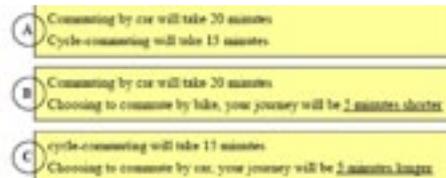
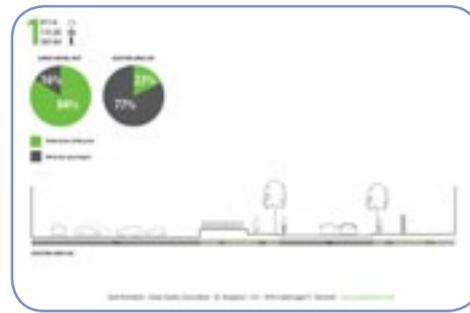
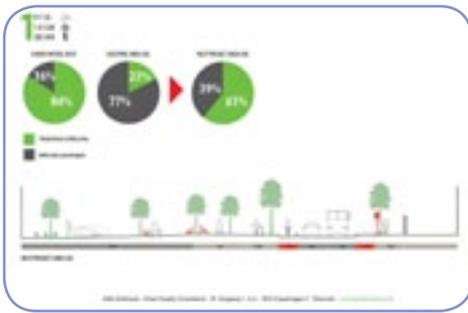


Fig. 2. Framing Effects: Three ways of presenting the same travel time information.



"It was only necessary to think some years ago how the majority of people moved and how the modern life made us unnecessarily dependent on the car."

*Juan Carlo Aparicio,
Lord Mayor of the City of Burgos, Spain*

8.3 Street Behavior

The behavior one street invites compared to another is hugely variable, and there are many things that affect cyclists and pedestrians besides just perceived safety from traffic. The scale of the street has a huge impact on wider feelings of comfort, security, and enjoyment. In a study for a pilot project in the Changning district of Shanghai, China, Gehl Architects profiled two neighborhood roads, both connected with the metro station and both developed at the same time. One has 84% cycling and walking and the other has 62% car traffic. The one with high car traffic has been completely re-scaled, with the buildings pulled back from the street to make way for parking and large footprint development (below right). The other has maintained its original scale with some buildings onto the street and some parking. The difference in environment that this creates is stark. The humanly scaled street is multifunctional, while the re-scaled street is mono-functional.

Shanghai once had very high levels of cycling, but this is declining for cultural reasons. In cities where cyclists once 'protected' the modal split and thus each other through sheer numbers, cycling hardware is now needed to for this protection. That is, such cities must now aretro-fit themselves as cycling becomes the less dominant modal choice.



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"It's extremely important to actually demonstrate what's possible on the streets quickly, even on a temporary or pilot basis."

*Janette Sadik-Khan,
Transportation Commissioner, New York*

8.4 Political focus on life quality

Cycling must be seen as a means not as an end. It is a tool to improve quality of life, not a goal in and of itself.

As we try to achieve integration of public transit and cycling, we will have to understand that not all public transit is the same, and cyclists do not all have the same needs. Using quality-of-life parameters, we can provide a variety of incentives or ways to break down barriers in order to diversify users. To achieve this fine aggregation, we need the data and evidence to support our arguments and to influence people's behavior towards more sustainable or life enhancing behaviours.

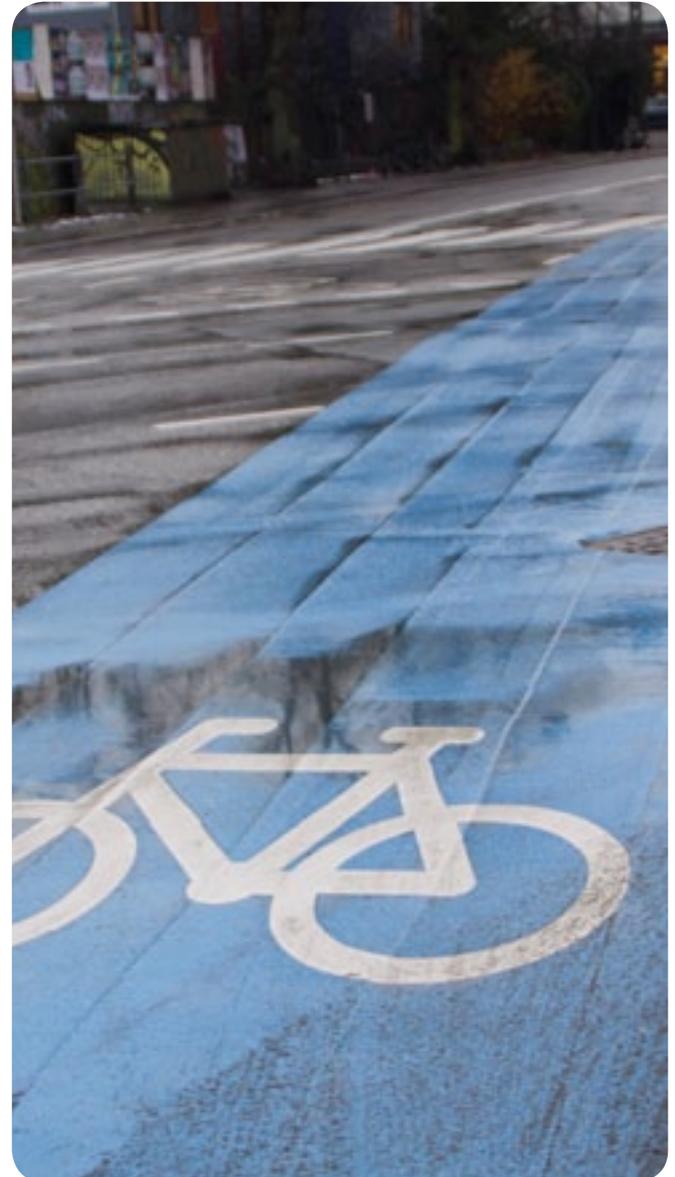
Current indices, such as those from The Economist or Monocle, measure liveability in terms of safety, crime, international connectivity, climate and political-economic stability. To our knowledge, no parameters currently exist to assess mobility systems, or their relationship with human parameters such as comfort, perceived safety and sense of belonging. More easily quantifiable measures for improved health, increased mobility and decreased commuting times would be a step in the right direction.

8.5 Culture and social status

Considering cultural and social status can help change perceptions and bring more user groups to cycle. The Cycle Chic movement that began in Copenhagen and has spread to Barcelona, Dublin and other cities help increase the number of citizens cycling for utility, and in everyday clothes. When Denmark's new finance Minister meets the Queen on a bicycle, it is a symbol of how the bicycle can also be a symbol of prestige and power.

In Copenhagen, 25% of all families with children currently own cargo bicycles, conveying a sense of practicality and convenience embodied by mini-vans in other cultures. Bicyclists generally have a higher education level than commuters primarily using car or public transit. Collectively these examples indicate a Copenhagen culture where the bicycle is part of a personal narrative; exemplifying the way of life, beliefs and values of the well-educated and high income group.

In New York City, the transition to a wider variety of people cycling is striking, as investments in infrastructure and campaigns are beginning to pay off. The father in Figure 8.7 claimed he would not have dared to bike home from soccer practice through the Flatiron District in Manhattan only two years ago, before enough cyclists were on the road to make it feel possible. Beyond numbers, seeing bikes on streets instills a personal-level character. When there is a feeling that cities are not just machines for business but instead true homes where the citizens belong, then more citizens will feel comfortable enough to cycle. The bike is a symbol of livability in this sense, which is an intangible but invaluable aspect for individuals.





8.6 Conclusion and recommendations

The examples in this chapter reinforce a truth so often taken for granted: people do not change their behaviour when you tell them to but when the context urges them to. Before we can expect to alter people's mobility choices, we need a better understanding of why they make the decisions they do. This does not have to be an expensive and arduous task. Surveys like the CBA are affordable via online data collection. Existing public transit and census data can be used to uncover previously unnoticed patterns and tendencies.

A summary of policy and design recommendations discussed include:

- ▶ Identifying 'predicted irrationality' (Ariely:2008) can help find sweet spots for incentives towards sustainable behaviours.
- ▶ Travel information such as travel time, travel costs or risks should be seen not only as a service to the public but also as an instrument to change travel behaviors.
- ▶ People focused KPI's such as the quality of travel experience should be designed with the same weight of importance as system focused KPI's such as transport capacity and costs.
- ▶ Observational analysis such as mapping cyclists behavior and periodic cyclist and non-cyclist surveys can be an excellent exercise in presenting and framing alternative transit choices.
- ▶ The addition of new layers of feedback can incentivise active mobility; the key is to refine and redesign based on this information.

Furthermore, focusing on the 4 C's of cycling infrastructure; Consistent, Connected, Continuous, and Comfortable; can radically alter convenience and attractiveness of bicycling. This entails consistency in the design and layout of cycling infrastructure, connections along cycle track networks and between other forms of transport, the optimisation of comfort and convenience from door to door, and continuous improvement of the network using surveys, observational analysis and geocoded data as feedback from cyclists and non-cyclists. The 4 C's will manifest themselves differently in different cities.

Taxpayers are justified in demanding value for their investment, but cycling infrastructure is only successful if people choose to use it. Therefore we have to invite a diverse and varied group of cyclists to utilize these investments. In these crisis-riddled times, it is important to remember the mantra of "Never allow a crisis to go to waste". In Denmark, it was the 1973 oil crisis that spurred reinvestment in bicycle and reinvigorated the cycling culture in the country. Crisis and chaotic conditions force us to think and act differently. By planning for the prevailing everyday condition and developing contingencies for the extreme we can unleash a new and more effective wave of investment that as Charles Laundry advocates can "radically reclaim common sense" in the way we plan and build communities. Such a change in mindset will not only promote cycling in a variety of challenging conditions but also reconnect people with the environment in which they live.



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