

Symposium: The Psychology of Sustainable Mobility

Transport Policy and Evaluation

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Introduction

A number of public policies are developed and implemented to change travel behaviour in a more sustainable way. Environmental psychologists are able to contribute to this process in several ways. They provide expertise on user reactions towards special policies as well as methodological knowledge on policy implementation and evaluation. The papers in this session reflect this broad range of possible contributions.

The *first presentation* looks at transport policy evaluation in practice using the EU CIVITAS initiative as an example. Carrying a long tradition, the CIVITAS initiative is an extensive and substantial transport policy implementation and evaluation program for cities co-founded by the EC. The author identifies and illustrates a gap between the methodological gold standard of evaluation and the evaluation guidelines of CIVITAS on the one side and the evaluation activities in practice on the other. This is illustrated with selected transport policy measures. The paper concludes with suggestions for an adapted evaluation that bridges the gap between theory and practice.

The session focuses further on two specific transport policy measures, namely soft policies and pricing policies. Soft policies try to influence travel behaviour by changing people's perceptions and motivations about travel options. The growing interest in soft transport policy measures opens the chance for psychologists to contribute directly to more sustainable travel. The *second presentation* investigates the effectiveness of soft policies during key life events in two

extensive field experiments. The authors analyse the contribution of soft policies, life events as such and their combined impact on travel behaviour change. They discuss the optimal timing of the intervention and differences between types of life events that may affect the effectiveness of soft policies.

Pricing policies are powerful economic policy instruments, but their main barriers for effectiveness and implementation are psychological factors, namely the lack of comprehension and public acceptability. Thus, the *third presentation* evaluates user comprehension, acceptability and behavioural intentions under differentiated pricing schemes. In a series of laboratory and online experiments, the degree of price differentiation and the presentation mode (gain vs. loss) is manipulated. Recommendations for an optimal price structure and its communication will be discussed. The *fourth presentation* analyses how trust in the government influences public acceptability of pricing policies and conducts a comparison of three cities that are in different implementation stages of road pricing.

The *fifth presentation* compares public and expert acceptability of sustainable transport options in two mixed-method studies. It highlights different preferences in these two groups for certain policy measures and discusses the implications for the policy implementation process.

Presentation 1: Evaluation of measures aimed at sustainable urban mobility in European cities – theory and reality in CIVITAS MIMOSA

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The measure evaluation in the field of sustainable urban transport is a relatively young research area. In some cases evaluation is unwanted; in other cases evaluation might be desired, but resource restrictions or a lack of competence might produce useless results. In an ideal scenario, evaluation would take high priority and be conducted properly thereby producing valuable results and lessons to learn.

In the CIVITAS initiative, launched by the European Commission (EC) in early 2002, evaluation plays an important role. Within CIVITAS, cities learn from each other and work with the support of the EC to implement measures that aim at sustainable urban transport and providing a better quality of life for all citizens according to the slogan: city – vitality – sustainability. Currently, more than 200 cities across Europe are a part of the CIVITAS community.

The focus of this paper is the evaluation approach in CIVITAS MIMOSA, which is a project active in the current CIVITAS phase (2008-2012). Answers shall be given to questions like: What are the outcomes of certain measures in the cities? What are successful strategies from which other cities could learn? What are the most cost-effective investments? Which measures serve as good examples for other European cities?

The evaluation approach of CIVITAS MIMOSA consists of three building blocks: concept, impact and process evaluation.

The central question for concept evaluation is what is the research and technological basis of the measure? Research and technology development activities are analysed and described for a broader audience and are also put into the measure and city context.

Impact evaluation focuses on what the calculable effects of the measure are. The impacts should be measured with research designs that produce valid data. CIVITAS indicators are used to ensure cross-site evaluation later on.

Process evaluation seeks to answer the question, why was a measure a success or failure? This is conducted through an annual analysis of the measure implementation processes: barriers, drivers, reactions to and lessons learned from them are each assessed with special templates and in workshops.

In CIVITAS MIMOSA the cities of Bologna, Funchal, Gdansk, Tallinn and Utrecht are implementing in total 69 demonstration measures.

The well-elaborated evaluation guidelines provided by horizontal support activities and the MIMOSA project evaluation manager follow classic evaluation theory and are already adapted to the evaluation of urban transportation measures in the CIVITAS cities. These guidelines include, for instance, the recommendation to use control group designs and before and after data collection for impact evaluation. The manuals and trainings provide knowledge to the people responsible for conducting and reporting on evaluation activities in the cities. However, despite these comprehensive plans and preparations, the final conducted evaluation activities and results (may) deviate from the guidelines. Reasons for this could be timing problems, for instance, resource restrictions or a lack of skills among the local people. This paper will explore the gap between ambitious evaluation ideas and concepts based on classical evaluation theory and actual evaluation activities conducted on the local level in the cities. Selected examples from the CIVITAS MIMOSA project will be used to illustrate both good and bad practices and to derive suggestions for the further improvement of the evaluation approach.

References

www.civitas-initiative.org
www.civitas-mimosa.eu

Presentation 2: Influencing travel mode choice by applying soft policy measures in moments of change: The case of residential relocations and changes in professional life

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Introduction

In western societies, cars dominate the road. While hard-policy measures to restrict that unsustainable behavior are often refused by people, soft-policy measures to stimulate rather sustainable behavior lack efficacy.

Theory

The latter may be caused by mobility routines emerging from the repeated use of a certain mode within a stable situational context (Ouellette & Wood, 1998). Though individuals thereby tend to ignore mobility alternatives, they seem to re-think their behavior when their life context changes – by one significant (key) event (van der Waerden et al., 2003), or by cumulative events (Harms, 2003). Thus, context changes may be windows of opportunity for behavior change (Verplanken et al, 2008).

Considering the habit discontinuity hypothesis (Verplanken et al., 2008) and three (key) events (relocation, job start, retirement), we pursue the following questions:

- Can we support the habit discontinuity hypothesis implying that soft policy measures are mainly effective in habit-breaking key event moments?
- Is it maybe more effective to intervene before the event takes place?
- Are there general mechanisms of habit break across the three different events?

Methods

Two pre-post experiments are conducted:

- Leipzig (2008-2010): People intending to move, already moved or do not move house at all participated in a 3-wave survey. After the first survey, half of each group received an intervention.

- Hanover (2010 ongoing): Present and future employees, and future retirees participate in a 2-wave survey. With the first survey, part of each group receives an intervention.

Results

First results propose that a key event opens a pattern of domain-specific “windows of opportunity”, thus efficacy vitally depends on the intervention’s fit. Also, the moment of highest susceptibility to the intervention tends to be the earlier the more mobility issues provoke the context change and vice versa. Furthermore, some “personal readiness for action” works as a central interacting factor to let the intervention take effect.

Discussion

Regarding a practitioner’s point of view, results demonstrate clearly how much the design, the credibility as well as the quality of the intervention account for its success.

Besides strengthening our understanding of the relationship between key events and habit weakening processes in the field of travel mode choice we aim to develop recommendations for highly effective information-based soft policy campaigns.

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Presentation 3: Dealing with transport pricing systems - the effect of pricing structures and communication

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Experience has shown that traffic problems like congestion and pollution can be solved only by systematic changes in mobility behaviour. In spite of the effectiveness of road pricing the major barrier to the implementation of this pricing strategy is the lack of public and political acceptability (e.g. Schade & Schlag, 2003). Thus the challenge is to design a scheme that is both acceptable to the public and effective in achieving the objective of more sustainable mobility.

The economic best pricing model is dynamically differentiated and takes numerous factors into account. In contrast to this theoretically optimal pricing system, many empirical studies show that such differentiated pricing systems are too difficult to understand and to predict and therefore do not achieve the desired sustainable mobility behaviour (Bonsall et al., 2007).

Besides the structure of a pricing scheme, the mode of presentation, i.e. describing a fee in terms of gains or losses, has an effect on people's decisions and attitudes. According to prospect theory people often make irrational or biased decisions and react more strongly to potential losses than to potential gains (Tversky & Kahneman, 1981).

The aim of a laboratory study conducted in May 2011 is to investigate to what degree of complexity users are able and motivated to deal with differentiated prices. Focus of the investigation are five differentiated pricing schemes (spatially and temporally differentiated, from very low to very strongly) and the calculation of the price for a certain distance. After the presentation of each pricing scheme, participants are questioned on task certainty, raised intelligibility and perceived task difficulty. Moreover latency time the respondent took

for estimating the charge is measured. After this, face-to-face interviews and the think aloud method are used to get to know the way participants deal with differentiated prices.

The effect of message framing and the metric effect were examined in an online study conducted in February 2011. This uses a 2x2-between-design to investigate whether the two frames have an effect on the evaluation of road pricing. Participants are randomly assigned to four sets differing from each other whether a charge for entering the city centre is described in terms of a discount or a surcharge on a fixed charge. It is also tested whether a discount or a surcharge is evaluated more positively in percentage terms in contrast to absolute amounts. After this formal manipulation, participants are asked questions among other things concerning their attitude towards road pricing.

Results of the online study (n=236) show that by trend acceptability, perceived effectiveness and fairness of road pricing are higher if charges are presented in gain conditions. Charges in percentage terms are more acceptable than in absolute terms. Furthermore the gain-percentage-charge is evaluated most positively, perceived as the fairest and the most effective one. However, findings are not statistically significant. More results will be available in summer 2011.

By analysing the impact of price differentiation and framing of charges on responses towards road pricing recommendation for an optimal pricing structure and its communication are derived.

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Presentation 4: Comparative Study on the Acceptance of Road Pricing Policies in the U.S., U.K. and Japan

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There are by now a number of, in general rather successful, road pricing implementations, such as in Singapore, London and Stockholm. In some other cities proposals have been rejected because of a lack of public support. For example in Edinburgh the discussion on possible economic effects of a proposed scheme raised many concerns, leading eventually to its rejection (Gaunt et al., 2007). Also a planned scheme for road pricing in Manhattan, New York was rejected, largely because of a lack of public acceptance (Schaller, 2010). Schmöcker et al (2010) then show with a comparison of UK and Japan data that “Trust in government” is an important factor for acceptance in both countries and that “Belief in absolute” determines government trust in the UK. Therefore the aim of this paper is to suggest ways to raise the acceptance level for coercive transport policy measures, and to understand whether there are significant cultural differences, especially regarding the role of trust in government.

We asked students in three countries about their acceptance of a hypothetical tax scenario and hypothesise following e.g. papers in Schade and Schlag (2003) that trust in government and established factors such as infringement of freedom, problem awareness and perceived effectiveness are determining factors. Furthermore, in exploratory research we investigate whether values such as “Trust in Government”, “Belief in absolute”, “Individualism”, “Autistic Attitude” and “Arrogance” can explain the importance of acceptance. With regards to the objectives of this study we ignored all foreign students leaving us with a

valid sample of 139 students from Tokyo Institute of Technology, Japan, 72 students from Imperial College London, U.K., and 96 students from Rutgers in New Jersey, U.S. We note that there are some further differences in our sample composition: In the UK and Japan we collectively asked students from civil engineering classes to fill in the survey at the end of the lectures, whereas in the US we encouraged students taking classes on Climate Change and Urban Planning to fill in the survey during their leisure time.

We believe that our study has some important implications. It shows that the potential applicability of environmental taxation policy varies between countries. This suggests that governments should consider specific psychological tendencies of their population to avoid failure of public acceptance when they promote hard transport policies. We also discuss the importance of environmental education to raising acceptance levels, because our results suggest that students who have taken classes on environmental problems appear to show higher acceptance.

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Presentation 5: Expert and public attitudes to sustainable transport options

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Transport accounts for a large proportion of total CO₂ emissions in the EU, with approximately 80% coming from car use. Other problems inherent in current transport systems (accidents, air pollution, inaccessibility, CEC, 2001), dictate the need to implement sustainable transport policies.. Expert and special interest (e.g., industry) groups are likely to define such policies, but citizens will experience and enact them. Risk and participation literatures (e.g., Rogers-Hayden & Pidgeon, 2007), along with high-profile examples of public protests against transport policies (e.g. the 2001 UK fuel duty protests) show it is critical to understand how citizens perceive transport problems, what are their attitudes to potential solutions, and how these perceptions and attitudes differ from those of expert groups.

We investigated (a) understanding of, and attitudes to sustainable transport and relevant policies and technologies in expert and public samples and (b) areas of convergence/divergence between samples, and depending on the elicitation methods used.

Study 1, compared attitudes to sustainable transport between experts (N=44) and British public (N=30). We used interviews, deliberative workshops, attitudinal scales and preference ranking. Both samples prioritised reduction in transport demand in qualitative measures. In quantitative measures, however, experts preferred techno-economic measures while the public prioritised behaviour change and public transport improvement.

Study 2 replicated and extended Study 1 with new but comparable samples of transport experts (N=42) and British public (N=40) and added (a) new quantitative preference measures (e.g. Advanced Hierarchical Processing, AHP, traditional ranking scales); (b) salient psychological and behavioural measures; and (c) telephone follow-up

interviews to compare informed (after deliberations) to uninformed (before deliberations) preferences. We replicated Study 1 findings; i.e. in qualitative measures experts generally agreed with citizens on the need for modal shift; in quantitative measures, experts preferred techno-economic solutions while citizens focused on behaviour change and improvement of public transport. The replication of this expert-public divergence has implications for public engagement in policy-making, and the risk literature: the different perspectives and values imply a need for a broader definition of expertise in transport policy making, and that the public may not accept transport policies/ technologies designed by expert only groups - underlining the importance of early public engagement. Consistent with cultural studies of risk (e.g., Kahan et al., 2010), and Stern's (2000) Value-Belief-Norm model of environmental behaviour, attitudes and perceived responsibility for sustainable transport also varied with individuals' values, suggesting that expertise alone does not fully account for variation in attitudes.

In addition, traditional ranking showed priority changes for our public sample after deliberations, while AHP did not change. We attribute this to social desirability effects, as AHP is more opaque to participants. Public preferences according to the qualitative measures also changed post-deliberation with a focus on public education/ behaviour change, versus business/ industrial measures. Follow-up telephone interviews showed limited pro-environmental attitude change, compared to pre-deliberation scores.

Qualitative analysis of transport preferences helped understand changes in quantitative measures; it also exposed differences in how preferences are expressed i.e., expert-citizen divergence in types of reasoning, language and evidence used (cf. analytic vs. experiential processing; Weber, 2001). This emphasises the complementary value of mixed methods for enhanced understanding of quantitative data and providing an in-depth understanding of complex topics.