Behaviour Change for Active Travel

Prepared by **Dr Manu Savani** | Brunel University London

Summary

- Behaviour change initiatives have successfully used information, norms, and persuasive appeals to **shift attitudes and intentions towards more active travel**.

- However, active travel decisions are often beset by the intention-action gap. Interventions need to address behavioural biases (e.g. status quo bias and present bias), and deeply held beliefs (e.g. about the convenience and status of private car travel) to **translate good intentions into real behaviour change.**

- Active travel interventions might benefit from a longer timeframe for testing and implementation, because travel behaviours require **sustained and repeated good choices** to be made. They present a greater challenge than behaviours that require a one-off change for longer-term benefits.

- Research offers a wealth of good practice on how to design nudges and wider interventions for **better chances of success.**

- Combining nudges and behaviourally-informed approaches with more conventional interventions around infrastructure, incentives, and rules, may offer the **best opportunity for sustained behaviour change**.

What is the central challenge with promoting active travel?

Active travel choices are a result of multiple factors – public policy, social and economic influences, and individuals' attitudes, intentions and habits. Increasingly, behavioural factors are being considered alongside more traditional factors such as financial incentives or disincentives, rules and regulations, and infrastructure investments. This includes paying more attention to the role of information, personal values, social norms, and motivational messages – all of which can, in theory, encourage behaviour change. The overall goal is to encourage active travel for the health and environmental benefits it offers to individuals, communities, and society as a whole.

Predictable biases in human behaviour can affect active travel. Habits govern our busy, daily routines, and moving out of familiar patterns takes effort. The benefits of travelling by car are immediately apparent, while the costs are not. The costs are shared by society while the benefits are concentrated for the individual. When given information about costs and benefits, and how to change, people are generally receptive. The next step – turning good intentions into real behaviour change – is where the challenge lies.

Key questions for policy makers include: what works, in what circumstances? Can behaviourally-informed policies such as nudges deliver behaviour change on their own? What is best practice to trial and test interventions for active travel? This evidence brief aims to provide insights on these questions, drawing on a rapid desk-based literature review.

What behavioural interventions have been tested for encouraging more active travel to work?

Several studies have tested interventions promoting active travel and public transport, with Table 1 providing a brief snapshot of recent research that focus on behaviourally-informed interventions and nudges. Interventions include:

(1) Personalised information at the journey planning stage, encouraging commuters to look at alternatives to car journeys such as bike, walking, and public transport. Feedback messages and transport information can be framed to emphasise the benefits from calories burned, emissions avoided, and money saved.

(2) Invitations to join car-pooling schemes and other workplace initiatives that reduce single-occupancy car journeys. These invitations by email or postcard test behavioural levers such as moral and social norms, and can be designed to appeal to self-interest and public interest.

(3) Nudges alongside financial incentives such as commitment contracts alongside pre-paid public transit vouchers.

(4) Gamified and app-based interventions, have incorporated technology and digital opportunities to reach, inform, and influence target groups; and to gather fine-grained data about acceptability and traveller types.

Many of these studies have tested public attitudes and intentions on active travel, but there is a growing evidence base of field studies testing behaviour change. The literature reviewed here all draw on studies and data from Europe and the US.

Table 1

Place and year	Intervention	Type of study	Main findings
9 towns in Odense, central Denmark May 2015 Reference: Lieberoth, Holm Jensen, and Bredahl, 2018	"The commuter experiment"– a public campaign to encourage more public transport journeys. Outcome studied: engagement with a campaign webpage, self-reported habits, intentions.	Field study 282 participants Compared nudging, gamification and information. Nudge group received a precommitment letter. Gamification group could collect coins, badges, and take part in a prize draw Information group received additional info on health benefits.	Gamification was the only strategy that yielded more engagement with the campaign webpage. No significant effects from the nudges on intentions or self-reported habit formation. General decline in effectiveness over 4 weeks.
Vienna, Austria April-May 2017 Reference: Anagnost-opoulou et al, 2018	Route guidance app tailoring journey info and messaging to different traveller profiles. Messages such as *"15% of users used public transport when the weather was as good as today!";* and *"It's not far. Take your bike instead of car and reach your weekly goal".* Outcome studied: feedback on the app, self-reported travel decisions.	Field study of acceptability 30 participants generating 182 route requests. Participants categorised into 8 profiles based on driving behaviour and willingness to switch, personalised messages designed and delivered based on the profiles.	30% of messages about the app were positive, indicating it was a promising approach and acceptability of the app was good. Purpose of trip (context) mattered. Intervention took place in a city where there were lots of practical alternatives to driving.

Tennessee, USA Reference: Aravid, Mishra and Meservy, 2024	3 different norms to test shift in travel intentions from private car to public transport and bikes Emotional message – using smiley faces and colour scales. Normative message – information about environmental impacts and the idea of a collective commitment to reducing US emissions. Gain message – personal health benefits. Outcome studied: Willingness to use alternative travel modes.	Survey experiment 2250 people Participants randomly allocated to one of 4 groups and shown different informational vignettes. Comparison of willingness to use alternative travel modes indicates whether any of the vignettes was more effective than a control group given no information.	Relative to a control group, all the information vignettes reduced the intention to use a car, and raised intentions to use public buses. Framing the choice in terms of personal health gains was the most effective messaging. Emotional and environmental norms came second. Other characteristics such as age, education, income and environmental values played a role.
Seattle, USA Reference: summarised in Whillans et al., 2021	"One less car campaign" aimed to encourage families with more than one car to release their second car. Families given $80 for participating and asked to commit to not using their second car for up to 8 weeks. Outcome studied: Mileage by different transport means, number of households who released their additional car at the end of the study.	Field study 86 households	Mileage with single-occupancy vehicles fell by 27%. Mileage increased for alternatives including bike miles (38%), car pooling (23%), mass transit (25%) and walking (30%). At the end of the study, 26% of households got rid of their second car.

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Work-place-based studies in the UK at an airport Reference: Kristal and Whillans, 2019	Initiative to promote carpooling with airport workers. Tested in different ways including a letter to employees. Outcome studied: sign up to the carpooling scheme	5 field studies. One involved a letter promoting a carpooling initiative sent to 14,987 participants compared with a control group of 39,900.	All the studies showed zero or near-zero effect on behaviours. 0.22% of those receiving the letter signed up to the programme (33 people) compared to 0.06% of those not receiving the letter (20 people) – a statistically significant difference but marginal in terms of real world impact.
Skane, southern Sweden Reference: Gravert and Olsson Collentine, 2021	Anyone moving to the region receives an offer of a 2-week free travelcard. A nudge intervention includes a descriptive social norm in the invitation letter (*"72% of neighbours travel with public transport occasionally"*). An economic intervention doubles the incentive to 4-week free travel. Outcomes studied: (1) response to the offer, activating the pre-paid travel card, and usage of the travel card over 8 months.	Field study with local transport authority 14,000 participants. Pre-paid cards can be tracked with administrative data to understand how many cards are activated and how many trips are taken.	The nudge was not especially effective relative to the control group. The 4-week free travel card offer led to significantly higher response rates (43% compared to 16% in the control group), higher activation rates, and higher usage at 8 months (33% more likely to still be in use than the control group). The 4-week period appears to have helped with habit creation over the 2-week incentive.

What has been found to work?

Themes emerging from this rapid review of the evidence include:

- Interventions that combine 'hard' policies such as incentives, rules and mandates, and infrastructure investments with 'soft' policies such as information, nudges, personalised feedback, and normative appeals. Incentives in particular seem to be an important aspect of successful initiatives promoting public transport.
- Highlighting the hidden costs of driving and the hidden benefits of alternative commuting might be a promising approach – particularly to shift deeply held feelings about driving your own car related to perceptions of status and comfort.
- Incorporating a sense of play and competition through gamified interventions can generate initial interest.
- Visual cues and messages that appeal to emotional responses to 'doing the right thing' can draw attention in the short run.

- Using well-designed and personalised information and messages can work, but there need to be practical alternatives available to facilitate a behaviour change over and above an attitude change.
- Travel decisions are harder to shift on a sustained basis because of the repeated nature of the choice and the daily need to choose differently to what one might be used to. This makes travel decisions different to other behaviours (e.g. pensions enrolment) where a one-time nudge can deliver longer-term benefits with no further action or thought. It also means nudging for active travel may need to be approached as a medium-term rather than a one-off or short-term measure, to more fully encourage habit formation and sustained behaviour change.

How can we understand different 'types' of commuters?

There are a number of factors that can be used to personalise travellers and organise a target group into more detailed profiles or types. These include their demographic characteristics; their knowledge, capabilities, opportunities; preferences for being nudged or contacted; and importantly their context for travel. Contextual factors could include locations, timing and length of travel, as well as specific restrictions and constraints they need to work around.

Different traveller profiles might lend themselves to different persuasive strategies which might rely more or less on self-monitoring techniques (using information about own behaviour), comparison (relating to peer behaviour), and suggestions (giving advice and prompts to do something different). One study identified 3 broad groups of drivers and 8 different traveller profiles:

- Potential non-Drivers: Malcontented Motorists, Active Aspirers, Practical Travelers
- Non-Drivers: Car Contemplaters, Car-free Choosers, Public Transport Dependents
- Drivers: Devoted Drivers, Image Improvers

Any intervention that aims to personalise nudges needs to understand the target users and their situation; the target activity (what specific improvement is desired based on the current activity); and relevant contextual information (e.g. weather, bus routes, footpath, safety perceptions, and timings) before the nudge can be effectively designed.

How can future efforts improve on what we know?

Most studies reviewed took a short-term perspective and focused on quantifiable indicators over qualitative data that could tell us more about experiences and real-life barriers and opportunities for sustained behaviour change. Few studies referred to participatory methods or co-design of nudges, which is another way to personalise interventions and directly address the needs of the target group. These are gaps in the evidence base, which new interventions and studies should aim to improve upon by drawing on co-design methods, gathering both qualita-

tive and quantitative data, with a timeframe that allows for refined and repeated testing with key target groups.

What are the top lessons learned from recent research?

1. Driving a car to work can be an ingrained and deeply-held habit, reflecting perceptions of social status, power, autonomy, and emotional connection to one's car. Unlike other behaviours, one-off nudges on their own may not deliver lasting or significant change.
2. Intentions are not the same as behaviour change – the intention-action gap remains an important barrier to overcome to deliver sustained behaviour change. Studies which rely on self-reported intentions to switch to active travel may not give an accurate picture of what might actually happen when an intervention is tested in the field.
3. Nudges can be combined with and layered on to other interventions, for example incorporating a gamification or commitment element within a wider intervention including incentives.
4. There is a reasonable chance of finding null or small effects from nudge interventions (particularly those in isolation from other policy measures such as incentives or changing rules). Studies that take place over time allow for designs to be refined; and fine-grained baseline data can facilitate better targeting of the most persuadable individuals. Qualitative data collection can gather important data on perceptions, multiple or interlocking barriers to change, and experiential feedback that can give a more rounded picture than statistical indicators of intentions or behaviour change alone.

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Prepared by **Dr Manu Savani** | Brunel University London
For **Laura Taylor** I Engagement and Behaviour Change Team Leader
Environment and Circular Economy, Kent County Council

For more information please contact:

Dr Manu Savani, Senior Lecturer in Behavioural
Public Policy, Dept of Social and Political Sciences,
Brunel University London

manu.savani@brunel.ac.uk

Work with me

Manu Savani has expertise in behaviour change and evaluation. She uses surveys, randomised control trials, and qualitative methods to understand when behaviour change interventions work (or not), and how people experience and respond to behaviour change interventions. Manu's previous experience including working as a development economist in the UK Government, an impact evaluation adviser, and collaborating with Local Authorities and charities.

Brunel Public Policy
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH