



Measuring support for sustainable transport policies and technologies

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Objectives

Aims of this research:

- (1) **investigate attitudes** to sustainable transport and how these differ between **experts** and **non-experts**
- (1) **assess** common and different points according to **alternative methods** for eliciting attitudes, preferences and perceived risks.



Eliciting attitudes and preferences...

- Important to understand people's **habits, attitudes, preferences** with regards to sustainability and transport, as well as their **potential reactions** to any new measures
- Useful to consider how public attitudes and preferences can be used to inform and improve policy
 - Calls to 'up-stream' stakeholder engagement in policy making process (Rogers-Hayden & Pidgeon, 2007) – i.e., early and meaningful involvement
 - Normative and practical reasons for public participation (e.g., transparency, democracy, trust, compliance)
 - Valuable learning can be achieved via stakeholder participation (Siebenhüner, 2004); social interaction is particularly appropriate



Eliciting attitudes and preferences...

- How to elicit attitudes about novel ideas, e.g. new technologies?
 - Importance of using deliberative research methods
 - Challenge of developing 'neutral', balanced information to inform attitudes without persuading (cf. elaboration likelihood model; Petty & Cacioppo, 1986)



Eliciting attitudes and preferences...

- A **mixed-methods approach**:
 - **qualitative** construction and expression of attitudes
 - **quantitative** measurement and rankingRationale: triangulation (Bryman, 1998)
- Examine individual and group differences:
 - (a) **expertise**
 - e.g. risk perception literature highlights differences in risk attitudes/perceptions between expert and non-experts (Wynne, 1991)
 - (b) **values**
 - attitudes may be an expression of deeper values or worldviews (e.g., Whitmarsh, 2011, cf. Schwartz)



Methods

- In Study 1, we used:
 - A 'visioning' exercise to elicit qualitative attitudinal data;
 - deliberation
 - self-completion questionnaires
 - a voting exercise
- In Study 2, we used:
 - Analytic Hierarchical Process (Saaty, 2008 - an extension of Paired Comparison Analysis),
 - attitude questionnaires
 - conventional Ranking methods and
 - deliberative focus groups



Summary – Study 1

- **Study 1**
- Participants:
 - European transport experts (N=44) and UK citizens (N=30) in 2007
- Key findings
- Variation in responses according to the method used
 - e.g., **transport demand reduction measures**: significantly lower amongst **experts** in quantitative survey VS qualitative discussion



Summary – Study 1

- **Study 1**
- Convergence / divergence in attitudes to sustainable transport according to expertise:
- **Both groups:**
 - **Current transport is unsustainable**
 - **Reject business-as-usual approach**
 - **Identified same environmental and socioeconomic criteria for sustainable transport**
 - **Responsibility for fostering sustainable transport first with governments, then with society or themselves**
- **Expert** stakeholders placed more emphasis on **transport technologies and macro/pragmatic issues**
- **Citizens** placed more emphasis on **behaviour change policies and amenity of transport**



Aims & Methods - Study 2

Study 2

Aims:

- Replication of findings?
- Sample extension?
- Further cross-method validation?

Methods:

- Stage 1: **Transport Experts** (working on *European-funded transport projects*; N=42).
- Stage 2: **Citizens** (UK residents members of Cardiff University Community Panel; N=40).
- Materials:
 - Analytic Hierarchical Process (AHP-Saaty, 2008), attitude questionnaires & conventional ranking scales
 - Expert presentation (for Citizens only)
 - Group discussion & deliberation (for Citizens only)
 - Analytic Hierarchical Process (AHP), attitude questionnaires & conventional ranking (for Citizens only)



Analytic Hierarchy Process sample:

Preference is indicated for each item on the **left**, relevant to each item at the **top**.
Scale anchored at **2**=“slightly more” and **9**=“extremely more”. [“1/1” = equal preference.]

Place your preference to the **left** of the divider if you prefer the **left** item.
Place your preference to the **right** of the divider if you prefer the **top** item.

Example: I prefer fish over pasta (9=extremely more) and fish over steak (5=much more).
I prefer salad over pasta (2=slightly more).

	Fish	Pasta	Salad	Steak	Pizza
Fish	1/1	9/	1/1	5/	6/
Pasta		1/1	2/	1/1	1/1
Salad			1/1	7/	9/
Steak				1/1	1/1
Pizza					1/1



Procedure - Study 2

- **Experts** completed a questionnaire on their preferences for Sustainable Transport
- **Citizens** participated in a deliberative focus group on Sustainable Transport, and completed a questionnaire on their preferences for Sustainable Transport before and after the focus group

Experts: Questionnaires

Citizens: Questionnaires → Deliberative Focus Groups → Questionnaires



Analysis - Study 2

Comparisons of interest:

1. Experts vs. Citizens (pre Deliberation)
 2. Citizens pre Deliberation vs. post Deliberation
- on preferences for Sustainable Transport



Results - Study 2

	Experts	Public (pre-deliberation)
rank	AHP (preference)	AHP (preference)
1	Walking/cycling	Public transport *
2	Public transport *	Walking/cycling
3	Less commuting	Electric vehicles
4	Pricing policies *	Less commuting
5	Smaller lighter	Fuel Cell vehicles *
6	Electric vehicles	Smaller lighter
7	Car sharing	Car free zones
8	Car free zones	Car sharing
9	Less holiday travel	Pricing policies *
10	Fuel Cell vehicles *	Less holiday travel

Results - Study 2

	Experts	Public (pre-deliberation)
rank	Responsibility	Responsibility
1	European government *	National government
2	National government	Individuals *
3	Local authorities	European government *
4	Businesses	Local authorities
5	Individuals *	Businesses

Results - Study 2

	Public (pre-deliberation)	Public (post-deliberation)
rank	standard ranking (preference)	standard ranking (preference)
1	Walking/cycling	Public transport
2	Public transport	Walking/cycling
3	Less commuting	Smaller lighter vehicles*
4	Electric vehicles	Car sharing *
5	Fuel Cell vehicles	Less commuting
6	Smaller lighter vehicles *	Fuel Cell vehicles
7	Car sharing *	Pricing policies
8	Car free zones *	Electric vehicles
9	Pricing policies	Less holiday travel
10	Less holiday travel	Car free zones *



Results – Study 2

Themes	Expert	Public pre	Public post	Pre-post difference
Improve public transport (reliable, integrated, attractive, etc.)	23	33	30	-3
Economic measures (PT subsidies, congestion charging, etc.)	22	18	15	-3
Low emission vehicles / R&D in transport tech.	16	21	14	-7
Policy/ government responsibility	16	1	7	6
Improve cycling facilities (tracks, storage, hire, road safety)	13	17	13	-4
Promote walking (incl. walking buses)	11	2	8	6
Land-use planning / infrastructure change	11	0	4	4
Electric vehicles	10	8	9	1
Personal travel quotas / reduced car ownership or mileage	9	4	1	-3
Public education / culture shift / behaviour change	9	5	23	18
Business measures (less road freight, employee schemes, etc.)	8	10	1	-9
Energy supply change (decarbonise)	7	1	3	2
Working from home / videoconferencing	4	1	2	1
Local economic development and local shops	4	2	1	-1
Global dimension	4	0	0	0
Barriers to change (e.g., economic, cultural, spatial)	4	2	0	-2
Fuel cell / hydro vehicles	3	2	2	0
Integrated policy (e.g., multi-goal policies; joined-up government)	3	0	2	2
Urban measures (trams in all cities, cycle paths)	3	6	2	-4
Biofuel vehicles	2	0	0	0
Small, light-weight vehicles	2	0	2	2
Reduce air travel	2	6	0	-6

Open-ended survey question: "In your view, what changes need to be made in order to significantly reduce carbon emissions from transport by 2030?" [Top 22 (of 40) responses shown]



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Open-ended survey question: "In your view, what changes need to be made in order to significantly reduce carbon emissions from transport by 2030?" [Top responses shown]



Results - Study 2

Themes emerging from deliberative focus group results (qualitative) Study 1 vs. Study 2:

- Public Transport is Sustainable transport*
- Public transport should be an integrated service*
- Electric or non polluting vehicles*
- Personal comfort and safety

* also most common themes in study 1 focus groups




Results – Study 2

Key findings from pre-post focus group open-ended responses:

- Change in most popular suggestions: **greater focus:** public education/behaviour change, and **less focus:** business measures
- Although most popular themes in public and expert questionnaires are similar, qual. content analysis suggests expert responses are (a) more detailed, and (b) more abstract/generic/theoretical, than public responses



Results – Study 2

Key findings from focus group open-ended responses:

Experts vs. Public

- | | |
|--|---|
| <ul style="list-style-type: none">• Most popular expert suggestions:• (1) Public transport,• (2) Economic measures,• (3) Low-emission vehicles / R&D in new tech,• (4) Policy change / government responsibility. | <ul style="list-style-type: none">• Most popular public (pre) suggestions:• (1) Public transport,• (2) Low-emission vehicles / R&D in new tech.,• (3) Business measures• (4) Improved cycling facilities |
|--|---|
- Varying levels of support for different policies and technologies, by different groups.
 - **Further work:**
 - analysis of different groups a/c to values, demographics
 - analysis of follow-up interviews with citizens re. behaviour change



Implications & Next Steps

- Deliberative workshops perceived as **useful and educational** by the public
→ useful in gauging their opinions as well as **constructing attitudes** through discussion (e.g., Potter & Wetherell, 1987)
 - Information provision did change the ranking of less well known options (e.g. smaller, lighter vehicles) (→ attitude formation?)
 - But not that of well known subjects (such as improvement of public transport or pricing policies) (→ reaffirming attitudes?)
 - Qualitative responses suggest greater acceptance of individual responsibility



Conclusions

- Qualitative can describe “whys” not captured by scales [e.g. **Citizens supported Public transport** (high preference) but for **different reasons** (from unavailability of city parking space, to speed). → if given better parking space or higher speed, some people would choose their cars].
- Methodological variation highlights **the benefits of mixed-methods** design:
 - e.g. 1: Quantitative ranking verified results from qualitative focus groups on different samples (Experts 1 vs Experts 2).
 - e.g. 2: Quantitative analysis captured changes on the increased support for **smaller, lighter vehicles and car sharing** which did not emerge as evident in the focus groups, (but were captured by the Wilcoxon test).



Implications & Next Steps

- Political and marketing implications (e.g. **pricing policies** most preferred by experts, **least support by citizens**).
- **Marketing:** Widespread support for public transport; little controversy over new transport technologies (though little *driving* experience) – **but**, important barriers may remain for *behaviour* change (e.g., role of habits, structural barriers)
- **Policy:** Policy makers should involve members of the public **early** in decision making (since their **views differ** from experts; and effective policies **require public support**)



Thank you

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