Understanding low energy innovation in passenger transport: rethinking activity analysis

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Workshop on Activity-Travel Behaviour Analysis
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The need to curb transport’s GHG emissions

Source: IPCC (2013: SPM-33)
Reduce fossil fuel consumption (i)

Reduce the amount of travel
a) Reduce number of trips
b) Reduce distance per trip

Reduce fuel used per mile travelled
c) Increase fuel economy
d) Shift towards alternative fuels
e) Shift towards modes other private vehicle
Reduce fossil fuel consumption (ii)

How do innovations become embedded in everyday life and travel?
Fragmented literatures

Activity-based transport studies

Acceptability & effectiveness

Innovation studies

Supply & Demand
technological & policy innovations
Rethinking activity analysis

Three lines of development:

a) Re-imagine travel

b) Re-imagine the individual

c) Re-imagine activity
Imagining travel


Mobility = Movement \( \Rightarrow \) + Power + Practice

- Social construction of meaning
- Social coding & stratification
- Doing & experience with/through body
- Feelings/emotions & habits

Travel = activity
Imagining the individual

Extent to which behaviour is driven by conscious, reflective thought

Reasoned action

Studies of social influence

Activity-based transport studies

Behavioural economics & psychology

Extent to which individual is separate from context and source/driver of behaviour

Atomism
Integration

Activity = ongoing process of integration of heterogeneous elements

‘Practice theory’:

a) Reckwitz (2002): a routinised type of behaviour in which forms of bodily activity, mental activities, material objects, understanding, know-how, emotions and motivational knowledge are tightly interwoven into a solid block

b) Shove et al. (2012): Integration of the material, the symbolic, the procedural

Need to move beyond ‘practice theory’
Communication

Activity = platform where agents exchange information, often in an asynchronous manner

- ‘Doing’ of design (e.g. at Zipcar)
- ‘Doing’ of provision (e.g. at Zipcar)
- ‘Doing’ of regulation (e.g. by Oxford City Council)
- ‘Doing’ of meanings (e.g. media)
- Other users & non-users
- Individual (e.g. bodily competences, attitudes)
- Household & social network
- Activity (e.g. drive car club BEV)
- Script (Akrich 1992)
Two directions

<table>
<thead>
<tr>
<th>Activity</th>
<th>Activity</th>
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<tbody>
<tr>
<td>$t_n$</td>
<td>$t_1$</td>
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<table>
<thead>
<tr>
<th>Doing of:</th>
<th>Doing of:</th>
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<tr>
<td>Meaning</td>
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<tr>
<td>$t_?^n$</td>
<td>$t_?^1$</td>
<td>$t_?^n$</td>
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<tr>
<td>Regulation</td>
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<td>$t_?^n$</td>
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Activity sequence individual $i$
Habit

<table>
<thead>
<tr>
<th>Mainstream understanding</th>
<th>My understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatically cued behaviour</td>
<td>Tendency, generative force</td>
</tr>
<tr>
<td>Observable, actual</td>
<td>Non-observable, potential</td>
</tr>
<tr>
<td>Individualistic: contracted &amp; held by individual</td>
<td>Non-individualistic: holds together a network of body, mind and world</td>
</tr>
<tr>
<td>Descartes, Kant</td>
<td>Aristotle, Dewey</td>
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Observable

Unobservable

Activity

Habit
Habit and innovation

Interrelations:

a) Habit as *barrier* to innovation ⇒ insensitivity & lock-in

b) Habit is *disrupted* or *transformed* by innovation ⇒ innovation becomes rooted in everyday life

c) Habits help to *re-appropriate* innovation ⇒ unintended effects
Re-appropriating a Toyoto Prius

“It’s something about the car; it gives you so much information. Sometimes you just want to say, look, I’m still in charge . . . You can give me lots of good ways to drive economically, but you can’t make me drive economically. One thing about the Prius which I shouldn’t do, because it gives you the trip fuel consumption thing, whereas most sensible people would look at that and try and use as little fuel as possible, my kind of contrary nature is to see how much fuel I can use. Since it’s meant to be, to not use very much, I sometimes find myself thinking, I wonder if I can get it down below 40 to the gallon, which is very silly.”

Source: Ozaki et al. (2013, page 535, emphasis in original)
Low energy innovations

Do not exist outside ‘doing’ across use, provision, regulation & signification of transport & other activity systems

Their study requires integration of activity-based transport & innovation studies ⇒ activity analysis should:

a) Be broadened beyond demand side
b) Focus on how transport system use is shaped by individual activity programmes and a-synchronous communication among use, provision, regulation, etc.

c) Examine links among activities, and between activities & habits
d) Study how low energy innovations come about, evolve and can be made more effective
Thank you

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