An exploration of Australian homeowners’ efforts to reduce energy & water use through renovation & retrofitting

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Background – about the Global Cities Institute

• The GCI focuses on the intersection of globalization & climate change

• Urban Infrastructure is one of 6 programs, including:
  – Climate Change Adaptation
  – Globalization & Culture
  – Learning Cities
  – Community Sustainability
  – Human security
The Urban Infrastructure program

• How cities might respond to increasing infrastructure demands

• Key area of research: household sustainability
  – Home improvements i.e. renovation & retrofitting
Background to the issue

• Regulatory & policy attention has focused on new homes, < 20% of current stock (ABS, 2008)
• Focus shifting to existing housing
• Expectation homeowners will ‘do their bit’
Gaps & opportunities

• Home improvement (HI) activities are ubiquitous (Davidson & Leather, 2000; Goodsell, 2008)
  – but we know very little about such phenomena

• Even less known about homeowners’ HI efforts to reduce own homes’ environmental impact
Gaps & opportunities continued...

- Volume of HI represents a key opportunity to ↓ GHG emissions & H₂O use of existing housing stock

- Impact largely dependent on how homes function as individual systems:
  - house condition
  - homeowners’ know how
  - how homes lived in, used & changed
Gaps & opportunities continued….

• Tempting to rely on individual choice, focusing on common ‘drivers’:
  – saving money
  – improving health or comfort
  – protecting environment

• Likelihood of success improved by deeper exploration & understanding of complex experience of HIs
Broad research questions

1. What HI activities do Australian homeowners undertake?
2. Why & how do they undertake these activities?
3. To what extent are E & H₂O efficiency taken into account, if at all?
4. What facilitates & what blocks attempts to improve E & H₂O efficiency?
5. What is the role of daily routines?
Broad research questions

1. What HI activities do Australian homeowners undertake?

2. Why & how do they undertake these activities?

3. To what extent are E & H$_2$O efficiency taken into account, if at all?

4. What facilitates & what blocks attempts to improve E & H$_2$O efficiency?

5. What is the role of daily routines?
Approach taken

• Qualitative: in-depth data to create basis for large scale quantitative exploration
  – rich data
  – room to include complexity of HIs
• Interview-based, conducted in person
‘Green’ renovators pilot

• Aim: to document experience of renovators who attempted to address their homes’ environmental performance through renovation & retrofitting

• 16 Melbourne households who varied in:
  – age & life stage
  – SE & work status, work type
  – educational levels
  – household members
  – houses occupied
Who are ‘green’ renovators?

- Households interested in green renovations = diverse

**‘Irene’ & ‘Richard’**
- live near the beach, in modern townhouse, after downsizing
- both retired from well paid jobs
- professional renovation
- 2 x adult children, one at home part-time

**‘Martin’ & ‘Emily’**
- live in northern suburbs in ex-1956 Olympic village home
- bought when prices were cheap
- work part-time
- DIY renovation over 4 years
- 1 x young child at home
Sort of HIs undertaken

- Wide range of activities, including retrofits to extensions & 2\textsuperscript{nd} storeys
- 5 most common HIs:
  - ceiling insulation
  - new bathroom or new kitchen, incl. new appl.
  - H\textsubscript{2}O tank
  - extension
  - double glazing
Why? Explanations for HIs

1. to improve comfort:
   a) more space
   b) warmer/cooler (thermal)
   c) increased light

2. a moral imperative/personal values relating to the environment

3. to repair or update, improve aesthetics
Why? Explanations for HIs

• Financial gain or saving on running costs not an explanation

• More concerned with meeting perceptions of ‘green’ standards

• Improving env. performance secondary to other explanations?

“Then there's the whole, the guilt that I've been talking about. Which has also been a constant backdrop through the renovation and how it’s so consumerist, capitalist, unnecessary, excessive, you know. Will I go on? And I walk in here and I go ‘Oh my God, it’s so big’”. (‘Jasmine’)
‘General’ renovators pilot

• Aim: to understand the potential ‘audience’ for the Australian Government’s Green Loans program

• 16 homeowners who varied in:
  – location
  – age
  – SE & work status, work type
  – educational levels
  – household members
  – houses occupied
Sorts of HIs undertaken

• HI activities undertaken varied – from changing fittings to full-scale renovation
  – but mostly retrofits

• 5 most common HIs:
  – Efficient globes
  – New kitchen or bathroom appl.
  – Ceiling or sub-floor insulation
  – Blinds/curtains
  – Low-flow showerhead
Why? Explanations for HIs

1. to save on household running costs
2. to improve comfort
   a) warmer/cooler (thermal)
   b) more space
3. to update or improve aesthetics

"Because my electricity bill is getting higher." (‘William’)

"I lived with the hideous bathroom for a long time while I saved up to buy a bath and all the fittings.” (‘Deborah’)
Extent E & H$_2$O efficiency addressed

• ‘Green’ & ‘general’ renovators both proactive in addressing E & H$_2$O efficiency, e.g.
  – insulation
  – efficient appl.

• Both also described future plans to improve environmental performance, e.g.
  – 2$^{nd}$ H$_2$O tank
  – solar E or H$_2$O
Comparisons

• Common explanations of
  – comfort &
  – aesthetics

• Little difference in efforts to address E & H\textsubscript{2}O efficiency

• Diverge on ‘green’ standards & saving $$
Next steps…

• More research with renovators & HI industry (currently underway)

• Future research with households:
  – further questions: e.g. know how, how homes used
  – larger sample
  – more locations
  – multiple types of data (visual, verbal, numerical)
  – in-depth exploration
Conclusions

• Households explanations interlinked & layered
  – subject to change over time & prioritised in diff. circumstances

• Strong reference to standards & norms:
Conclusions

• Need to a deeper understanding of how standards & norms shaped, & how play out in renovation ‘journey’

• Potential for conflict

• Norms of comfort equally (more?) important as green

• Comfort + green factored in future policy
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References used available on request