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Preference for sustainable, liveable and resilient features of the neighbourhoods and homes

Sorada Tapsuwan, Claire Mathot, and Iain Walker

Contributed presentation at the 60th AARES Annual Conference,
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3 February 2016

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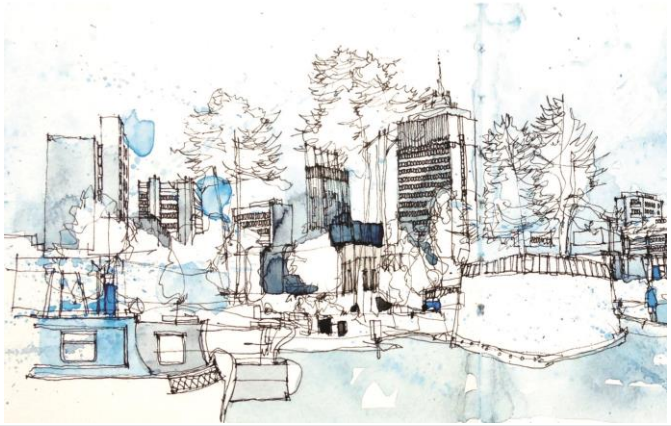
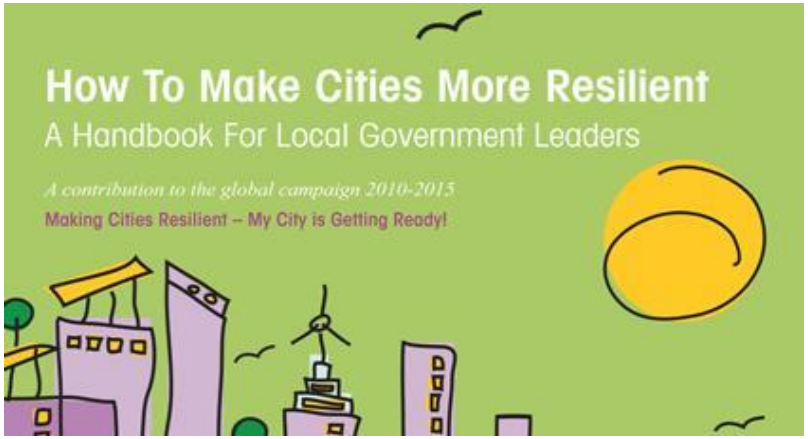
Research questions

1. What are sustainable, liveable and resilient (S-L-R) features of the neighbourhood and home?

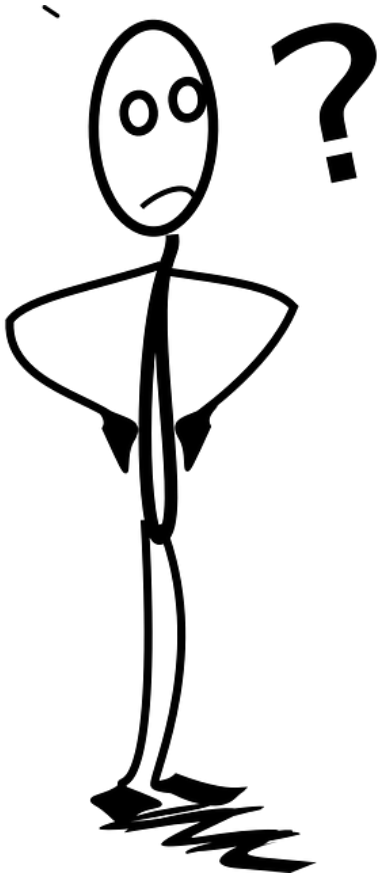




2. What do people look for in a (S-L-R) neighbourhood and home?

3. How do people trade-off between (S-L-R) features and other features?

4. What will our future homes and neighbourhoods look like?



What is Sustainability, liveability, and resiliency (S-L-R)?

Literature review

- Keywords: *sustainability, resilience, liveability, green home, green building, sustainable house, WTP, house & satisfaction*
- Identified 65 relevant papers (out of 180+ papers reviewed)
  - 6 on resiliency
  - 8 on sustainability
  - 5 on liveability
  - 16 on willingness to pay for home and neighbourhood characteristics
  - 17 on preferences for household and neighbourhood characteristics
  - 7 on post-occupancy of green buildings, and
  - 6 on social psychological factors affecting preferences

Sustainability

"*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (Brundtland Commission, 1987).

Within the context of sustainable buildings and homes (Cole, 2000):

"*…Reducing resource use and environmental impact that is beyond typical practices, while still offering appropriate indoor environmental quality…*"

Liveability

"T*he degree to which a place supports quality of life, health and well-being*" (Lowe et al., 2015; Major Cities Unit, 2012).

"A liveable neighbourhood or city should be peaceful, safe, harmonious, attractive, affordable, high in amenity, environmentally sustainable, and easily accessible" (Lowe et al., 2015).

Resiliency

"The ability to withstand and respond to shocks and stresses.

- *Shocks e.g. earthquakes, fires, floods, etc.*
- *Stresses i.e. something that weakens the fabric of the city on a day to day or cyclical basis e.g. high unemployment; chronic food and water shortages*

By addressing both the shocks and the stresses, a city becomes more able to respond to adverse events, and is overall better able to deliver basic functions in both good times and bad, to all populations." (100 Resilient Cities)

Literature review findings

- No clear distinction between S-L-R
- Preference studies only focus on one feature – S or L or R

  -> Offers little insight into trade-offs between S-L-R and other features
- Indicators of S-L-R are often set up by government/policy makers

  -> Consumer preferences are conducted *ex-post* by researchers
- Private sector (market research) information not available

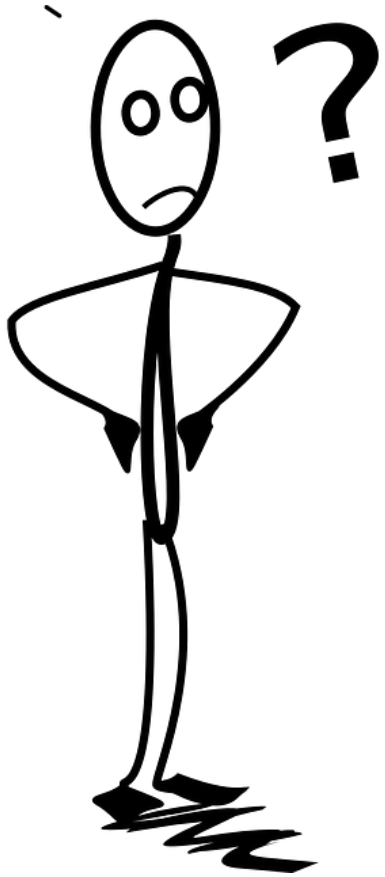
Findings: From Australia & NZ

- A gap between concern for sustainability and behaviour (*Christie et al. 2009*)
- People are not ready to invest in, or not aware of sustainable homes (*Arman et al. 2009; Bryant and Eves 2012*)
- Liveability is an important factor in purchasing a sustainable house (*Raisbeck and Wardlaw 2009*)
- Most developers are small scale (<10 houses/yr) and have no incentive to build sustainable homes (*Low et al. 2005*)

Findings: Post-occupancy evaluation

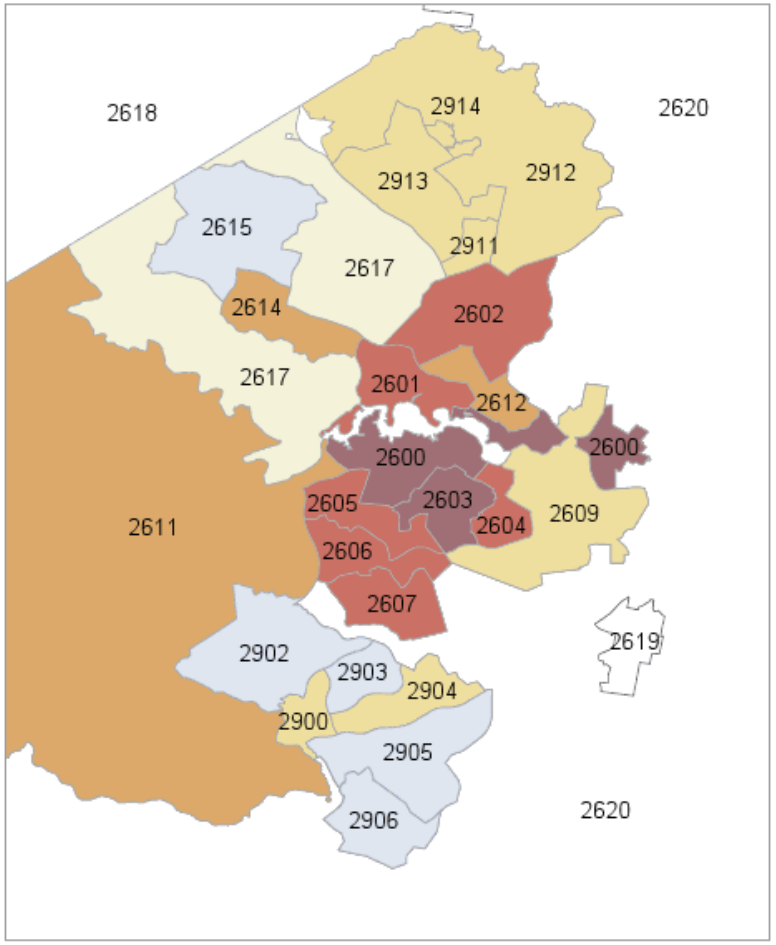
- Sustainable homes increase well-being and are more liveable (*Buys et al., 2005*)
- People are more tolerant with the performance of green homes (*Leaman and Bordass, 2007*)
- People like the use of natural lighting, and that they are promoting a healthy environment (*Buys et al., 2005; Zalejska-Jonsson, 2012*)
- Sustainable homes need to improve the overall thermal comfort during both winter and summer (*Leaman and Bordass, 2007*; *Zalejska-Jonsson, 2012*)
- A change in behaviour is required to achieve sustainability (*Gill, 2010*)

What do people look for in a (S-L-R) neighbourhood and home?



Survey design

- Surveyed n=300 Canberra residents
- November 2015
- Online research panel



Questionnaire

- Part 1 Buying experience and intentions
  - Owner-occupier - Investor
- Part 2 Neighbourhood design preferences (60+ features)
  - Economic - Environment - Social/Community
  - Health - Access - Safety
- Part 3 House features (30+ features)
  - Building design - Construction material – Landscaping
  - Lifestyle & comfort - Use of renewable resource
- Part 4 Social psychological characteristics
- Part 5 Demographics

Results

Results

- Preferences for neighbourhood design
  - Top 5 most important neighbourhood features

Rank	Owner-occupier (88%)	Investor (12%)
1	low crime rate	low crime rate (1)
2	cleanliness	Cleanliness (1)
3	access to local broadcast signal such as free tv and radio	good quality road surfaces (1)
4	fortnightly garbage collection	access to public transport services (2)
5	good quality road surfaces	parks and open spaces are integrated into the urban structure (2)

Safety and health env

Results

- Preferences for home design
  - Top 5 most important house features

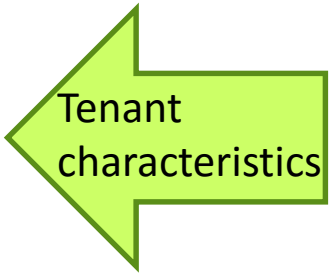
Rank	Owner-occupier (88%)	(12%)
1	is affordable	nt to severe storms (1)
2	stays warm in the winter without the use of heating	is affordable (1)
3	stays cool in the summer without the use of air conditioning	will increase in value (1)
4	saves on future electricity bills thanks to green features	stays warm in the winter w ut the use of heating (2)
5	ensuring that new buildings are built to last	stays cool in the summer w ut the use of air conditioning (3)

Gate keeping factor

Thermal comfort

Results

- Investors rated the following features much higher than owner occupiers
  - Fetch high rental values
  - Employment opportunities in the neighbourhood
  - Childcare facilities/Children's playground
  - Primary School/Secondary School
  - Off-road cycle paths

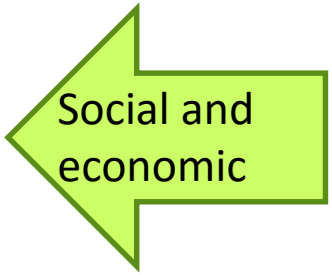


Results

- Least popular features
  - Shared bins rather bins for individual homes
  - Green walls/Green roofs

Results

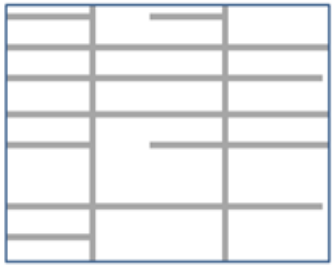
- Differences between low and high income respondents
  - a diversity of religious organisations
  - a good balance of low, medium, and high - cost housing
  - employment opportunities in the neighbourhood



Please rank (from 1=most preferred to 4=least preferred) your most preferred suburb street design.

Suburban

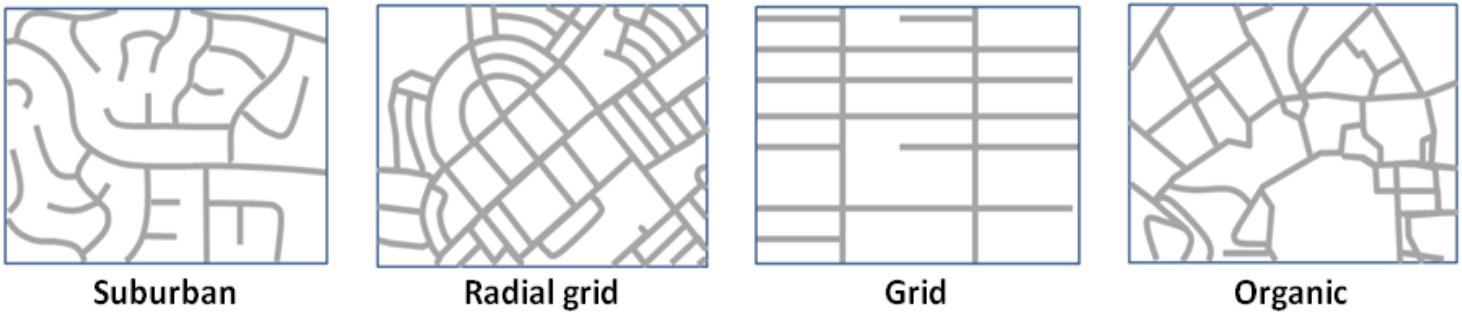
Radial grid

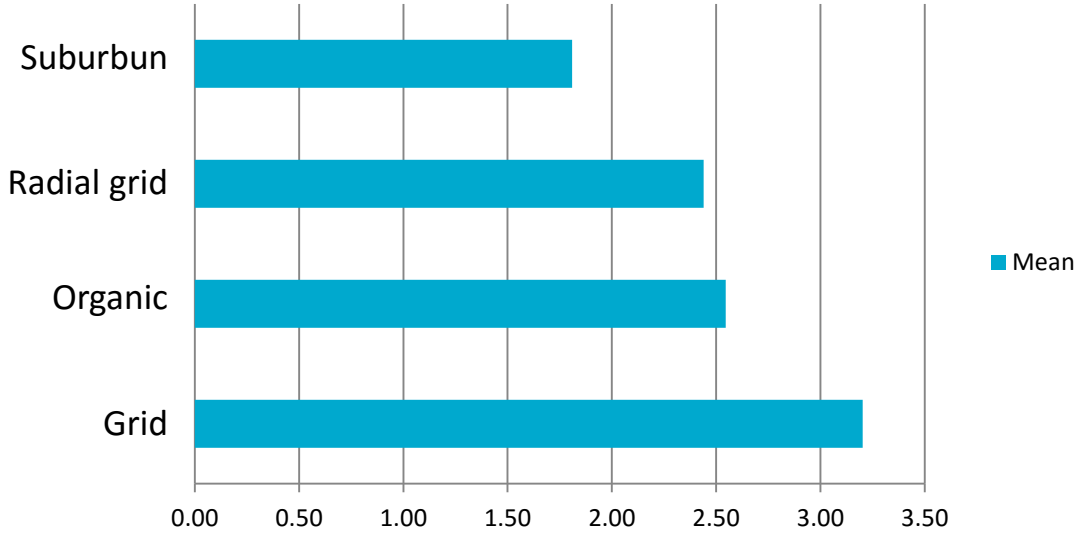


Grid

Organic

Please rank (from 1=most preferred to 4=least preferred) your most preferred suburb street design.





Status quo inertia

Where to from here?

- Examining the correlation between socio-economic/psycho-social factors and preferences
- Design a choice experiment survey to examine trade-offs
  - Various features of S-L-R
  - Between S-L-R features and other non-S-L-R features
- Inform the design of future sustainable cities

Thank you

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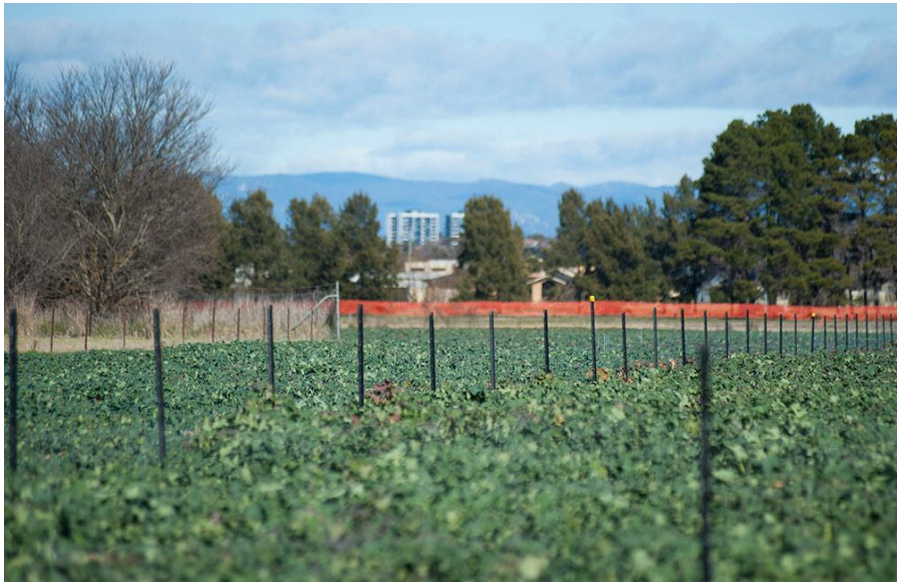
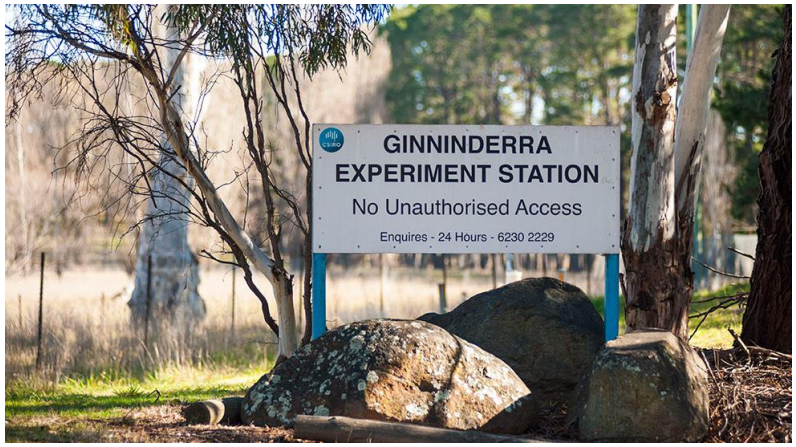
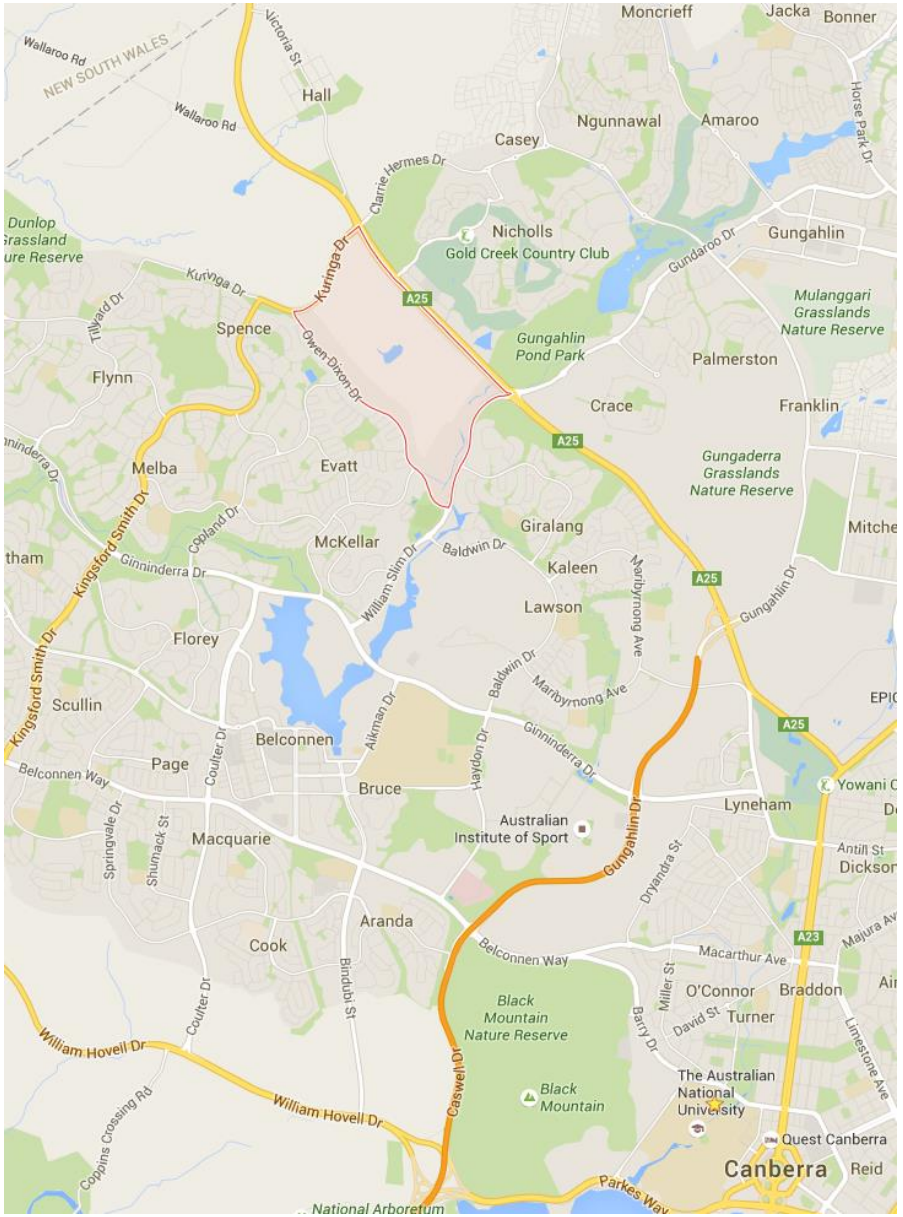


Ginninderra Project





Questionnaire: Neighbourhood design

Rate the level of importance of 60+ features
(1=Not at all important to 7=Extremely important)

- employment opportunities in the neighbourhood
- integrated parks and open spaces into urban area
- diversity of religious organizations
- aged-car facilities
- a good presence of bus stops
- well-lit footpaths

* Items were randomized

Questionnaire: House features

- Rate the level of importance of 30+ features (1=Not at all important to 7=Extremely important)
  - high ceilings to allow for ample light
  - built with certified environmentally friend material
  - has a lot of plants in the garden
  - is cheap and easy to maintain
  - Is affordable