Addressing the Gap: Identifying Varying Levels of Pro-Environmental Behaviour in the Canadian Population

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Outline

• Research Question
• Theoretical Content
• Past & Current Research
• Methodology
• Preliminary Results
• Future Directions
Research Question

To identify dimensions of eco-citizenship using the Households and Environment Survey (2013) using a factor analysis technique.
Ecological Citizenship, defined

“Eco-citizenship is defined as a transformative way to reshape the relationship between humans, nature, non-humans, and other humans (Jagers, Martinsson and Matti 2014).”

“An eco-citizen also refers to individuals who, regardless of their political orientation, take on environmental responsibilities towards humans and nonhumans (Dobson 2003; Henderson and Ikeda 2004).”
Theoretical Content

Ecological Citizenship, operationalized

“To study ecological citizenship within the Canadian population through the designing of a new index allowing for quantitative analysis to identify factors associated with different levels of engagement of eco-citizenship.”

“The proposed index will capture levels of engagement based on participation in activities that could be considered indicative of contributing to eco-citizenship, including both levels of high or extreme engagement as well as low levels.”
Past and Current Research

“Gap” between individual’s environmental beliefs and their environmental actions (Kennedy et al. 2009)

Those that value the public good over personal prosperity more likely to engage in sustainable energy practices (Poortinga, Steg, and Vlek 2004)

Not only attitudes of individuals, but also their context and opportunities, that affect environmental behaviours (Poortinga, Steg, and Vlek 2004)

Lack of incentives (either monetary or personal), lack of knowledge and surrounding political and social infrastructure as reasons why this gap exists (Kollmuss and Agyeman 2002)
Methodology

• Households and Environment Survey (HES), cycle 2013, N = 22,363 households

Analysis Plan

• Factor Analysis applied to a set of selected indicators (N = 16)

• Contextualization through cross-tabulations of independent variables with dimensions and cumulative index
• Green Consumer Behaviours
   \( (N = 4) \)
   Example: Frequently uses own bags/containers to carry groceries, Yes/No

• Water Conservation
   \( (N = 3) \)
   Example: Devices used to conserve or reduce consumption of water, Yes/No

• Connection to Nature
   \( (N = 4) \)
   Example: Activities aimed at conservation/protection of environment without pay, Yes/No

• Sustainable Household Behaviours
   \( (N = 5) \)
   Example: Composted kitchen waste during previous 12 months, Yes/No
Variables Removed: Repetitive

• Dwelling has a low flow showerhead
• Dwelling has a low volume toilet
• Dwelling has a barrel or cistern to collect rain water
Variables Removed: Missing Values/Target Population

• Composted yard waste in previous 12 months
• Planted trees on property in past 5 years
Removed Variables: Adequacy of Question

- Purchases to feed or shelter birds
- Participated in outdoor activities
- Taught about nature without pay
Remaining Variables of Interest

- Devices used to conserve or reduce consumption of water
- Composted kitchen waste
- Grew vegetables, herbs, fruits, or flowers
- Activities aimed at conservation/protection of environment without pay
- Purchases foods advertised as being locally grown/produced
- Purchases “green” cleaning products
- Use own bags/containers to carry groceries
- Visited any parks or public greenspaces
## Preliminary Results

### KMO and Bartlett’s Test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</th>
<th>.703</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett’s Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Square df</td>
<td>7895.0</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

### Communalities

<table>
<thead>
<tr>
<th>Devices used to conserve or reduce consumption of water</th>
<th>1.000</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composted kitchen waste during previous 12 months</td>
<td>1.000</td>
<td>.448</td>
</tr>
<tr>
<td>Grew vegetables, herbs, fruits or flowers - previous 12 months</td>
<td>1.000</td>
<td>.482</td>
</tr>
<tr>
<td>Activities aimed at conservation/protection of environment without pay</td>
<td>1.000</td>
<td>.268</td>
</tr>
<tr>
<td>Purchased foods advertised as local always/often</td>
<td>1.000</td>
<td>.543</td>
</tr>
<tr>
<td>Purchased green cleaning products always/often</td>
<td>1.000</td>
<td>.535</td>
</tr>
<tr>
<td>Uses own bags/containers always/often</td>
<td>1.000</td>
<td>.258</td>
</tr>
<tr>
<td>Visited any parks or public greenspaces in past 12 months</td>
<td>1.000</td>
<td>.137</td>
</tr>
</tbody>
</table>

**Extraction Method:** Principal Component Analysis.
### Preliminary Results

<table>
<thead>
<tr>
<th>Rotated Component Matrixa</th>
<th>Component</th>
<th>(\text{“Daily Green Behaviours”})</th>
<th>(\text{“Household Green Behaviours”})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devices used to conserve or reduce consumption of water</td>
<td></td>
<td>.031</td>
<td>.531</td>
</tr>
<tr>
<td>Composted kitchen waste during previous 12 months</td>
<td></td>
<td>.057</td>
<td>.667</td>
</tr>
<tr>
<td>Grew vegetables, herbs, fruits or flowers - previous 12 months</td>
<td></td>
<td>.094</td>
<td>.688</td>
</tr>
<tr>
<td>Activities aimed at conservation/protection of environment without pay</td>
<td></td>
<td>.230</td>
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Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 3 iterations.
Preliminary Results

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<tr>
<th>Dimension 1: Household Green Behaviours</th>
<th>Dimension 2: Daily Green Behaviours</th>
<th>Cumulative with all variables</th>
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<tbody>
<tr>
<td><strong>Reliability Statistics</strong></td>
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<tr>
<td>Cronbach's Alpha</td>
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<td>.423</td>
<td>.420</td>
<td>.536</td>
</tr>
<tr>
<td>N of Items</td>
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<td>4</td>
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Index of Behaviours Indicative of Eco-Citizenship

Number of reported behaviours

- 0: 2.1%
- 1: 5.6%
- 2: 9.1%
- 3: 13.9%
- 4: 18.8%
- 5: 20.1%
- 6: 16.5%
- 7: 10.4%
- 8: 3.5%
Future Directions

Contextualizing based on Household Characteristics
- Income
- Education
- Family-composition
- French/English
- Region
- Urban/Rural
- Type of dwelling – detached home versus apartment
- Number of people in the household

Further Analysis of some variables
- Composting – issue of access to programs
- Devices used conserving water – easier for homeowners/those with yards
- Grew vegetables, etc. – easier for those with yards
- Conservation – done with organization or independently, which activities more common
Future Directions

Issues
- Should items be weighted or not? Some behaviours are “more difficult” than others, should they receive a heavier weight towards the index compared to “easier” behaviours.

Implications of Project
- For future research using the Households and Environment Survey
- Further development of instruments to measure eco-citizenship in other populations
- Policy implications allowing targeted programs to certain populations based on lower index scores
Thank you!

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