Examining community-level collaborative and competitive game mechanics to enhance household electricity-saving behaviour

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IEA DSM Day
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APPROACH
Household engagement

Feedback+  (Sabadie, 2014)
Practices  (Burchell, Roberta, & Rettie, 2013)
Group effects  (Fischer, 2008)
Gamification  (Deterding, Dixon, Khaled, & Nacke, 2011)
Competition  (Scales et al., 2016)
Goal setting  (McCalley & Midden, 2002)
Interaction  (Breukers et al., 2013)
Social setting  (Kurz et al., 2015)
Set up

Winterthur

Massagno

10%

Max %
Set up

Historical Reference: Average weekly consumption from Oct - Dec 2015
Set up

Historical Reference: Average weekly consumption from Oct - Dec 2015
Set up

**Tracking Period A**

Historical Reference: Average weekly consumption from Oct - Dec 2015

**Tracking Period B**

- **Collaborative Group (G1)**
  - 30
  - Social platforms

- **Competitive Group (G2)**
  - 30

- **Control Group (G0)**
  - 30

**Tracking Period C**

Long term consumption: up until May 2017
APP
Game Progress Points and completed activities
## Savings (directly after)

<table>
<thead>
<tr>
<th>Teams</th>
<th>n</th>
<th>Consumption change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competitive</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massagno</td>
<td>13</td>
<td>- 8.5% *</td>
</tr>
<tr>
<td>Winterththur</td>
<td>11</td>
<td>- 9.0%</td>
</tr>
<tr>
<td><strong>Collaborative</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massagno</td>
<td>10</td>
<td>- 15.0%</td>
</tr>
<tr>
<td>Winterththur</td>
<td>12</td>
<td>- 2.3%</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massagno</td>
<td>23</td>
<td>-3.6%</td>
</tr>
<tr>
<td>Winterththur</td>
<td>23</td>
<td>+ 6.1%</td>
</tr>
</tbody>
</table>

Savings (1 year later)

### Consumption change

<table>
<thead>
<tr>
<th>Teams</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive</td>
<td>21</td>
<td>-5.4%</td>
</tr>
<tr>
<td>Collaborative</td>
<td>21</td>
<td>-4.7%</td>
</tr>
<tr>
<td>Control</td>
<td>40</td>
<td>-0.6%</td>
</tr>
</tbody>
</table>

IMPACT
“Hard-to-Reach” Participants

• How to get not just the interested users?

• Can we assume all participants are similar?
  – Ask ourselves:
    • What do we want to change?
    • Who do we actually want to reach and why?
  – Use self-selection bias to:
    • Recruit better
    • Compare better
    • Communicate results better
“Hard-to-hold” participants

- Users opening the app over weeks 1 to 13.
- Data shows a decrease in usage from weeks 6 to 10, with a slight recovery in later weeks.

Graph details:
- Y-axis: Percentage of users opening the app.
- X-axis: Weeks from 1 to 13.
- Line graph indicating total openings.
Very different participants

![Graph showing user activity over weeks]

- **Y-axis**: Percentage of users opening the app
- **X-axis**: Weeks
- **Legend**:
  - Active
  - Inactive
  - Total openings

The graph illustrates the varying user activity across different weeks, with a noticeable decline in active users over time.
But if they stay in...
THANK YOU

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