Effectiveness of a behaviour change energy efficiency programme
Overview

• Background
• Problem Statement
• Research methodology
  • Phase 1
  • Phase 2
  • Phase 3
• Findings
• Recommendations
Background

- Greenhouse gas emissions
- South African context
  - Electrification programme
- Low quality coal to generate electricity
- Problems with supply
- Price increases
Behaviour change strategies

• Previous interventions in EU and USA

• Antecedent strategies
  • Commitment (personal or public)
  • Goal setting (ambitious or ease to achieve)
  • Information based strategies:
    • Workshops
    • Tailored information
    • Prompts
    • Modeling
  • Participation projects
Strategies - consequent

- Consequent strategies
  - Feedback (Daily, weekly, monthly, comparative)
  - Rewards
  - Penalties
Problem statement

- In light of the currently problems in South Africa (since 2008)
- Limited documented use of behaviour change as a strategy to change behaviour in South Africa
- Availability of research on best practice behaviour change strategies
- Applied in South African contexts across various LSM levels
Research questions

- What is the effect of a psychological intervention, using partucialization, real-time feedback, goal setting and commitment-making, with an individual in a household on the households' electricity usage?
- What energy conservation strategies (if any) are employed by households, as perceived by the individual (participant) and why?
- How do participants from different socio-economic backgrounds attempt to save electricity?
Mixed method research methodology

• Multi-phased combined experimental and ex post facto research design was used.

• Aim: to explore the effect of LSM, on energy efficiency through behaviour change intervention

• Phase 1: Select volunteer sample, LSM scores, random allocation to experimental groups 1 and 2. Collection of baseline data, demographics and household inventory.

• Might hold pro-environmental attitudes already
<table>
<thead>
<tr>
<th>Pre-existing characteristic (Living standard)</th>
<th>Investigation period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Random assignment to experimental groups</td>
</tr>
</tbody>
</table>

| Group 1 | LSM 6-9 (n=13) | Exp 1 (n=9) | Obs | Obs | Obs | Obs |
|         |                |             | Interview | Intervention 1 |
|         |                | Exp 2 (n=4) | Obs | Obs | Obs | Obs |
|         |                |             | Interview | Intervention 2 |

| Group 2 | LSM 10 (n=23) | Exp 1 (n=10) | Obs | Obs | Obs | Obs |
|         |                |             | Interview | Intervention 1 |
|         |                | Exp 2 (n=13) | Obs | Obs | Obs | Obs |
|         |                |             | Interview | Intervention 2 |
Phase 2

- Data collection in different groups
- Interviews in experimental group 1
- Instructions on using the installed E2 efergy meter
- Measurement for a further 14 days.
Intervention Exp Groups 1 & 2

- Consent
- Interview
- Functionality
- Feedback and data logging
- Walk through
- Tailored advice
- Commitment
- Encouragement
- Removal

- Consent
- -
- Functionality
- Feedback and data logging
- -
- -
- -
- Removal
Phase 3

- Focus groups
- Groups were held 6 months after the completion of measurement in houses
- Explore the longer term effect of the intervention on the reasoning of the participants
Qualitative findings

• Qualitative results from both the interview and the focus groups.
• Qualitative findings:
• Themes:
  • Lack of feedback
  • Folk knowledge
  • Need for guidance and discussions with accurate information
  • Impact of gender roles
## Quantitative findings

<table>
<thead>
<tr>
<th>Pre-existing characteristic (Living standard)</th>
<th>Experimental Groups</th>
<th>Average savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSM 6-9 (n=13)</td>
<td>LSM 6-9 Exp 1 (n=9)</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>LSM 6-9 Exp 2 (n=4)</td>
<td>-7.5%</td>
</tr>
<tr>
<td>LSM 10 (n=23)</td>
<td>LSM 10 Exp 1 (n=10)</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>LSM 10 Exp 2 (n=13)</td>
<td>-8.5%</td>
</tr>
</tbody>
</table>

Exp Group 1 = 7.5%

Exp Group 2 = -8%
Recommendations

• No difference in ability to save between different LSM groups

• Feedback
  • Sustained effort
  • Instant results
  • Social norm by means of comparison

• Guidance and discussions

• Re-define energy efficiency behaviours
  • Routine changes
  • Long term interventions

• Sensitivity for gender roles, cover both technical and routine changes.
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