The Role of New Media in Promoting Behavior Change

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Workshop on Information Campaigns and Other Measures for Energy Consumption Behavioral Changes
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Papers here. Contact me for a copy (bethkarlin@gmail.com)
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**Transformational Media Lab:**
Our lab studies how media is (and can be) used to transform individuals, communities, and systems
AGENDA

1. There’s always a story.
2. It’s not a one way street.
3. Ask the right questions.
THOUGHT #1
There’s always a story
There’s always a story
There’s always a story

Ariely (2008)
There’s always a story

What happened?

a) Buyers priced them higher.
b) Sellers priced them higher. 14x higher!
c) Both buyers & sellers priced them about the same

Carmon and Ariely (2000)
Did you know that cigarette butts are the most commonly littered item?

DON'T TRASH CALIFORNIA

©2005 California Department of Transportation Storm Water Program
There's always a story

THOUGHT #2

It’s not a one-way street.
It’s not a one-way street
It’s not a one-way street
It’s not a one-way street

<table>
<thead>
<tr>
<th>Distribution (Showing)</th>
<th>Circulation (Sharing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I tell a story and you listen to it.</td>
<td>We create a story together.</td>
</tr>
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</table>

While many producers are still afraid of losing control, the reality is that they lost control a long time ago.

- Henry Jenkins
It’s not a one-way street

Acceptance criteria (features related to the policy/program) VS. Process criteria (features of the decision-making process)

1. **Information** (I find it important to be informed)
2. **Consultation** (People should be included in process)
3. **Cooperation** (People should be involved in process)
4. **Self-responsibility** (I feel responsible for the project)

(Rowe & Frewer, 2000; Zoellner et al., 2011)
It’s not a one-way street

**Participatory Cultures**: “Not every member must contribute, but all must believe they are free to contribute when ready & that what they contribute will be appropriately valued.”

Henry Jenkins
It’s not a one-way street
It’s not a one-way street
It’s not a one-way street
It’s not a one-way street
The tool is not the movement
It’s not a one-way street

Leverage existing networks
It's not a one-way street

Leverage existing networks
Make involvement public
It’s not a one-way street

Leverage existing networks
Make involvement public
Combine spatial and virtual
THOUGHT #3
Ask the right questions.
You’re telling a story...

...to make a difference.
But . . . if you build it,

...will they come?
Ask the right questions

Information Campaign → Energy Savings

Will my program work?
Ask the right questions

Information Campaign

Ingredients

Activities/Processes

Energy Savings

Metrics
An Example: Energy Feedback
What are we missing?

Our Window of Opportunity

Green Button Initiative
Access Your Own Data

Google Powermeter
Home Electricity Use

Microsoft hohm beta
Is Feedback Effective?

- 100+ studies conducted since 1976
- Total n = 256,536 (mean 119/study)
- Mean r-effect size = .1174 (p < .001)
- Average energy savings: 9%

Significant variability in effects
(from negative effects to over 20% savings)

Is Feedback Effective?

It depends...

Moderators identified in meta-analysis

• Study population (WHO?)
• Study duration (HOW LONG?)
• Frequency of feedback (HOW OFTEN?)
• Feedback medium (WHAT TYPE?)
• Disaggregation (WHAT LEVEL?)
• Comparison (WHAT MESSAGE?)

Is Feedback Effective?

Market Penetration: Estimates between 1-10%  
(Navigant, 2013; Parks Associates, 2014)

Innovators and Early Adopters

I have never heard about this kind of mechanism as I have not been proactive in learning about it.

Had no idea that these exist.

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Psychological</th>
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<tbody>
<tr>
<td>Gender***</td>
<td>Environmental Motivation**</td>
</tr>
<tr>
<td>Age**</td>
<td>Environmental Concern***</td>
</tr>
<tr>
<td>Race</td>
<td>Financial Motivation**</td>
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<tr>
<td>Marital Status*</td>
<td>Price Consciousness*</td>
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<tr>
<td>Political Affiliation*</td>
<td>Social Motivation</td>
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<tr>
<td>Education</td>
<td>Social Norms</td>
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<tr>
<td>Income**</td>
<td></td>
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<tr>
<td>Home Type**</td>
<td></td>
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<tr>
<td><strong>Homeownership</strong>***</td>
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What Type?

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<tbody>
<tr>
<td>1</td>
<td>(for example, monthly, bi-monthly)</td>
<td>(for example, info and advice, household specific or otherwise)</td>
<td>(for example, web-based energy audits + billing analysis, est. appliance disaggregation)</td>
<td>(for example, based on consumption measurements, by mail, email, self-meter reading, etc.)</td>
<td>(for example, in-home displays, pricing signal capability)</td>
<td>(for example, HANs, appliance disaggregation and/or control)</td>
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</table>

“Indirect” Feedback (provided after consumption occurs) vs. “Direct” Feedback (provided real-time)

EPRI, 2009
What Type?

1. **Standard Billing** (for example, monthly, bi-monthly)
2. **Enhanced Billing** (for example, info and advice, household specific or otherwise)
3. **Estimated Feedback** (for example, web-based energy audits + billing analysis, est. appliance disaggregation)
4. **Daily/Weekly Feedback** (for example, based on consumption measurements, by mail, email, self-meter reading, etc.)
5. **Real-time Feedback** (for example, in-home displays, pricing signal capability)
6. **Real-time Plus** (for example, HANs, appliance disaggregation and/or control)

"Indirect" Feedback (provided after consumption occurs)

"Direct" Feedback (provided real-time)
Home Energy Management refers to technologies that enable energy efficiency and demand response through information and control.

What Type?

User Interface
- Energy Portal
- Load Monitor
- In-Home Display

Smart Hardware
- Smart Appliance
- Smart Thermostat
- Smart Lighting
- Smart Plug
- Smart Hub

Software Platforms
- Smart Home Platform
- Data Analytics Platform
- Web Service Platform

Temporal Granularity

- Monthly: 12
- Daily: 365
- Hourly: 8,760
- Continuous: 31,536,000

What message?

1079 KwH/year

65.9 Billion

5.8% of average home

$.25/load

$85/year
### Impacts of leaving your router on when not in use

1. Turning your router off when not in use saves energy.

2. A router left on all day uses 0.07 kWh of electricity.

3. A router left on all day costs $0.06.

4. A router left on all day uses the equivalent of 37 AA batteries.

5. If all Americans switched off their router when not in use, we could save $2.8 billion a year.

HOW do we know?

Information Campaign  

Is it this simple?

Energy Savings

There are benefits to simplicity...

Precision and Significance in the Real World

A 1500 kg mass is approaching your head at 45.3 m/s

LOOK OUT!!

Precision

Significance
3. Find x.

Here it is
THANK YOU!

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