

Lessons from Psychological Research on

Recycling, Energy Use, and Composting

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Overview

Discuss the published literature on the most effective ways to change behavior

- Home energy use
 - Information, feedback, block leaders, policy
- Recycling
 - Infrastructure, incentives
- Composting
 - Modeling
 - Concerns about behavior spillover?



Home Energy Use

Meta-Analyses of Experimental Research

- Systematic reviews aimed at quantifying the relationship between an intervention and an outcome of interest
 - If we randomize people to either receive energy conservation information or no information, does it decrease energy use?

Energy Use Meta-Analysis

- Meta-analysis of informational interventions focusing on home energy usage (156 studies, total sample size of 525,479)
- Across all studies, informational interventions led to 7.4% reduction in home energy use
 - Audits – 13.5%
 - Energy saving tips – 9.6%
 - Frequent feedback – 8.5%
 - Monetary incentives – 5.7%

Social Norms and Home Energy Use

- Opower model of providing descriptive social norm information in home electricity bills:
 - You used 872 kWh last month
 - Average of all of your neighbors was 1,092 kWh
 - Your most efficient neighbors averaged 596 kWh
- Power of the “magnetic middle”
 - Can be offset by use of injunctive norms (i.e., smiley faces and positive affirmation)
- Strong evidence that pairing descriptive social norm feedback with injunctive norms reduces home energy use by 2-4%

Social Influence Meta-Analysis

- Meta-analysis examined social influence interventions and their effect on energy use and recycling behaviors (29 studies)
- Largest behavioral increases found for block leader approaches
 - Strong effects also found for public commitment interventions

Status Quo Bias and Policy

- Opt-in versus opt-out policies
- These policies can have a drastic effect on whether households “choose” home green energy
 - Opt-in: 7.2% green energy households
 - Opt-out: 69.1% green energy households



Recycling

Physical Infrastructure

- Comparing central recycling in offices versus proximate recycling
- Central recycling: 28% recycling
- Recycle bin in close proximity: ~90% recycling

Recycling Interventions Meta-Analysis

- Examined a range of interventions to increase household recycling, largest effects for physical alteration and social influence (36 studies):
 - Providing recycling and composting bins
 - Adding prompts and signs
 - Motivating students to talk about recycling with their families

Recycling Policy

- Reviewed 245 municipality recycling policies to determine policies that increase recycling rates
- Pay-as-you-throw trash programs led to highest recycling rates
- Pay-for-recycling services led to lowest recycling rates



Composting

Modeling and Composting

- In one experiment in a university cafeteria, baseline rates of composting were 12.5%
- Sign prompts increased composting rates to 20.5%
- People modeling composting behavior increased composting to 42%

Composting as Crowding Out Reductions in Food Waste

- Justifiable concerns that advocating for composting will lead to people feeling less guilty about the food they waste

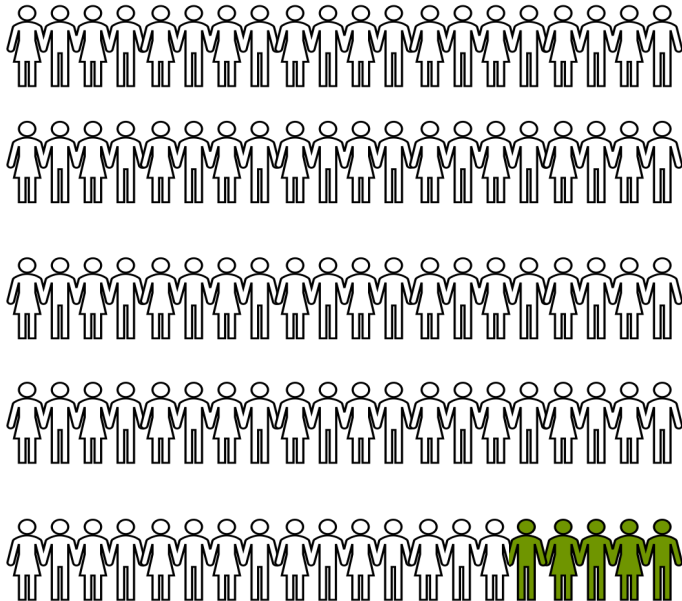
Environmental Behavior Spillover

What happens after an intervention increases a targeted environmental behavior?

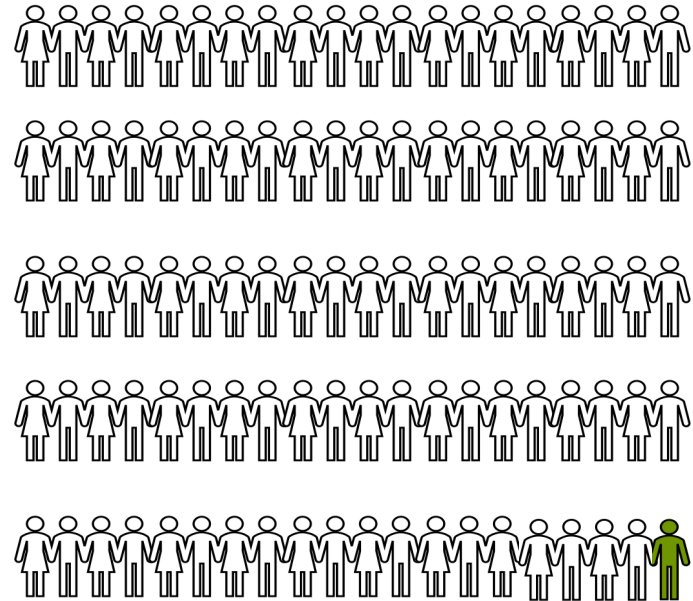
- Meta-analysis of 22 studies
- Small, positive increases in intentions to engage in other behaviors (“positive spillover”)
- On average, very slight decreases in other behaviors (“negative spillover”)

Environmental Behavior Spillover

Intentions 



Behavior 





Conclusions



Takeaway Lessons for Reducing Food Waste

- Information can be effective, but there are many ways to provide information
 - E.g., tips, feedback, social norm information
- Leveraging social relationships is plain old good psychology
- Infrastructure and policy changes may lead to strongest effects
- Science of combining interventions and policies is fairly young

Thanks!

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Social Influence Example

- Employees in office buildings:
 - Did or did not receive monthly feedback on their building's energy use
 - Did or did not host a peer educator in their building
- All conditions, including the control, received basic information on how to conserve energy in office buildings
- All interventions led to decreases in energy use, though significant and stronger effects found for either feedback alone or feedback and peer education