



Let's Recycle Better, Together.

CHANGING BEHAVIOUR

CASE STUDIES & BEST PRACTICES
TO INFLUENCE ZERO WASTE BEHAVIOUR

WEDNESDAY, SEPTEMBER 3RD, 2025



1-800-565-9931



buschsystems.com



81 Rawson Avenue, Barrie, Ontario, Canada L4N 6E5

Today's Panelists



Jennifer Tabanico

President

Action Research



Gretchen Engbring

Social Scientist,

Office of Sustainability

Stanford University

Join the Discussion

From your toolbar:



Share your experience
& opinions

Look for links
to resources

Type direct questions
for panelists



Beyond Awareness

Sparking Recycling and Waste Reduction Behavior with Community- Based Social Marketing

September 3, 2025

Jennifer Tabanico

PRESIDENT

tabanico@actionresearch-inc.com



action

R E S E A R C H



Action Research

Applying **behavioral** and **social science** research to outreach programs that promote **safe, healthy, and sustainable** communities.



sparkling behavior **changes** for **good**



Behavior Matters

Environmental Problems are Behavior Problems

✂ Sorting Behavior

✂ Waste Reduction

Behavior Matters

Solutions Involve Behavior



Technology



Infrastructure



Policy

Information-Intensive



Knowledge


*If people know
what to do,
they will do it.*

*Knowledge \neq
Behavior
Change*

Attitude

*If people
believe, they
will change.*

*Attitude \neq
Behavior
Change*

A blue recycling bin is positioned on a paved street. In the background, there are green trees and a clear sky. A white text box with a green border is overlaid on the image.

While knowledge and attitudes are important foundations, people do not act solely on what they know or believe.

Community-Based Social Marketing

Process not Tactic

- ✧ Origins in Social and Environmental Psychology
- ✧ Community-based
- ✧ Removes barriers
- ✧ Behavior-based



Community-Based Social Marketing

Select Behavior

Barriers & Benefits

Develop Strategy

Pilot Test

Implement Broadly & Evaluate



Residential Recycling

Step 1: Select Behaviors

✂ Waste Characterization Study

- ✂ 415 Households
- ✂ Mixed Paper in 87% of Garbage Carts
- ✂ 8% of Weight

A vertical stack of numerous white papers, slightly fanned out, occupies the left side of the slide. Above the papers is a solid blue horizontal bar.

Residential Recycling

Step 2: Identify Barriers & Benefits

✂ In-Person Surveys (N=261)

✂ Barriers

- ✂ Privacy concerns
- ✂ Confusion about shiny paper, plastic windows

✂ Benefits

- ✂ Environment
- ✂ Right thing to do



If you're concerned about your privacy use the enclosed marker to mark out your information before you recycle.



You can recycle all types of paper in your blue recycling cart, including junk mail, envelopes with windows, magazines and glossy paper.

In a recent survey, 87% of Fort Worth residents stated that recycling at home was very important to them. However, some residents were unsure about recycling items that contained their name or personal information.

The City of Fort Worth would like to make it easier for residents to recycle all types of paper.

Let's keep junk mail, envelopes, magazines and glossy paper out of our landfill.

Residential Recycling

Step 3: Develop Strategy

✂ Social Norms

✂ *87% of Fort Worth residents stated that recycling at home was very important...*

✂ Address Barriers

✂ *You can recycle...junk mail, envelopes with windows, magazines, and glossy paper.*

✂ Prompt

✂ *Black marker*

Campus Recycling (Contamination)

Step 1: Select Behaviors

✂ Campuswide Waste Audits

- ✂ Residence halls highest contamination
- ✂ 95% of the student body





Campus Recycling (Contamination)

Step 2: Identify Barriers & Benefits

✖ Intercept Surveys

✖ Barriers

- ✖ Knowledge barriers tied to specific items
- ✖ Competition with other signage

✖ Benefits

- ✖ Motivated to be correct
- ✖ Environment and community

Campus Recycling (Contamination)

SORT SMART SPOTLIGHT

Swarthmore students are smart about sorting waste for our community and the environment, but some items can be confusing.




Zero Waste
Working Group

Step 3: Develop Strategy (Bin Signage)

✖ Address Barriers

- ✖ Focus on “problem” items

✖ Social Norms

- ✖ Most do the right thing

✖ Prompt

- ✖ 3-D signage to stand out

✖ Highlight Benefits

SORT SMART SPOTLIGHT

Swarthmore students are smart about sorting waste for our community and the environment, but some items can be confusing.



Campus Recycling (Contamination)

Step 3: Develop Strategy (Sorting Game)

- ✂ In-Person Communication

- ✂ Feedback

 - ✂ *Info barriers*

 - ✂ *Practice new habits*

- ✂ Commitment

 - ✂ *Leverage self-perception*

 - ✂ *Enhance social norms*



Swarthmore College, PA



Community-Based Social Marketing

Select Behavior

Barriers & Benefits

Develop Strategy

Pilot Test

Implement Broadly & Evaluate

Residential Organics Collection

Testing Different Strategy Options



**Give Your
Food Scraps
New Life**

By Putting Them in Your Green Card

**Join Your
Salinas Valley
Neighbors
by Properly
Placing Your
Food Scraps in
the Green Card**

Reduce Waste Going to Landfills

- The San Joaquin Hills Landfill is the largest in the world and the third largest in the United States. It is the largest source of greenhouse gas emissions in the world.

David Moore Speaks to Your Trash Can!

- Please don't throw away food scraps. They are valuable and can be recycled.

79%

Compostable Food & Yard Waste is the most common type of waste in the world. It is the most abundant and the most valuable resource in the world.

Together, we can reduce the amount of waste going to the landfill and the amount of greenhouse gas emissions.

Food Scraps Come From:

- **Meat & Bones**
- **Vegetables**
- **Fruit**
- **Grains**
- **Legumes**
- **Nuts & Seeds**
- **Oil**
- **Butter**
- **Yogurt**
- **Cheese**
- **Eggs**
- **Bread**
- **Pasta**
- **Rice**
- **Beans**
- **Tea**
- **Coffee**
- **Spices**
- **Herbs**
- **Flowers**
- **Grass**
- **Leaves**
- **Stems**
- **Roots**
- **Seeds**
- **Shells**
- **Feathers**
- **Manure**
- **Compost**
- **Soil**
- **Gravel**
- **Bricks**
- **Concrete**
- **Asphalt**
- **Paint**
- **Stains**
- **Glue**
- **Adhesives**
- **Sealants**
- **Coatings**
- **Finishes**
- **Insulation**
- **Roofing**
- **Shingles**
- **Flashing**
- **Membranes**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**
- **Garages**
- **Driveways**
- **Patios**
- **Decks**
- **Fences**
- **Landscaping**
- **Planting**
- **Pruning**
- **Trimming**
- **Clearing**
- **Demolition**
- **Excavation**
- **Grading**
- **Drainage**
- **Foundation**
- **Walls**
- **Floors**
- **Roofs**
- **Attics**
- **Basements**
- **Crawlspaces**

How to Collect Your Food Scraps

#1



Choose a container for a compost bin. Put it in a convenient place for the kitchen.

#2



Add your food scraps from your plate, plate, or bowl, and anything not fit to fry.

#3



Place that compost bin in a green area, preferably in your yard or garden (not near a house).

If it Grows, it Goes!

What Grows? ✓



- Fresh, including pine, apple, and pear.
- Vegetables, including peels.
- Grassy weeds (grass).
- Garden soil and mulch, including house and plants.
- Weekly growing sprouts and cut herbs.
- Washing and coffee grounds.
- Instant food and rice (not from a can).

What Doesn't? ✗



- Meat (raw)
- Ice cream
- Dairy, oils, and grease
- Flammable and plastic bags
- Paper with carbon ink
- Glass
- Plastic

(Think your compost bin... just place it properly. It helps in the compost.)



©2016 City of Seattle, Department of Public Works. All rights reserved.







Salinas Valley Recycling
www.salinasvalleyrecycling.com



January 2012

Dear Soledad Resident:

IN VIEW of its location in the State of California it will be required to recycle their food scraps instead of disposing of them in the landfill. Landfills are the final disposal source of materials in the United States. Food scraps and yard trimmings make up half of the material in our landfills, so by reducing food and landscaping waste we can reduce harmful greenhouse gases.

Salinas Valley Region, Homeowners will go on our green team as they can be awarded a company. To qualify, we need you to participate in the food scrap recycling program Salinas Valley Region, your local Salinas Valley Authority, has partnered with the City of Soledad and La Cima Dispatch & Recycling, many locations, to provide you with the red lined information flyer.

You can pick up a FREE Kitchen Foodscraps pull bin (55 Gallon) between January 1st and January 1st 199 by calling the company below. Pick up your pull bin at the City of La Cima 4040 Alvarado Street, San Jose. One kitchen food scraps pull bin household.

When you place food scraps in the right place you are saving as you must not put and produce a mixture of materials for our homes and businesses. Simply reduced food scraps those need paper, cardboard, metal, and wood that has been had to, paper and plastic and glass is your green card. The reduced the number correct as it from a waste that means and a lot of sustainable food waste.

Thank you for your participation.

For questions about the program please call the Salinas Valley Region below. www.cityofsl.com

Summary

City of Soledad

FREE KITCHEN FOOD SCRAPS PAIL
Ciudad de Salinas de Comita GRATIS

Salinas City Hall
 341 Main Street
 Salinas, CA 94668
 Monterey County
 Salinas, CA

(805) 461-8877 x2222222222



199 Main Street, Salinas, CA 94668 • Phone: (805) 461-8877 • Fax: (805) 461-8877 • Email: info@cityofsl.com

Recycled on 100% post-consumer recycled paper

Residential Organics Collection

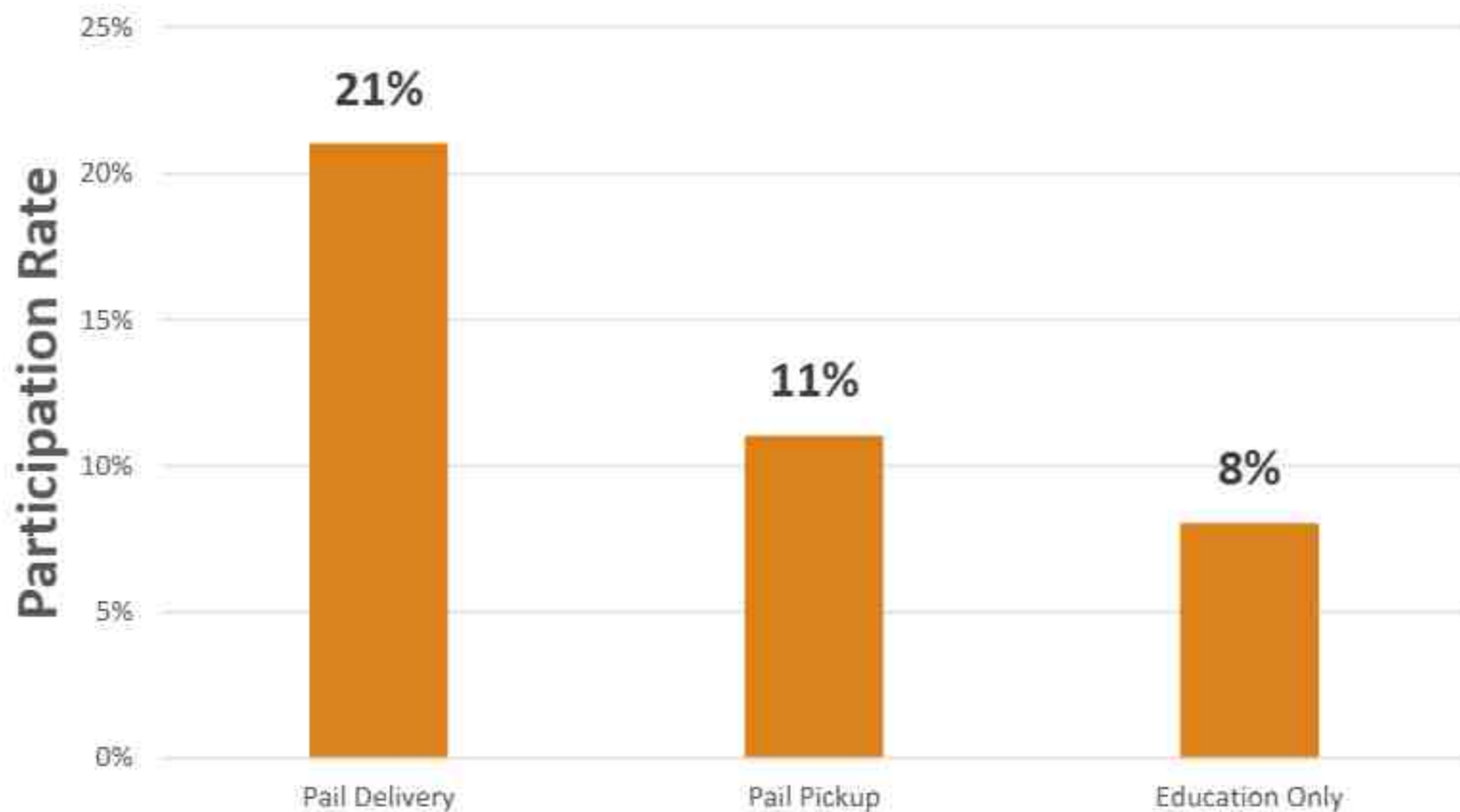


\$ per
behavior

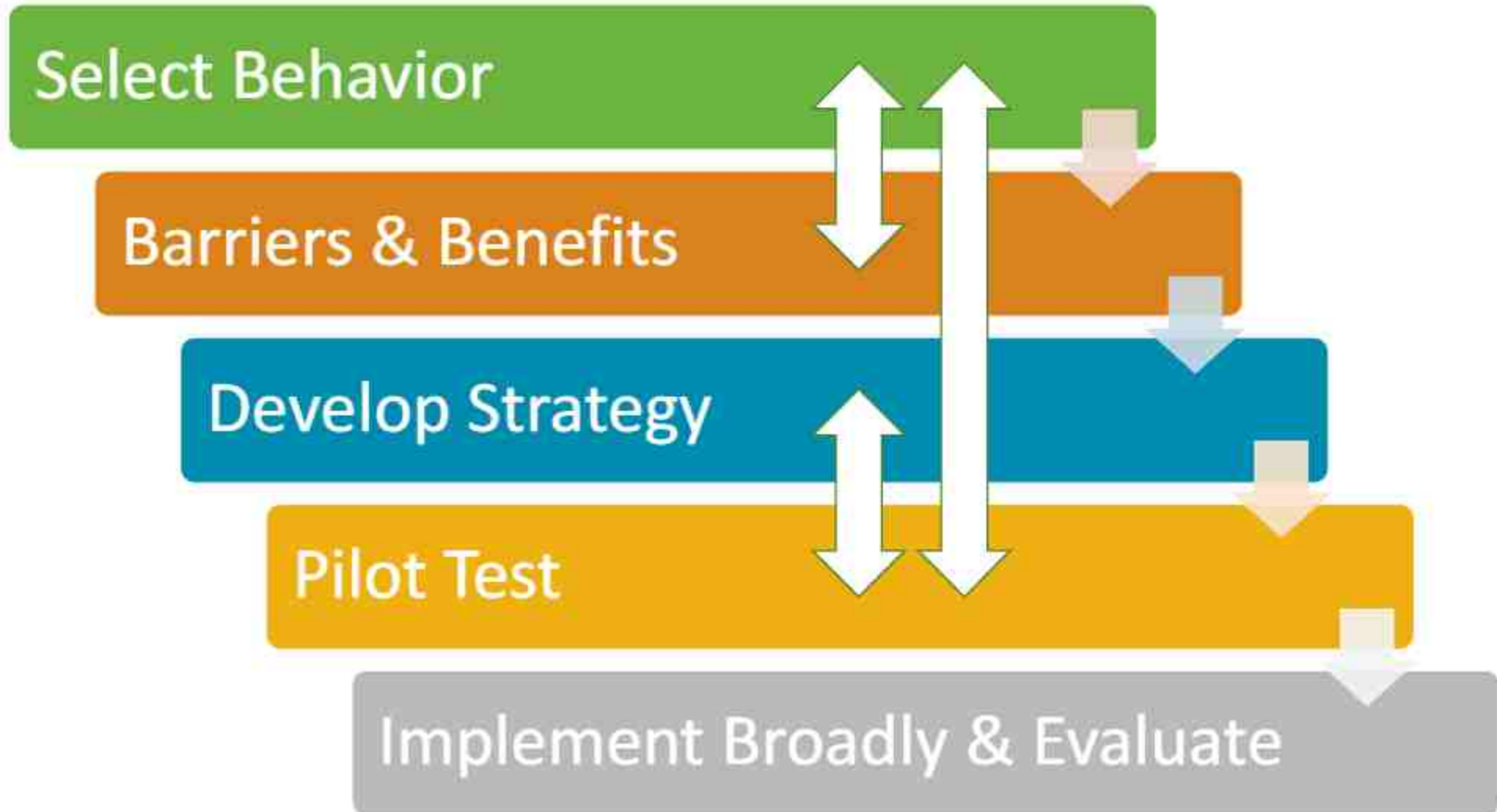
\$33.43

\$71.45

\$52.00



Community-Based Social Marketing



McKenzie-Mohr (1999, 2011)

McKenzie-Mohr & Tabanico (2025)

CBSM for Recycling & Waste Reduction

Key Messages

- ✂ Behavior matters.
- ✂ Barriers vary at the level of individual actions.
- ✂ CBSM provides a structured, data-driven framework for developing strategies.
- ✂ Scale up cost-effective strategies.



FOURTH EDITION

Doug McKenzie-Mohr & Jennifer Tabanico

FOSTERING SUSTAINABLE BEHAVIOR

An Introduction to
Community-Based Social Marketing



Thank you!

Learn More

- ✧ www.cbsm.com
- ✧ www.toolsofchange.com
- ✧ *UCSD Extension: Behavior Change Strategies for Sustainability*
- ✧ Fostering Sustainable Behavior, 4th edition (2025)

Contact

Jennifer Tabanico

PRESIDENT

tabanico@actionresearch-inc.com



Live Poll #1

Has your organization implemented a Behavior Change campaign(s)?

(Click all that apply)

- ☐ Traditional “how-to” recycling education
- ☐ Full CBSM-style campaign – Recycling focus
- ☐ Full CBSM-style campaign – Food/ compost focus
- ☐ Full CBSM-style campaign – Waste prevention focus
- ☐ Less formal behavior change messaging

Share details in the chat

Some Steps for Saving the World, One Behavior at a Time

(no pressure)

Dr. Gretchen Engbring | Sustainability Social Scientist
Stanford Office of Sustainability, LBRE

Note: This presentation is not an endorsement of any products or services

I support campus sustainability through social science



Research & analysis



Methodological support



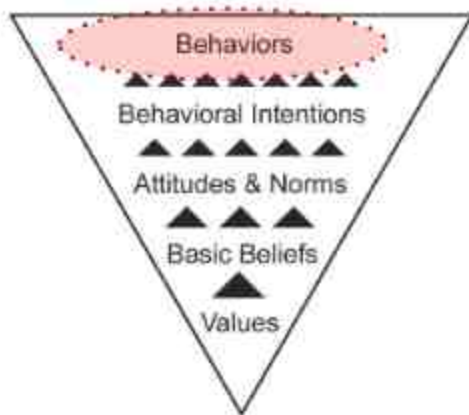
Incorporation of best practices into programs -
including behavioral intervention design



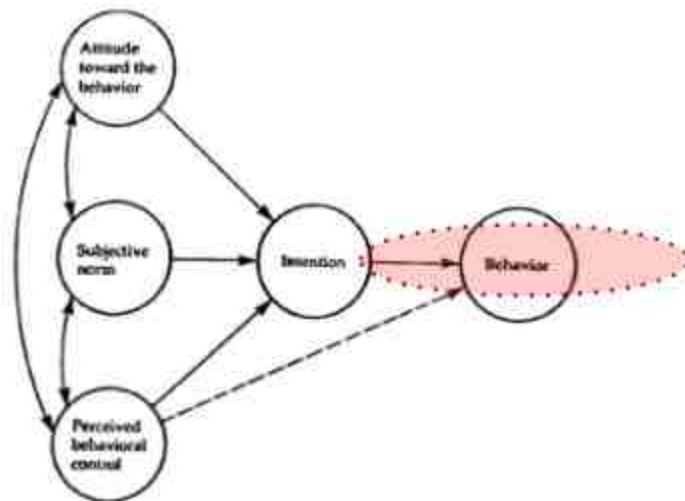
Knowledge sharing/training

Today, I'm focusing on the tip of the iceberg

Cognitive Hierarchy Model



The Theory of Planned Behavior



An expanded checklist for behavioral interventions

1

Describe the problem

2

Diagnose the behavior

3

Define clear outcomes

4

Design the intervention

5

Develop the study design

6

Draft supporting materials

7

Pilot the intervention

8

Implement & monitor

9

Collect & analyze data

10

Evaluate & interpret results

11

Iterate & improve

12

Scale, disseminate, & sustain

Describe the problem

- A. What is the issue you're trying to address?
→ *High levels of recyclable materials landfilled from campus labs*
- A. How is the target behavior* contributing to this issue?
→ *Placement of recyclable items into lab landfill bins*
- A. How would a change in this behavior address the issue?
→ *Sorting can increase diversion & decrease contamination*
- A. Who is your target population?
→ *Laboratory personnel (students, staff, & faculty)*
- A. What is the context in which they're performing the behavior?
→ *While conducting experiments in campus labs*



Diagnose the behavior

A. What discourages or encourages the target behavior?

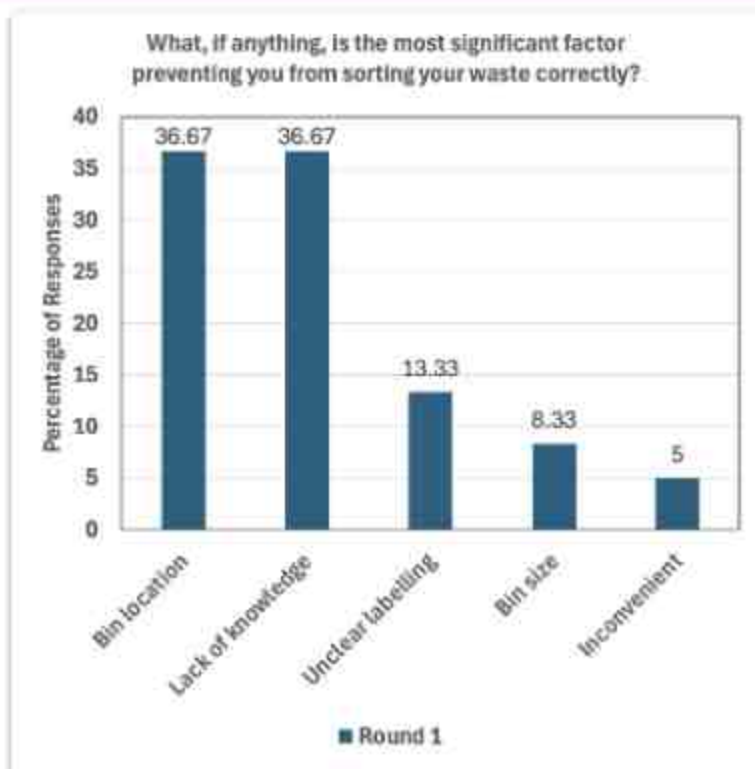
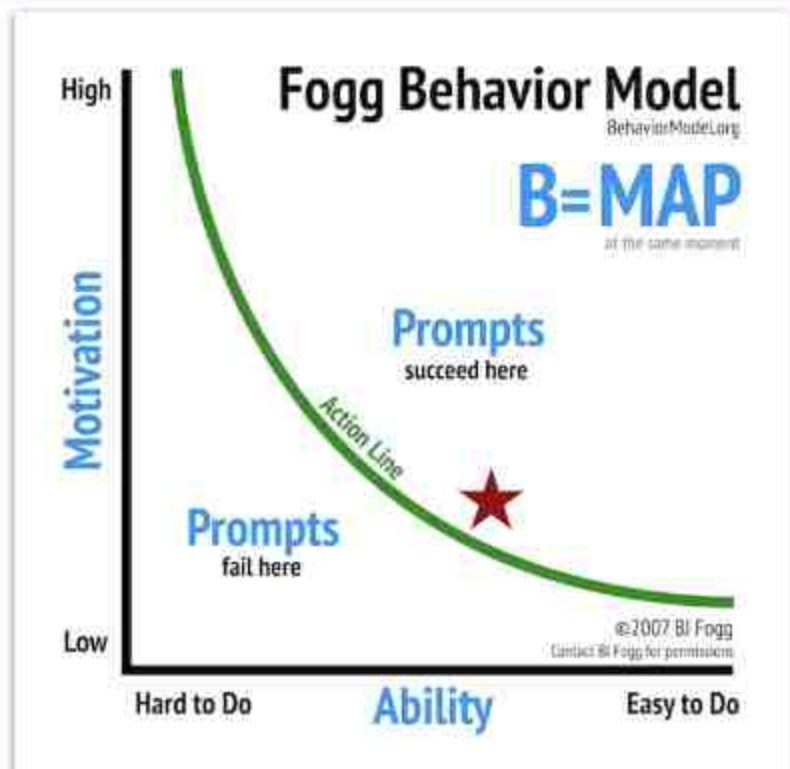
Barriers { *Waste sorting less salient in labs, lack of time, strong sorting norms or knowledge, inaccessible or full bins*

Facilitating factors { *Reminders, embedded cues, sorting norms, training, instructional signage, conveniently placed & serviced bins*



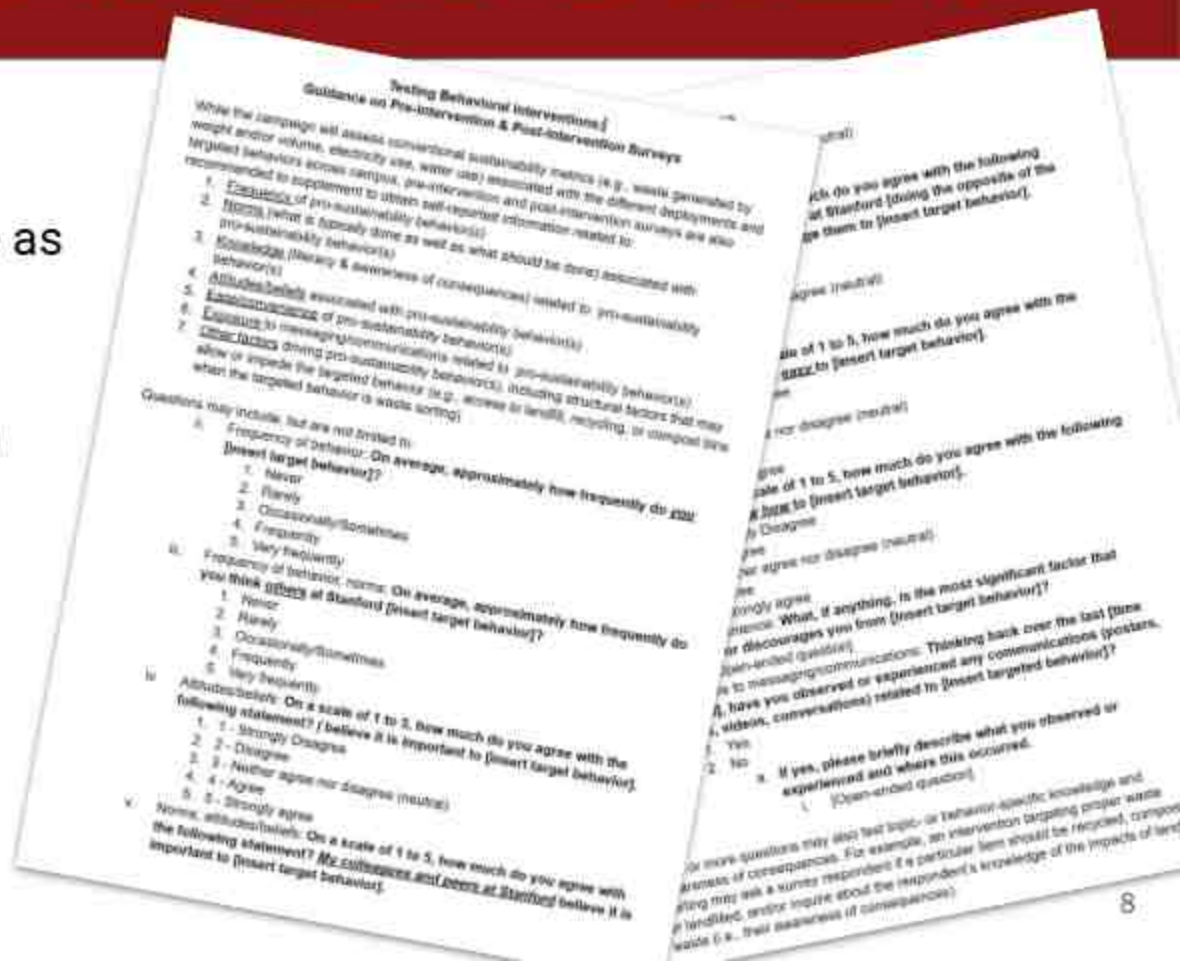
Use literature reviews, observations, interviews, surveys, & focus groups, as well as established frameworks (e.g., FBM) & theories (e.g., TPB, NAM) to better understand target behaviors

Use theories, surveys, & more to understand your audience



Surveys can help reveal hidden drivers of behavior

1. **Frequency**
2. **Norms** (what is *typically* done as well as what *should* be done)
3. **Knowledge** (literacy & awareness of consequences)
4. **Attitudes/beliefs**
5. **Exposure** to messaging/communications
6. **Ease/convenience**
7. **Other factors**



Limited understanding of the behavior = limited impact



Values Determine the (In)Effectiveness of Informational Interventions in Promoting Pro-Environmental Behavior

Jan Willem Bolderdijk¹, Madelijn Gorsira², Kees Keizer², Linda Steg²

¹ Department of Marketing, University of Groningen, Groningen, The Netherlands, ² Department of Psychology, University of Groningen, Groningen, The Netherlands

PLOS ONE

Define clear outcomes

What is the **impact** you want your intervention to have on...

A. The issue you're trying to address?

→ *Decrease in the amount of recyclable material landfilled from campus labs*

*Watch for disconnects
between the behavior & issue*

A. The target behavior you're trying to change?

→ *Decrease in the placement of recyclable items into laboratory landfill bins*

*Sometimes it's the drivers
behind the behavior that
you may want to change*

Design the intervention

Consider:

A. Feasibility

→ *High-risk research environment, limited space*

A. Delivery method

→ *Signage (cues)*

A. Behavior change techniques

→ *Normative messaging, information*

WE'RE SCIENTISTS WHO CARE!
Join the growing number of CHEM-H / Neuro residents taking action to reduce lab waste. Let's work together to reduce, reuse, and recycle metal, glass, paper, and plastic!

PLAN
your experiment to reduce unnecessary waste

PRACTICE
techniques that avoid using unnecessary plastic

REPLACE
disposables with reusable alternatives

YES RECYCLING

NO RECYCLING

SCAN TO LEARN MORE

WE'RE SCIENTISTS WHO CARE!
Join the growing number of Chem Center residents taking action to reduce lab waste. Let's work together to reduce, reuse, and recycle metal, glass, paper, and plastic!

YES RECYCLING **NO RECYCLING**

PLASTICS

METAL, PAPER, & GLASS

SCAN TO LEARN MORE

Interventions can take many forms



In-person interactions
Stanford Office of Sustainability

Events



On average, LBRE employees at Stanford Redwood City **recycle & compost less*** than employees at 560 Fremont.



Join us in reducing our waste at SRWC by:

- properly sorting recycling, compost, & landfill waste
- reducing single-use utensils & bringing reusables

*Scorecards/
feedback*

Social media posts



Apps



Develop the study design

How are you going to measure the impact of your intervention?

- A. Consider different research designs (e.g., RCT, pre/post)
- B. Select data collection methods (e.g., surveys, interviews)
- C. Evaluate ethical implications

- *"Simple" signs in Building A, "detailed" signs in Building B*
- *Assess pre & post-intervention data*
- *Collect data on waste generation & contamination through weighing building waste & conducting lab-level audits*
- *Gather self-reported data from building occupants through surveys responses*



Time to shift from planning to doing



1

Describe the problem

2

Define the problem

3

Develop the study design

4

Design the intervention

5

Develop the study design

6

Draft supporting materials

7

Pilot the intervention

8

Implement & monitor

9

Collect & analyze data

10

Evaluate & interpret results

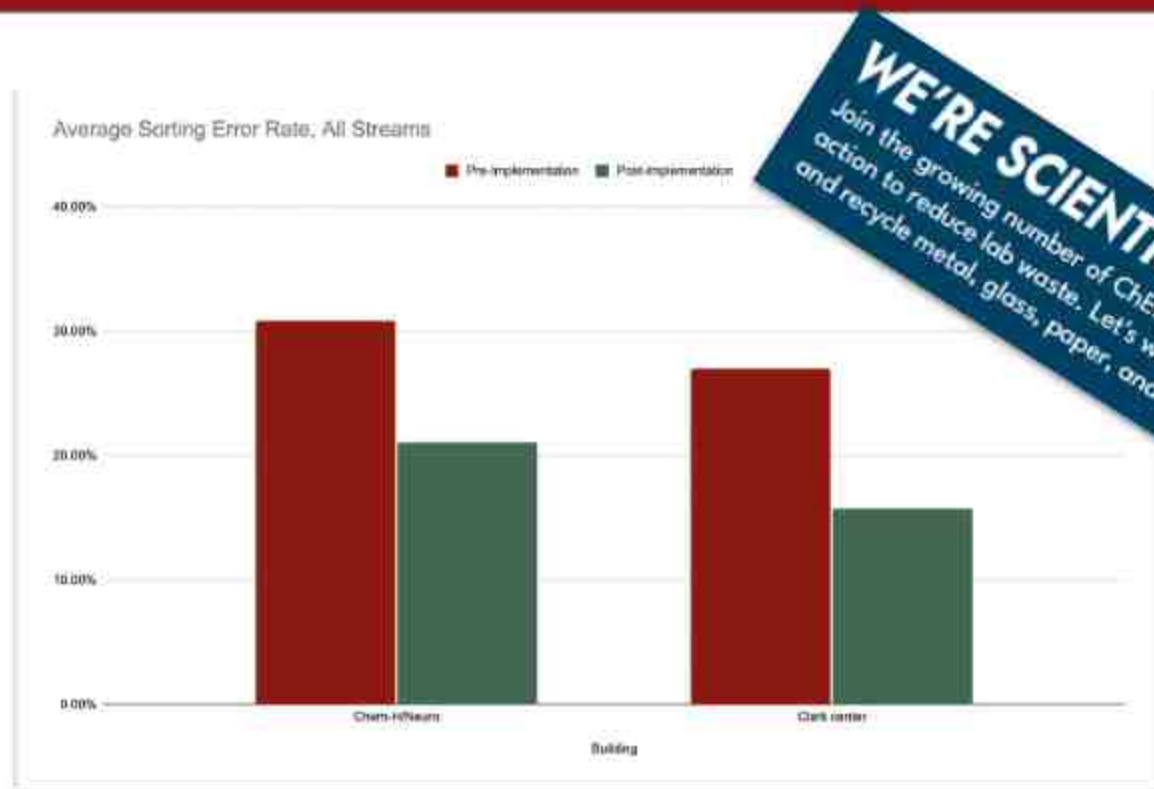
11

Iterate & improve

12

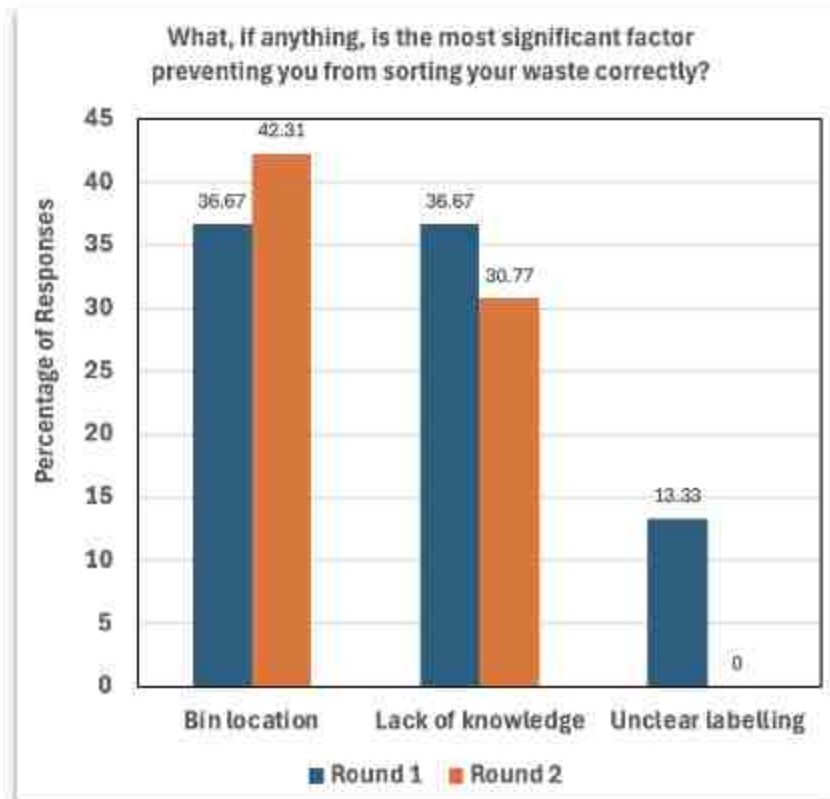
Scale, disseminate, & sustain

Both signs improved waste sorting at the same rate



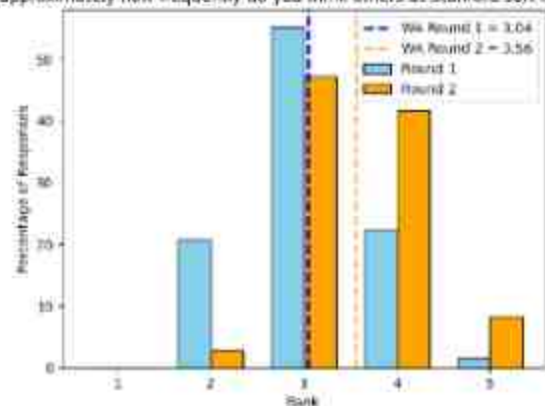
WE'RE SCIENTISTS WHO CARE!
Join the growing number of ChEM-H / Neuro residents taking action to reduce lab waste. Let's work together to reduce, reuse, and recycle metal, glass, paper, and plastic!

Signage decreased sorting confusion in both buildings

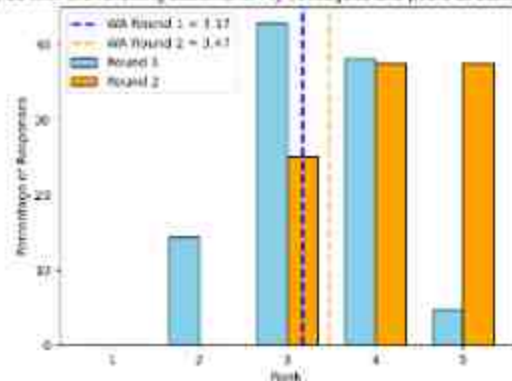


Signage established a stronger perception of sorting norms

On average, approximately how frequently do you think others at Stanford sort their waste properly?



On a scale of 1 to 5, how much do you agree with the following statement? My colleagues and peers at Stanford believe it is important to sort lab recyclables.



Three ways we're addressing what's behind the behavior

A Public communication campaigns



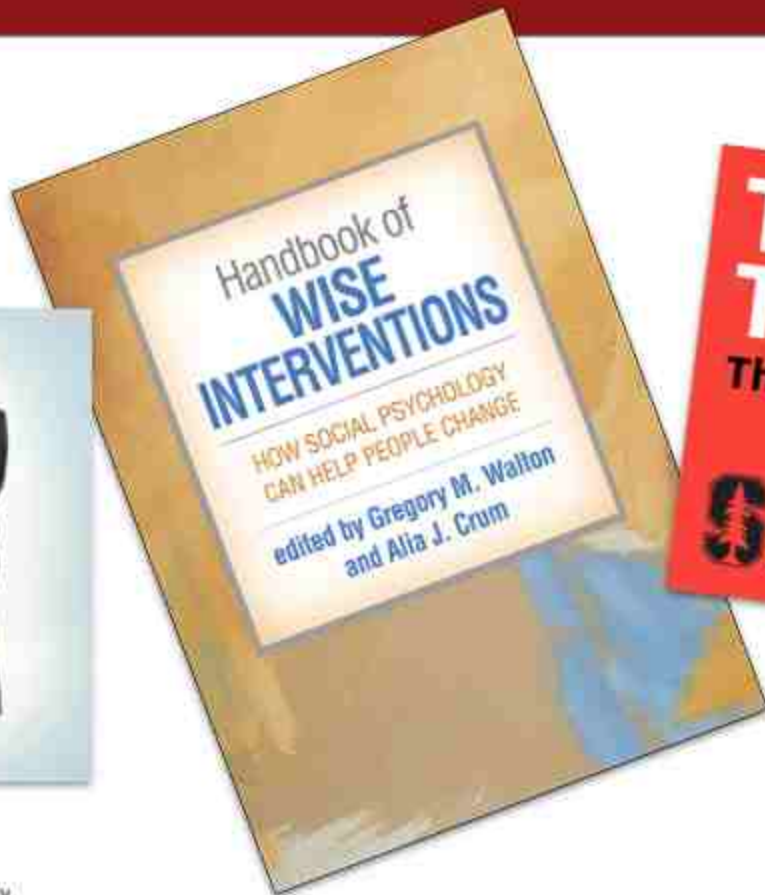
B Sustainable community interns



C Sustainability culture & literacy assessment



Additional resources to build your toolbox



engbring@stanford.edu

Dr. Gretchen Engbring | Sustainability Social Scientist
Stanford Office of Sustainability, LBRE

Q&A



Jennifer Tabanico
Action Research



Gretchen Engbring
Stanford University

Today's Program Online



- Recording
- Presentation slides
- Resources
- Chatlog

Link will be emailed in coming days

Archive of Past Programs



- Labels & Signage
- Rebuilding Confidence in Recycling
- Developing Bin Standards
- Reuse programs

+ More



Upcoming Conference Presentations



September 30
Santa Fe, NM



October 23
Minneapolis, MN



October 29
Jekyll Island, GA



**New York State Association for
Reduction, Reuse and Recycling**

November 13
Cooperstown, NY



Thank You to Our Panelists!



Jennifer Tabanico

President

Action Research



Gretchen Engbring

Social Scientist,

Office of Sustainability

Stanford University

Share Feedback with Presenters



Post-Webinar Survey:

- Prompt at end of program, or
- Look for Email tomorrow

Stick Around For....



Product demo with:

Sarah Hawthorne

Business Development Manager