

Which Bin? Using Behavioral Design to Improve Waste Sorting Behavior in a UN Agency

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Nov 13th, 2023

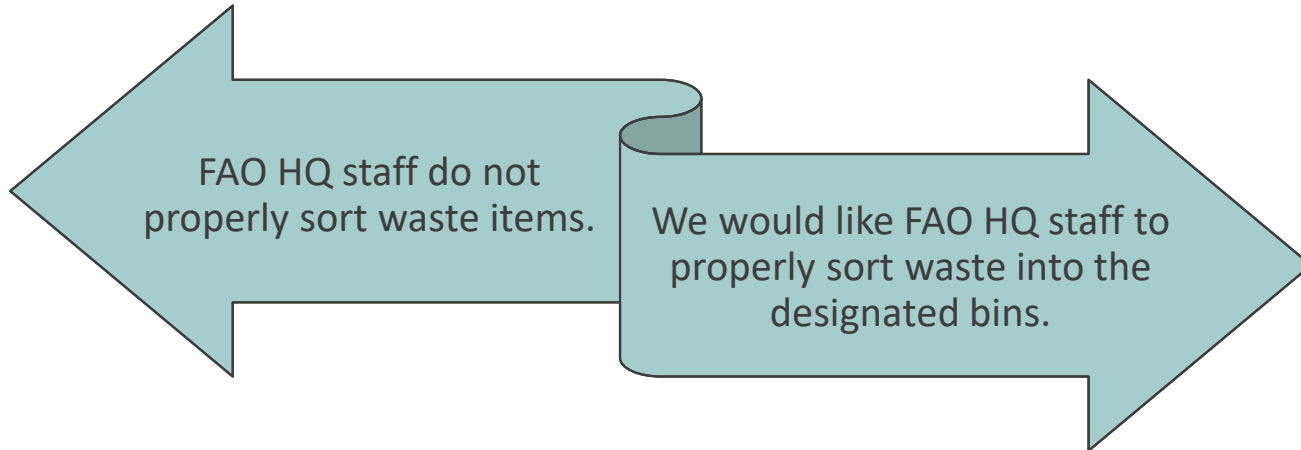
ideas **42**



PARTNERSHIP GOALS

1. To **improve individual behaviors** related to the FAO's Corporate Environmental Responsibility strategy
2. Produce a proof of concept that **behaviorally-informed, light-touch interventions** can have large impacts
3. Generate interest and **excitement for utilizing behavioral science** at the FAO—both at HQ and in country offices

TARGET BEHAVIOR: IMPROVE RATES OF PROPER WASTE SORTING AT FAO HEADQUARTERS



*An audit of the waste stations at the FAO headquarters found that **50% of waste items were incorrectly sorted** into the waste bins.*

COMMONLY MISPLACED WASTE ITEMS



Take-Away Containers



Disposable Utensils



Food Wrappers



Glass Bottles



Brown Cardboard



Coffee Cups



Napkins / Tissues



Receipts

INTENTION-ACTION GAP: CORRECTLY SORTING WASTE IS HASSEL FILLED AND COMPLEX

Habit of using the small office bins as a placeholder, which used to be emptied for them.



Place in office bin

Mental Models of “organic” materials do not align with FAO compostable containers.



Determine item material



Take waste to waste station

Hassles to finding the right waste station, as not all waste stations have all the bins.
Limited Attention is given to this task, as it is often done while walking elsewhere.



Determine correct bin

Complex guidelines for how to sort waste appropriately are difficult to recall quickly and challenging to understand.

DESIGN RECOMMENDATIONS OVERVIEW

Design Concept

1. Make waste stations uniform, ubiquitous and convenient

2. Salient signage at waste stations
3. Hyper-specialized bins to catch common mistakes

4. Align FAO waste color schema with City of Rome
5. Draw attention to sorting and correct misperceptions

Considerations

- ✓ High Confidence
- ✓ Low-Risk
- ✓ Light-Touch

- ✓ Signage Needs to be Tested
- ✓ Low-Cost Testing

- ✓ High-Cost
- ✓ High-intensity implementation

Timing

Implement immediately

Pilot in light-touch controlled setting

Implement when ready to invest in new signage

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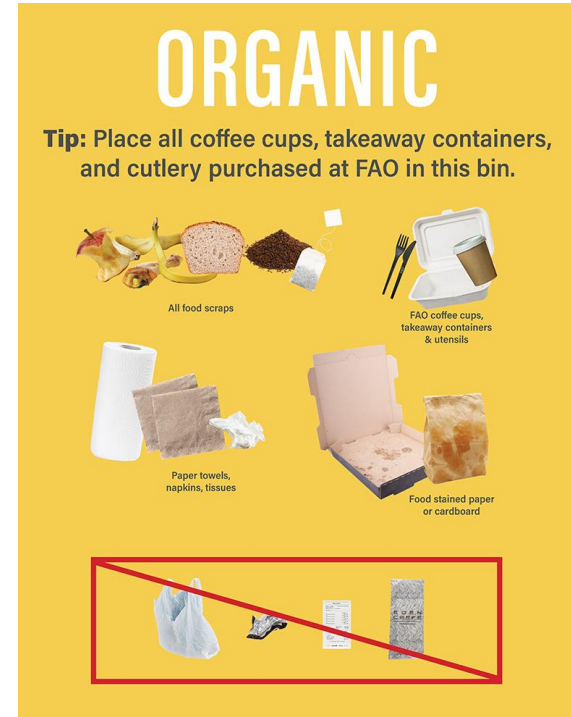
Implement immediately

Pilot in light-touch controlled setting

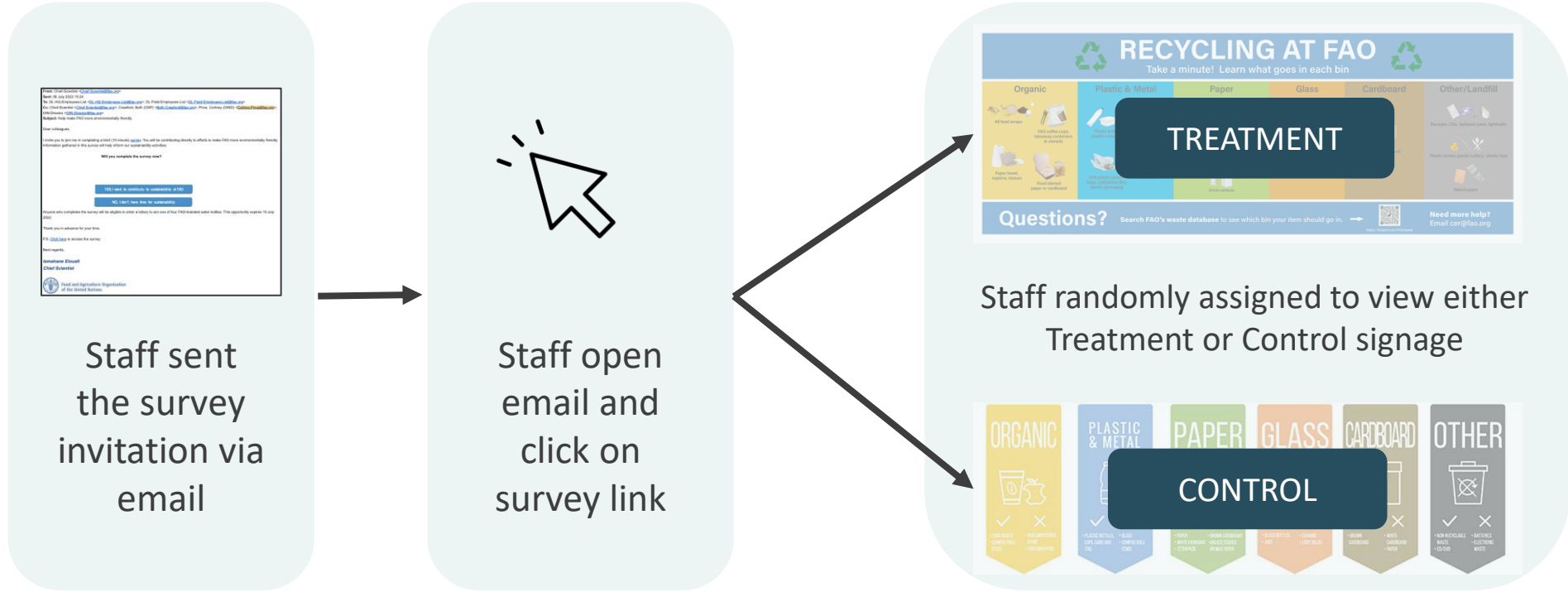
Implement when ready to invest in new signage

DESIGN CONCEPT #2: SALIENT SIGNAGE AT WASTE STATIONS TO MAKE SORTING EASY (PT 1)

- ✓ Use photos of images, rather than text/ drawings
- ✓ Three layers of information:
 1. What to put in the bin
 2. What not to put in the bin
 3. Troubleshooting, myth-busting, and tips
- ✓ Utilize high visibility real estate – lid of bin, front of bin, wall above bin
- ✓ Detailed reference info nearby



WE TESTED THE REDESIGNED SIGNAGE USING A SIMPLE ONLINE EXPERIMENT



NEXT, ASKED TO SORT 13 WASTE ITEMS INTO CORRESPONDING BINS



Disposable utensils



FAO utensils



Styrofoam container



Banana Peel



Plastic Bag



FAO fruit cup



Receipts



FAO Salad Container



Plastic Film



Soiled Cardboard Pizza Box



Used Tissue

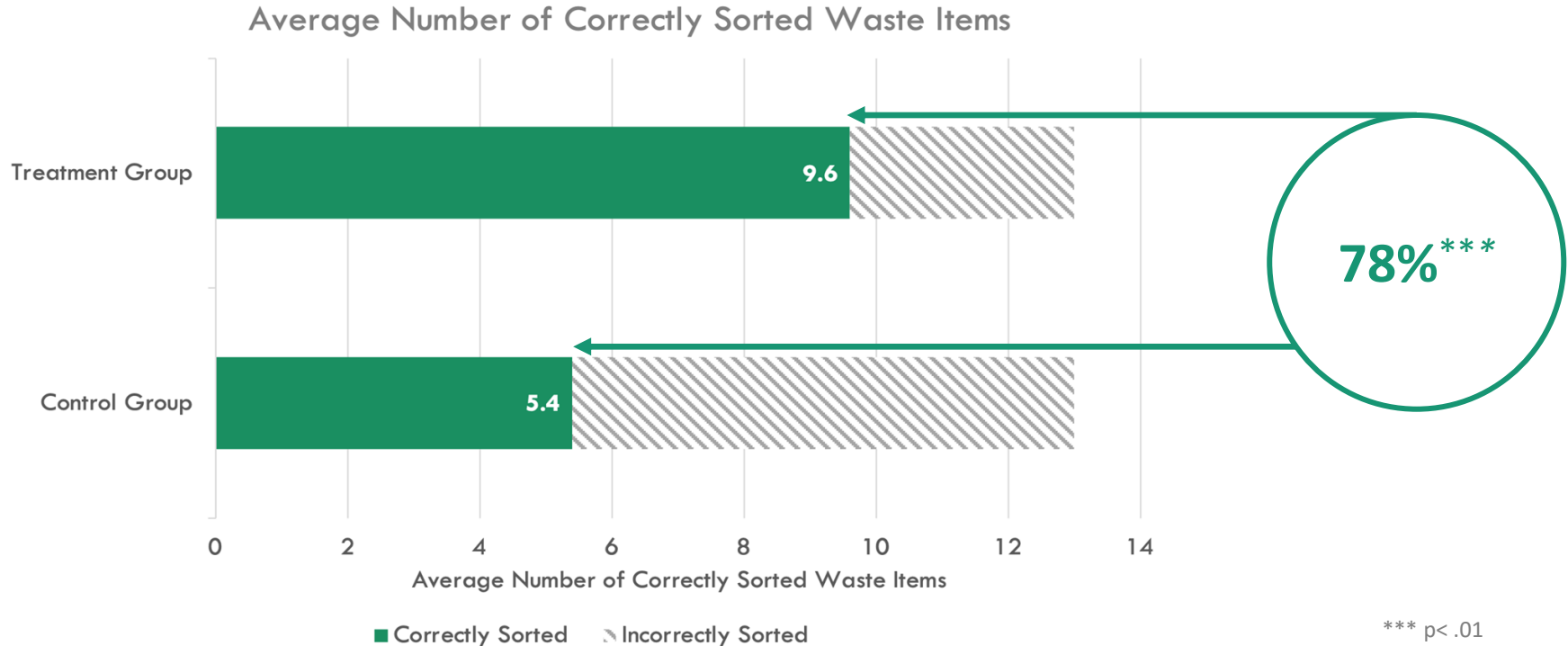


Tea Bag

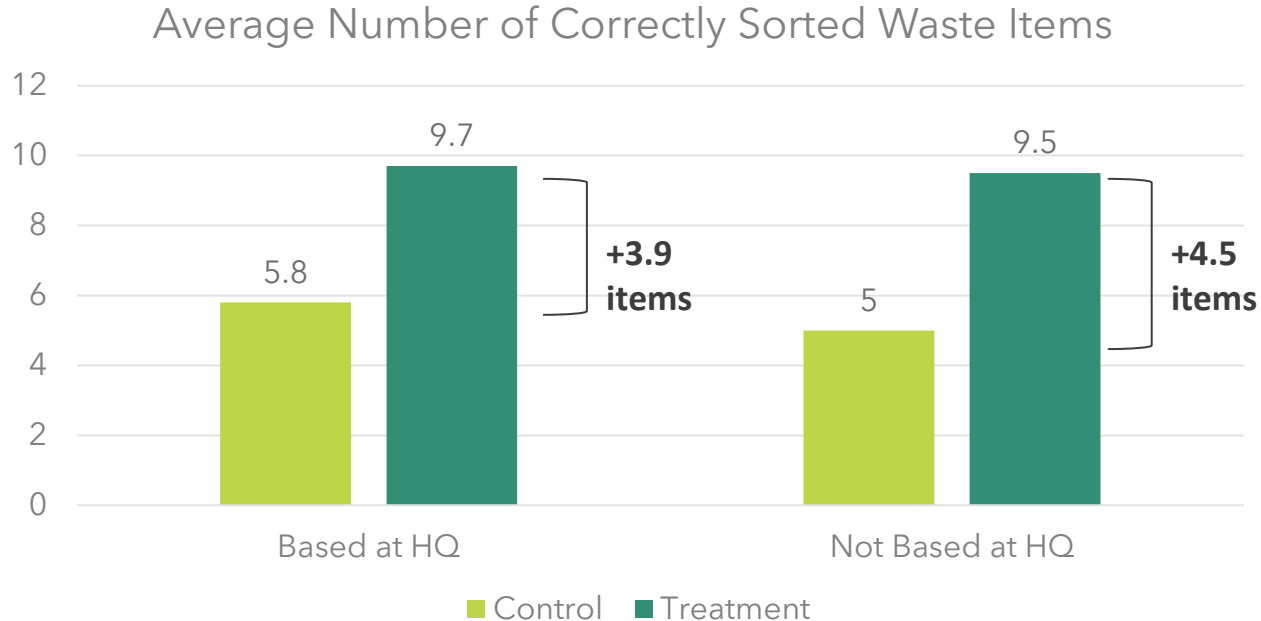


FAO Coffee Cup

TREATMENT GROUP CORRECTLY SORTED NEARLY TWICE AS MANY ITEMS AS CONTROL GROUP

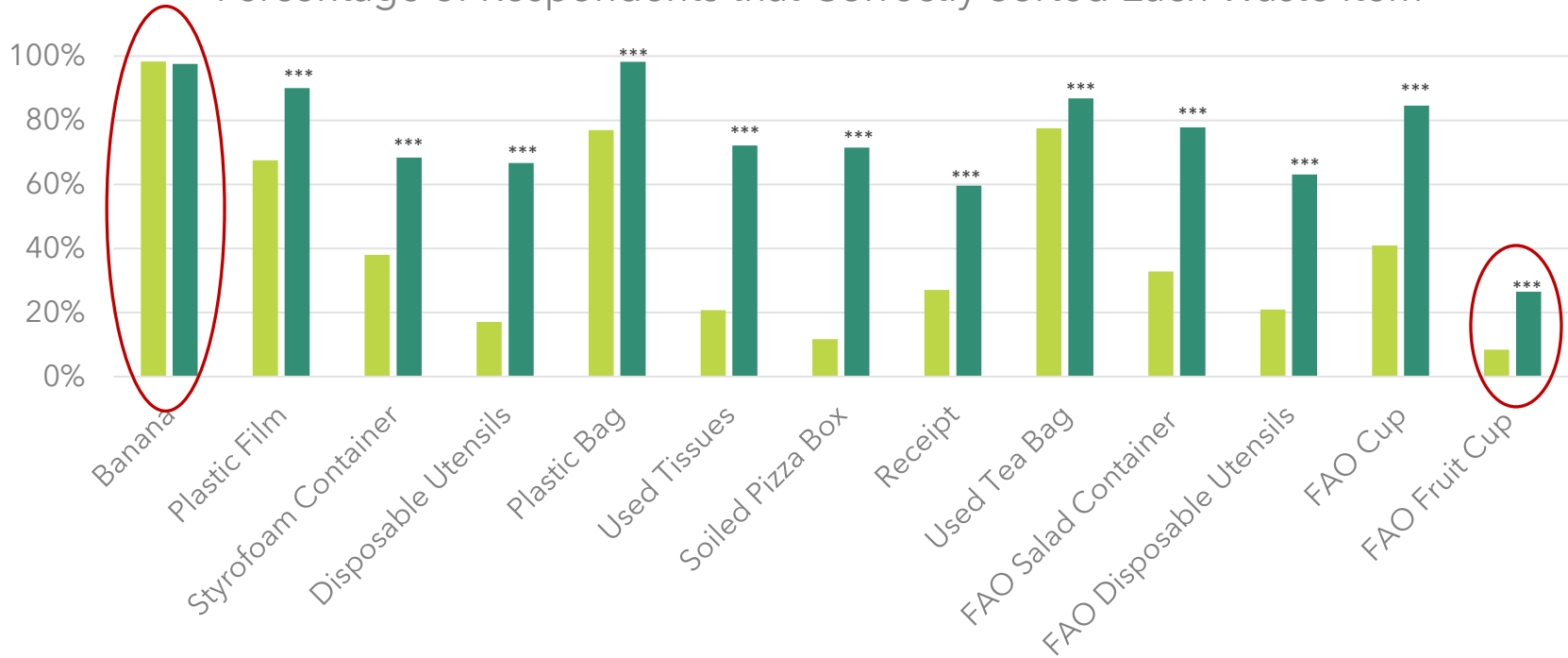


THE TREATMENT WAS SLIGHTLY MORE EFFECTIVE FOR STAFF NOT BASED AT HQ



TREATMENT GROUP WAS MORE LIKELY TO CORRECTLY SORT 12/13 WASTE ITEMS

Percentage of Respondents that Correctly Sorted Each Waste Item



Summary:

Results:

- Behaviorally-designed signage led to a **significant increase** in correct waste sorting among FAO staff
- Behaviorally informed signage improves waste sorting accuracy **across diverse contexts**, with the intervention even more effective for non-HQ staff.

Big Takeaway:

- Behaviorally informed, **light-touch solutions** can have a **big impact** on environmental behaviors



APPENDIX

TREATMENT SIGNAGE: WALL SIGN



RECYCLING AT FAO



Take a minute! Learn what goes in each bin

Organic	Plastic & Metal	Paper	Glass	Cardboard	Other/Landfill
<p>All food scraps</p> <p>FAO coffee cups, takeaway containers & utensils</p> <p>Paper towel, napkins, tissues</p> <p>Food stained paper or cardboard</p>	<p>Plastic bottles, plastic containers</p> <p>Metal cans, lids, foil wrappers</p> <p>Soft plastic (plastic bags, cellophane film, plastic packaging)</p> <p>Styrofoam</p>	<p>Paper, notebooks</p> <p>Newspaper, magazines</p> <p>Envelopes, white cardboard</p> <p>Drink cartons</p>	<p>Glass bottles</p> <p>Glass jars</p>	<p>Brown cardboard</p>	<p>Receipts, CDs, ballpoint pens, lightbulbs</p> <p>Plastic straws, plastic cutlery, plastic toys</p> <p>Waxed paper</p>

Questions?

Search FAO's waste database to see which bin your item should go in.



<https://tinyurl.com/FAOwaste>

Need more help?
Email cer@fao.org

TREATMENT SIGNAGE: BIN SIGNS

ORGANIC

Tip: Place all coffee cups, takeaway containers, and cutlery purchased at FAO in this bin.



All food scraps

FAO coffee cups, takeaway containers & utensils



Paper towels, napkins, tissues



Food stained paper or cardboard

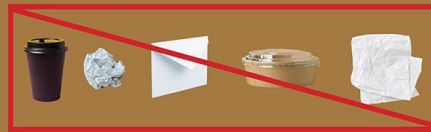


CARDBOARD

Tip: Place only brown cardboard in this bin



Brown Cardboard



PAPER

Tip: Place paper products and white cardboard in this bin.



Paper, notebooks



Newspaper, magazines



Envelopes, white cardboard



Drink Cartons



TREATMENT SIGNAGE: BIN SIGNS

GLASS

Tip: Place glass bottles, jars, and containers in this bin.



Glass Bottles



Glass Jars



PLASTIC & METAL

Tip: Place soft plastic (plastic bags, cellophane film, plastic packaging) in this bin.



Metal cans, lids, foil wrappers



Plastic Bottles, plastic containers



Soft plastic (plastic bags, cellophane film, plastic packaging)



Styrofoam



OTHER/LANDFILL

Tip: When in doubt, throw it out!



Receipts, CDs, ballpoint pens, lightbulbs



Plastic straws, plastic cutlery, plastic toys



Waxed paper



RESPONDENTS SHOWN CURRENT SIGNAGE OR THE RE-DESIGNED SIGNAGE

CONTROL



TREATMENT

RECYCLING AT FAO
 Take a minute! Learn what goes in each bin

Organic	Plastic & Metal	Paper	Glass	Cardboard	Other/Landfill
<p>All food waste</p> <p>PLASTIC COATED, METALS, METALS CONTAINERS & WASTE</p> <p>Paper, metal, rocks, stones</p> <p>Fine grained paper or cardboard</p>	<p>PLASTIC COATED, METALS CONTAINERS & WASTE</p> <p>PLASTIC COATED, METALS CONTAINERS & WASTE</p> <p>PLASTIC COATED, METALS CONTAINERS & WASTE</p>	<p>Paper, magazines, newspapers, registers</p> <p>Corrugated, white cardboard</p> <p>Other cartons</p>	<p>Clean bottles</p> <p>Clean jars</p>	<p>Brown cardboard</p>	<p>Receipts, CDs, software parts, light bulbs</p> <p>Plastic-coated, plastic-coated, plastic tape</p> <p>Mixed paper</p>

Questions? Search FAO's waste database to see which bin your item should go in. [Learn more](#)

Need more help? Email: ce@fao.org

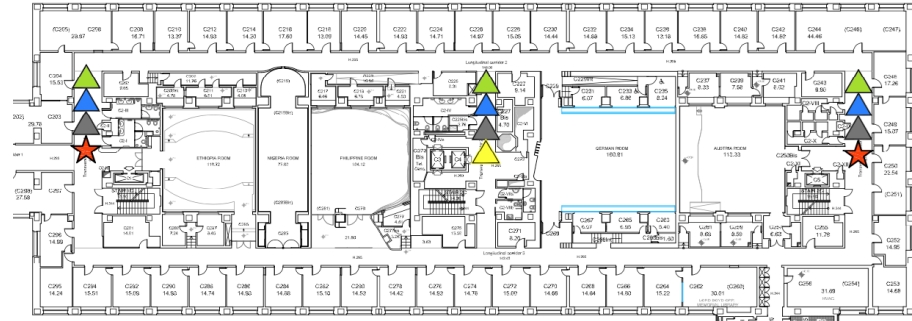
<p>ORGANIC</p> <p>Tip: Place all coffee cups, take-away containers, and cutlery purchased at FAO in this bin.</p> <p>✗ Plastic & Metal</p> <p>✗ Glass</p> <p>✗ Paper</p> <p>✗ Cardboard</p> <p>✗ Other/Landfill</p>	<p>CARDBOARD</p> <p>Tip: Place only brown cardboard in this bin.</p> <p>✗ Plastic & Metal</p> <p>✗ Glass</p> <p>✗ Paper</p> <p>✗ Other/Landfill</p>	<p>PAPER</p> <p>Tip: Place paper products, and white cardboard in this bin.</p> <p>✗ Plastic & Metal</p> <p>✗ Glass</p> <p>✗ Cardboard</p> <p>✗ Other/Landfill</p>
<p>GLASS</p> <p>Tip: Place glass bottles, jars, and containers in this bin.</p> <p>✗ Plastic & Metal</p> <p>✗ Paper</p> <p>✗ Cardboard</p> <p>✗ Other/Landfill</p>	<p>PLASTIC & METAL</p> <p>Tip: Place all plastic (plastic bags, shopping bags, plastic purchased in this bin).</p> <p>✗ Glass</p> <p>✗ Paper</p> <p>✗ Cardboard</p> <p>✗ Other/Landfill</p>	<p>OTHER/LANDFILL</p> <p>Tip: When in doubt, throw it out!</p> <p>✗ Plastic & Metal</p> <p>✗ Glass</p> <p>✗ Paper</p> <p>✗ Cardboard</p>

DESIGN CONCEPT #1: MAKE WASTE STATIONS UNIFORM, UBIQUITOUS, AND CONVENIENT

Bin Placement

- Ensure all waste stations include a full set of bins (Organic, Paper, Plastic/Metal, Other, Glass, Cardboard)
- Ensure waste stations are easy to access and in high-volume areas (place stations near bathrooms, water fountains, elevators, stairs, eating areas, conference rooms)
- Arrange bins in the same order at each station

Behavioral principle:
REDUCTION OF HASSLES



DESIGN CONCEPT #2: SALIENT SIGNAGE AT WASTE STATIONS TO MAKE SORTING EASY

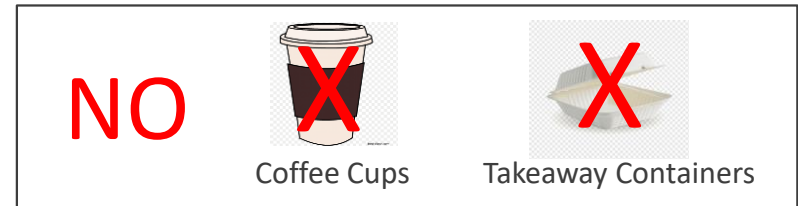
Make Sorting Easy

- ✓ Use life-like images, rather than writing
- ✓ Three layers of information: 1) What not to put in the bin, 2) What to put in the bin, 3) Troubleshooting, myth-busting, and tips
- ✓ Utilize high visibility real estate - lid of bin, front of bin, wall above bin
- ✓ Detailed reference info nearby

Behavioral principles:

SALIENCE

FINITE MENTAL BANDWIDTH



Need more help? Look up your item here



DESIGN CONCEPT #3: CATCH THE MOST COMMON MISTAKES WITH SPECIALIZED BINS

Hyper-specialized bins

Place specialized bins for commonly mis-assigned items in high volume locations:

- *Coffee cup bin in the cafeterias*
- *Paper towel bin in bathrooms*

Behavioral principle:
REDUCTION OF HASSLES

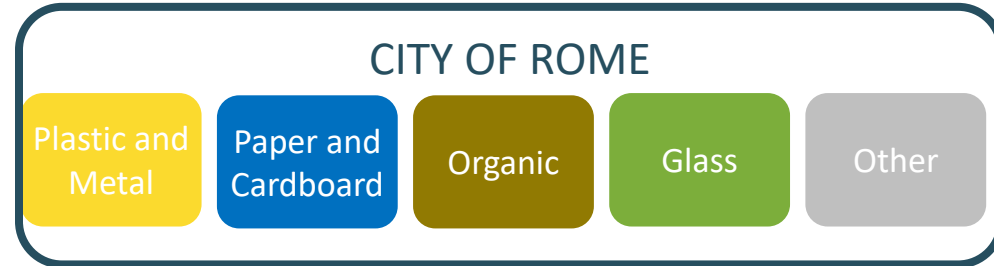


DESIGN CONCEPT 4: ALIGN FAO WASTE SCHEMA WITH CITY OF ROME

Color Schema & Sorting Rules

- Utilize the same bin color schema and naming as AMA Roma
- Single-stream paper recycling (paper and brown cardboard allowed in the same bin)

Behavioral principles:
REDUCTION OF HASSLES
RULES OF THUMB



DESIGN CONCEPT #5: DRAW ATTENTION TO SORTING & CORRECT MISPERCEPTIONS

Share Feedback on Behavior

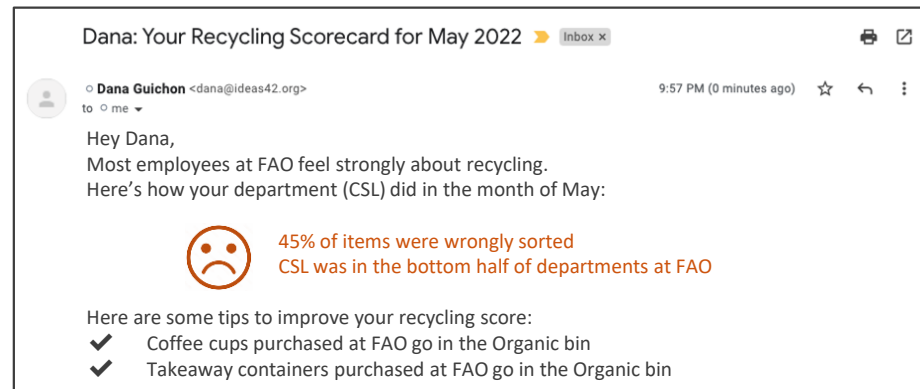
- Email feedback on floor/building's recycling level from the waste audit.
 - Include comparison to other units
 - Include tips to improve recycling score
- Online recycling quiz with a sorting simulation – those who score 100% are entered into a lottery for a prize

Behavioral principles:

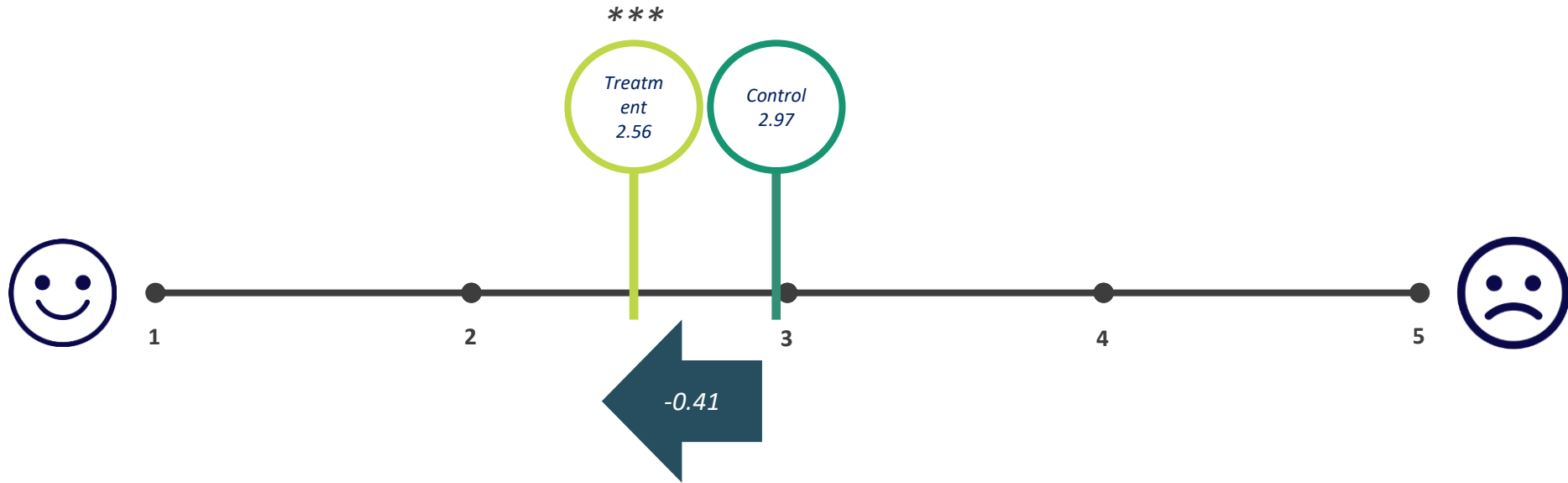
PEER COMPARISON

FEEDBACK

GAMIFICATION

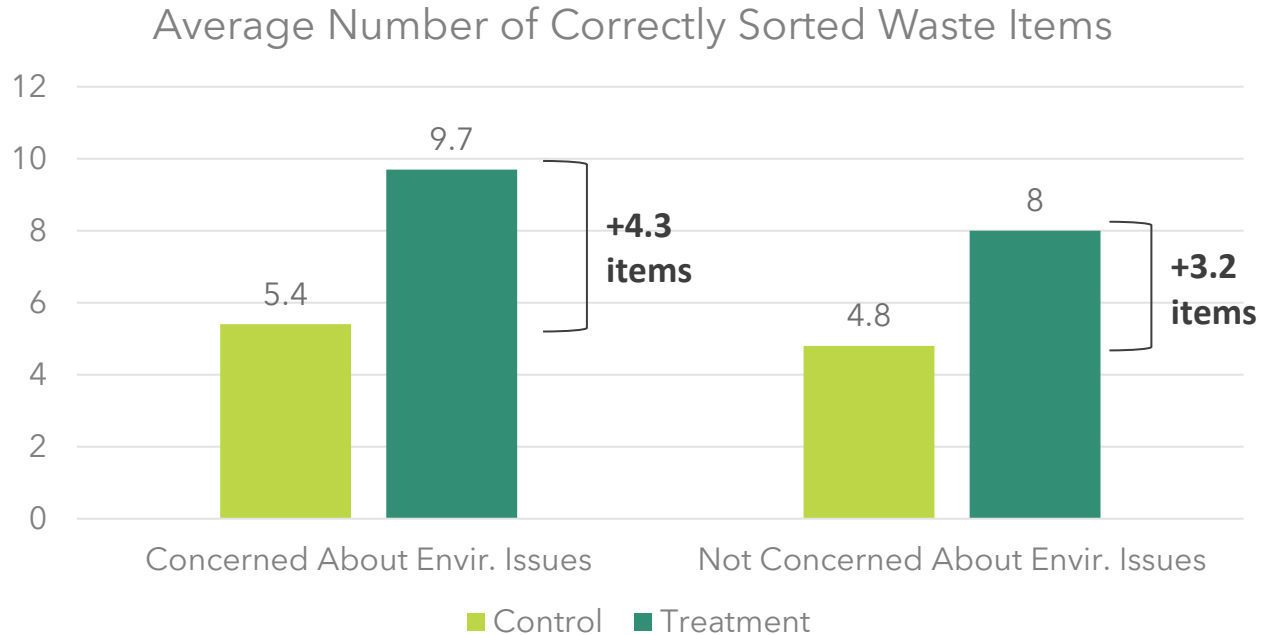


TREATMENT GROUP FOUND THE WASTE SORTING ACTIVITY EASIER THAN THE CONTROL GROUP

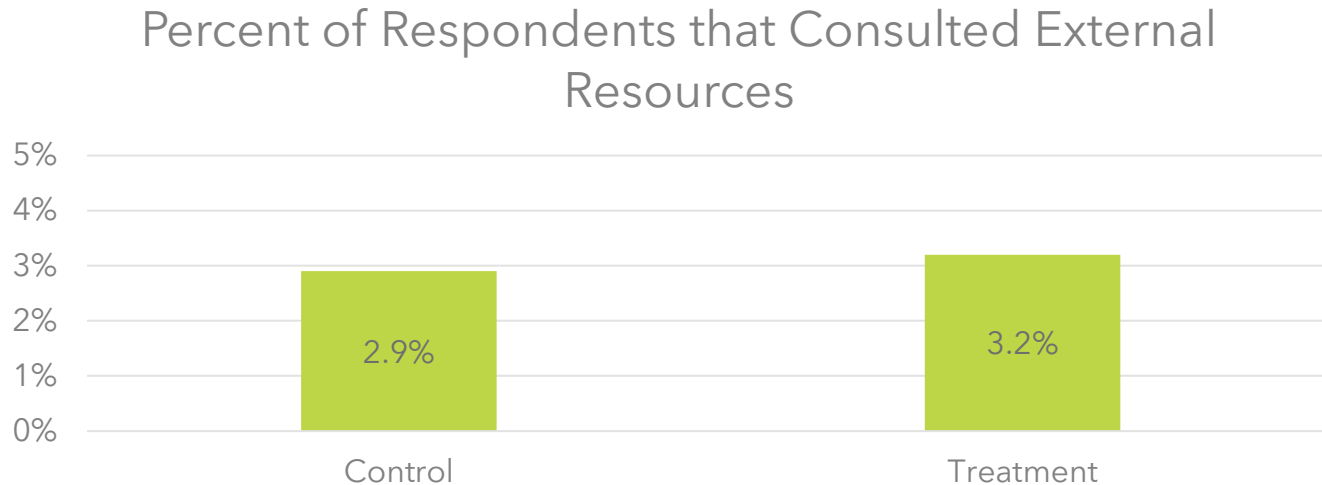


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POSSIBLE ADDITIVE EFFECT OF TREATMENT ON ENVIRONMENTALLY CONCERNED PARTICIPANTS ...BUT NOT STATISITCALLY SIGNIFICANT



TREATMENT HAD NO EFFECT ON THE RATE AT WHICH PEOPLE CONSULTED EXTERNAL RESOURCES



FAO STAFF HAVE THE INTENTION TO PROPERLY SORT THEIR WASTE ITEMS...

In interviews, staff expressed a desire to properly sort their waste, as well as outlined strategies they use to sort their waste.

We should try to connect [proper waste sorting] back to the projects we work on at FAO...We are raising money for, and working on, projects related to environmental sustainability. Meanwhile, we have a big environmental impact.

-FAO staff (paraphrased)

THE RESPONSE RATE SURPASSED EXPECTATIONS

- Online survey open for two weeks: July 5th, 2022 – July 19th, 2022
- 2,509 email recipients initiated the survey
- 1,665 complete, eligible responses
 - Control n = 853
 - Treatment n = 812
- 856 respondents (51%) work at FAO HQ office