

User Testing and Best Practices for Designing Educational Materials for Recycling

Summary

Most people feel confident they know how to recycle but contamination rates confirm confidence does not translate to proper recycling. When asked, nearly every recycler has questions. To determine the best practices of how to communicate the basic Yes and No instructions, The Recycling Partnership user tested a variety of concepts to find out not just what people prefer aesthetically, but what helps ensure correct decisions when it comes to what should and should not be recycled.

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INTRODUCTION

This two-part study was conducted in August and September 2020 to better understand how to design informational materials about recycling. The goal was to engage the public through these materials to help ensure they take away useful information and recycle correctly.

We conducted 1,197 online user tests and interviews of people who have access to recycling. 69% had curbside access, 14% had multifamily access, and 27% had drop-off access. Survey participants were asked to take the user test on a desktop, laptop, or tablet, so the screen was large enough that they could see the materials. To begin, respondents were shown a randomized set of informational materials and were asked to rate these materials. Next, they were asked to apply the information provided to real life results.

After the online survey and user test, 20 in-depth follow-up interviews were conducted to provide more specific feedback on design principles and a range of informational materials. Participants reflected a variety of viewpoints as expressed on the survey, a spectrum of ages and racial or ethnic identities, including people whose first language is not English and a participant who was hearing impaired, and spanned the country. These interviews were conducted virtually and lasted an average of 35 minutes. Participants were compensated with an electronic gift card as a thank you for their time and effort.

The following are the top five observations and recommendations from this study, to help bring about better design of informational materials – called “posters” or “signage” during this test. There is a significant consensus behind these findings from this user testing and past research.

- 1. People feel committed and confident about their ability to recycle.**
- 2. Even though people want information about what to recycle, and what to leave out of the recycling container, detailed information can be overwhelming.**
- 3. Realistic material images and terminology with the right amount of color and groupings play an important role in engaging people.**
- 4. Where the information will be displayed drives the level of detail that people want.**
- 5. People want phone and web contact information, so they know where to go with questions.**

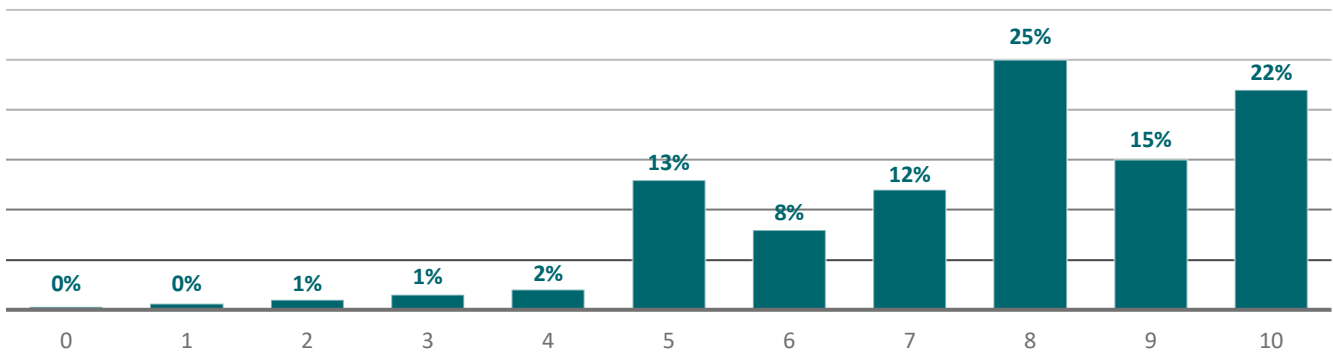
FINDING 1

People feel committed and confident about recycling.

Many people consider recycling second nature. When asked to score their own recycling on a scale of 0 to 10, where 5 represents “what an average person does” and 10 “means you are a ‘super recycler,’” almost two-thirds gave themselves a score of 8 or higher, and almost one-quarter scored themselves a perfect 10. Despite that self-assurance, these interviews revealed that just beneath the surface is a lack of confidence about the right way to recycle, which prompted an appetite for information. It should be noted that this is not an unusual outcome on such a self-assessed recycling scoring.

Scoring My Recycling Behavior

Self-Assessed Score of 0 to 10



If you were to rate yourself on a scale of 0 to 10, where 0 means you do not recycle at all, 5 is what an average person does, and 10 means you are a “super recycler” who recycles everything all of the time, what score would you give yourself?

7.7 Average Self-Assessment	10 A “Super Recycler” that Recycles all of the Time	5 What an Average Person Does
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In a separate question, survey respondents were invited to indicate if they recycle “some of the time, most of the time, or all of the time.” Nearly six out of 10 (58%) said they recycle all of the time, and 31% said some of the time – a result that certainly does not reflect the reality in many communities across the country. Only 10% of the survey sample said they recycle some of the time.

FINDING 2

Even though people want information about what to recycle and leave out of the recycling container, detailed information can be overwhelming.

While users appreciated posters that had a clear delineation between the “Yes” and “No” of recycling, their yearning for detail had limits. We tested posters with 20-25 recognition points (information we want people to recognize) against those with 45-50 recognition points. The posters with 20-25 recognition points resulted in more accurate responses, and fewer complaints.

Most participants became visibly & audibly overwhelmed or even pushed away when they encountered a sample that had too much information, was cluttered with unnecessary graphics, or required too much effort to navigate. When a piece featured too many items, people suggested edits to simplify.

They gave their best scores and warmest compliments to samples with:

- a clean design
- legible fonts
- an organized presentation
- no clutter

There is clearly a tradeoff in most people’s minds between the depth of detail and the simplicity of design. People want and need the right balance of well-organized details in a clean design, without extraneous messages, instructions, or graphics.

Do you need to show people every possibility? When you show a plastic water bottle, do people understand that plastic soda bottles can be recycled as well? In general, they were able to understand because the items fell within an easily understood category. But when items are less similar, the interpretation was more challenging.

FINDING 3

Realistic material images and terminology with the right amount of color and groupings play an important role in engaging people.

When choosing between packaging samples illustrated in abstract monochrome, and others in full color, people almost always chose the more colorful option. Realistic illustrations were preferred over stylized icons or line drawings. Immediately relatable, realistic illustrations where a recyclable item’s shape and colors closely resembled actual brands helped most people relate to the information more easily, compared to generic labels. That was not the case for everyone, but for many, the familiarity of the brands seemed to help the information connect with them more readily. They felt more engaged with the information when they could visualize the products that were pictured.

People clearly preferred materials with clean but vibrant color. Interviewees said the color caught their eye and survey ratings confirmed that more colorful materials were both preferred and led to more accurate answers. People liked the use of color as a guide, commenting that they wanted the items they should not recycle marked with a bold red.

Individual items sometimes went unnoticed when included in a list, or when visual images were scattered across a page, or when products were shown in a large group without categorization. People responded much better to posters that organized items into logical categories. Interviewees talked about the need for categories to help them quickly scan and process the information

People want language to be plain, and to describe literally what they see. Rather than a term like “soft plastic” or “plastic film,” which feels unfamiliar to them, study participants opted overwhelmingly for the simple and descriptive “plastic bags and wrap” to describe a category of items. Rather than “tangles” or even “things that tangle,” more than 90% of people would prefer the straightforward “hoses, cords, and wires.”

FINDING 4

Where the information will be displayed (home, work, dropoff) drives the level of detail that people want.

Most people said they make the majority of their decisions in their kitchen about whether to recycle individual items. A handful said they made those decisions in their laundry room or garage. Wherever the location, it is there that they wanted access to the type of detailed information they were reviewing in these interviews. That translates to a magnet or printed infocard for the refrigerator, or a printed piece that is small enough to fit inside a cabinet door, or one that might hang in the garage, people said. What they thought was less useful was a detailed piece on their recycling cart or on the dumpster in their parking lot, where they might be standing out in the weather, and after having already made most of their recycling decisions. In those settings, people said, they would like the information conveyed in a more streamlined way – meaning they want as few pictures and words to describe them as possible.

FINDING 5

People want phone and web contact information, so they know where to go with questions.

Interviewees said seeing a web address on the printed material was helpful in case they had questions that the informational piece did not answer. Some people asked for a phone number. Younger respondents said to use a QR code.

Most importantly, make sure your website is up-to-date so that people have the latest information about what they can and can't recycle and brand your information so they can trust that it's coming from the community's program.

People appreciated a feeling of warmth and appreciation in the language on the posters such as “Thank you for recycling only these items.” Also, people liked the common-sense slogan, “When in doubt, find out or leave it out.”

User Test

Several posters were tested on the survey as part of a virtual user test.

Introducing the user test, respondents were told the posters “are from a made-up place called Green County. They might be used as a refrigerator magnet, or as a sticker to put on your recycling bin. Or they might be on a wall or on a dumpster where you take your recycling for collection.”

For purposes of this project, we adopted the term “posters” for all of the materials we were testing.

Respondents were asked to imagine they had a particular household item in their hand “and you have to decide if it goes in the trash or in the recycling. For this survey, make your decision based only on what you see on the poster, not what you might know about how recycling works in your own community. We’re trying to test how well these posters work.”

The posters were shown in a random order, and each person was told they had either a yogurt container, a butter tub, or a Styrofoam™ cup or container in their hand and needed to decide what to do with it. They were asked three questions:

- Look at this poster for a few seconds. Based on this poster, should this item go in the...?
(Trash, Recycling, Not sure)
- If you said either trash or recycling, how certain are you about that answer?
(Totally certain, Not totally certain)
- How easy or difficult would it be for people in your community to get the information they need from this poster? (Very difficult, Difficult, Average, Easy, Very easy)

The Poster That Tested Best

One poster stood above the others tested in this study. It received the highest score for conveying information correctly in the survey user test, and respondents rated it the easiest to use. Repeatedly in the qualitative interviews, people chose this as their favorite, because it did the best job of exhibiting the principles of good information sharing and design discussed in this report.



Sample 1

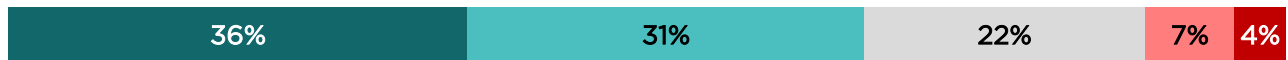
Accuracy: 84% (Overall percentage giving the correct answer and certain about their answer)

■ Correct & Certain ■ Correct, Uncertain ■ Wrong or Not Sure at All



Ease: 67% (Overall percentage who found this poster easy or very easy to use)

■ Very Easy ■ Easy ■ Average ■ Difficult ■ Very Difficult



Sample 1 User Test Scores

	Yogurt Container	Butter Tub	Styrofoam™ Cup or Container
Correct answer based on this poster	Recycle (Pictured)	Recycle (Inferred)	Trash (Pictured)
Percent giving correct answer	86%	85%	82%
Percent correct and certain about that	76%	75%	79%
Find the poster easy or very easy	61%	64%	77%
Find it difficult or very difficult	14%	11%	7%

People offered specific reasons for liking this poster, from its streamlined design to the amount of information and the icons.

“Oh, I love this. I really love this just because, both you know what’s recyclable and what’s not recyclable. (It) has like a big size, real easy to read big letters. You know, good pictures.”

(Interviewer): “...What makes you love this so much?”

(Participant): “I think there are a lot of reasons why I like it. Like, for example, there’s like categories as cans, cartons, glass, paper, plastic, those in the really big letters and even has little icons... Right? Like since it’s cans and it’s cartons, but then you have sort of like an extra example pictures of what those things look.”

“It just says the right thing where it needs to be, so it’s not cluttered. It is very streamlined. It’s got the top of the yes (the items that can be recycled), and the bottom of the no. And, you know, this is a good choice. I would say that anybody that would receive this...”

(Interviewer interjects): “If I would receive this, I would just feel like very happy that I did. And this would be like, ‘Whoa, you know, this is nice.’ I would just make an effort to do more than what I’m doing.”

Another interviewee, after seeing three other posters, said this when he arrived at this one, drawn to the realism, sense of design, and color choice:

“I definitely like this one.”

(Interviewer): “Really?”

(Participant): “Yeah.”

(Interviewer): “Tell me what makes you like this one.”

(Participant): “The images, they look like they’re actually, you know, products... The stuff that cannot be recycled has like a little line across it. And then I also like the stuff that can be recycled, its labeling in the blue color.”

Participants were still thinking about this sample, even after they moved on to look at other posters:

“My favorite so far has been the [first] one (Sample 1) because it has a perfect balance of having (images and) a good description underneath.”

“I really liked this one... It seems to be more specific. It’s easier to read.”

A handful of people said they would like it more explicit that the items at the top are recyclable, with the same clarity that the “No!” at the bottom communicates that those items are not recyclable.

The Sign That Tested Best



Sample 2

This signage earned the highest scores for both accuracy and ease. It combines realism with a clean sense of design. If there was a criticism of this poster, it was only that people felt it may have been too streamlined and left some questions unanswered. This level of simplicity suggests that it would be more appropriate as a bin or cart sticker, rather than a more detailed poster meant to be kept in the kitchen.

Accuracy: 85% (Overall percentage giving the correct answer and certain about their answer)

■ Correct & Certain
 ■ Correct, Uncertain
 ■ Wrong or Not Sure at All



Ease: 64% (Overall percentage who found this poster easy or very easy to use)

■ Very Easy
 ■ Easy
 ■ Average
 ■ Difficult
 ■ Very Difficult



Sample 2 User Test Scores

	Yogurt Container	Butter Tub	Styrofoam™ Cup or Container
Correct answer based on this poster	Recycle (Pictured)	Recycle (Inferred)	Trash (Pictured)
Percent giving correct answer	85%	90%	81%
Percent correct and certain about that	73%	79%	75%
Find the poster easy or very easy	60%	60%	72%
Find it difficult or very difficult	13%	11%	10%

Through the user tests and interviews, themes regarding design and content consistently emerged:

- Consumers welcome information about recycling. They want to know what items to recycle, and what to leave out of the recycling container.
- Detailed information must be offered with visual simplicity. Grouping recyclable items in logical categories helps people process the information and make more accurate recycling decisions.
- Where in the home the information will be displayed drives the level of detail that people want.
- Selective use of color and realistic images play an important role in engaging people with the materials.
- Consumers have a strong preference for clear and literal language.
- Consumers appreciate friendly and user-friendly support. They want phone and web contact information, so they know where to go with questions.

Trends in What Creates Confusion



Sample 3 and 3A: We tested a variety of styles, with more and less specifics, with materials with different groupings.

Sample 3A lacked a sense of organization. Items were clustered together rather than grouped, making it harder for people to process the information. Specifics in the text list went unnoticed in the user test. These drawbacks led to much lower scores for both accuracy and ease of use.

Accuracy: 55% (Overall percentage giving the correct answer and certain about their answer)

■ Correct & Certain ■ Correct, Uncertain ■ Wrong or Not Sure at All



Ease: 57% (Overall percentage who found this poster easy or very easy to use)

■ Very Easy ■ Easy ■ Average ■ Difficult ■ Very Difficult



When there was significantly more information, respondents had to work harder, were less accurate or felt overwhelmed. Limiting information can be challenging; however, having too little information also reduces the chance viewers have to make the right choice, and leaves them feeling underinformed.

Quality of imagery was another major issue in understanding each poster. Stock photos are inconsistent in style, angle, and lighting. The Recycling Partnership’s custom sets of material images are colorful renditions of realistic illustrations, neatly designed to provide that right amount of information.

Recycling Loose: Not Bagging Recyclables

Two icons were tested that were meant to communicate the idea that recyclable items should not be bagged but should be placed into the recycling cart loose.

Initially, survey respondents were shown an image and asked an open-ended question, “What is this poster asking you to do?” A random half of the sample saw Poster 4A and the other half saw Poster 4B. In response to Poster C, the overwhelming majority of respondents typed a response indicating that the poster is telling them not to bag their recyclables. (Of course, in fairness it must be said that by this time they understood the context of the survey to be recycling. Without that context, their responses may have been different.) A minority of respondents said Poster 4A was telling them not to place those items in the trash, and an even smaller number said the poster was telling them not to recycle.



Sample 4A

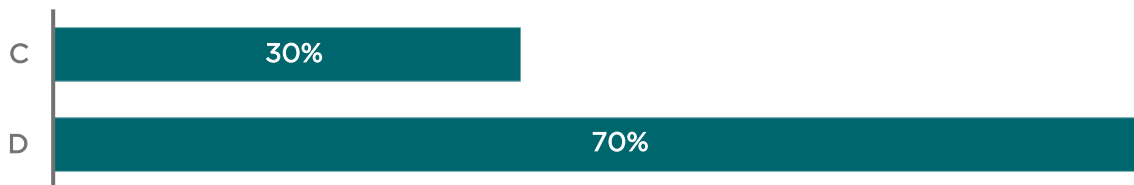
Looking at Poster 4B, the overwhelming takeaway was a simple call to recycle. Some people mentioned that the poster was specifically urging people to recycle plastics, bottles, and/or cans. A small minority understood that the message was, as one respondent said, “to not bag the recycling. Leave the items loose.” Though only a small minority took the intended message from Poster 4B, those who did took away both an anti-bagging and a pro-recycling message.



Sample 4B

But when shown both images and asked in more aided way, “Which of these two posters does a better job telling you to recycle items loose, not bagged?” the outcome was dramatically different. Knowing the subject matter, 70% of respondents opted for Poster 4B. When fully contextualized or labeled, Poster 4B does the better job of conveying the message to unbag recyclables and toss them into the cart loose, while also encouraging the act of recycling – something that Poster 4A does not do.

Which of these two posters does a better job telling you to recycle items loose, not bagged?



Branded vs. Unbranded Images



Sample 5A



Sample 5B

We tested preferences for branded vs. unbranded product images by comparing these two images and asking interviewees to talk about them. The branded approach in Image 5A edged out unbranded because they are easier to identify and recognize what they are.

What seemed to be a bigger issue, as noted elsewhere, is the desire of most people to see the product images in realistic color, and branded items offer a better ability to do that.

(Participant): *"Sample [5A]. It's more realistic."*

(Interviewer): *"That's interesting. What's so great about realistic?"*

(Participant): *"You can you definitely recognize in all the different brands and stuff..."*

Another person said simply: *"Because I'm more familiar with the products if I'm looking at brands."*

People Want Literal, Descriptive Category Names

Two specific issues of terminology were explored. Each sought the most understandable and descriptive name to use for a category of items. In both cases, study participants opted strongly for the most literal descriptions of the category, rather than unfamiliar category names like “plastic film” or “tanglers.”

The first of these was a category of items that includes plastic bags of various kinds, such as single-use shopping bags, produce bags, and newspaper delivery bags, as well as plastic wrappings, such as the shrink wrap that might contain a case of bottled water or the thin plastic that might cover dry cleaning. Respondents were asked to suggest their own name for this category in an open-ended question, and then to choose among these options: “plastic film,” “plastic wrap,” “plastic bags and film,” “plastic bags and wrap,” and “soft plastic.”

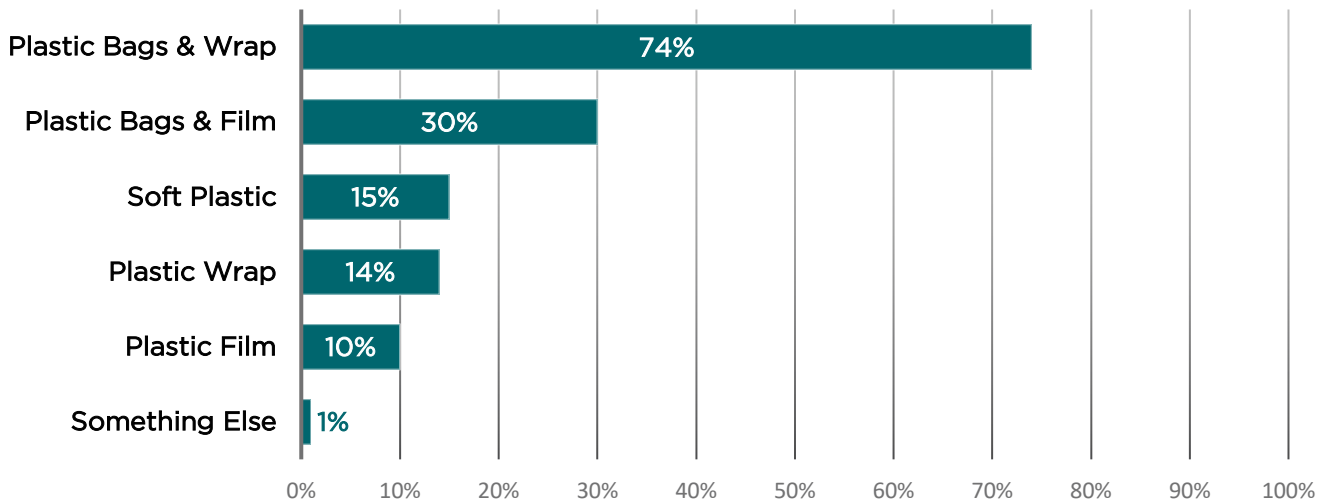
The most common open-ended responses, offered off the top of people’s heads, were “plastic bags,” “plastic” or “plastics.” There was also a completely different theme, with many people saying “non-recyclable” or a close relative of that term, or “trash” or “garbage.”

But when offered the list of possible options, respondents gravitated strongly towards the most literal and descriptive phrase, “plastic bags and wrap,” with 74% choosing that option.

They were asked, “Which of these best describes the category of items you see on the screen?” and were allowed to offer multiple responses. The next leading response, chosen by only 30%, was “plastic bags and film.”



Which of these best describes the category of items you see on the screen?



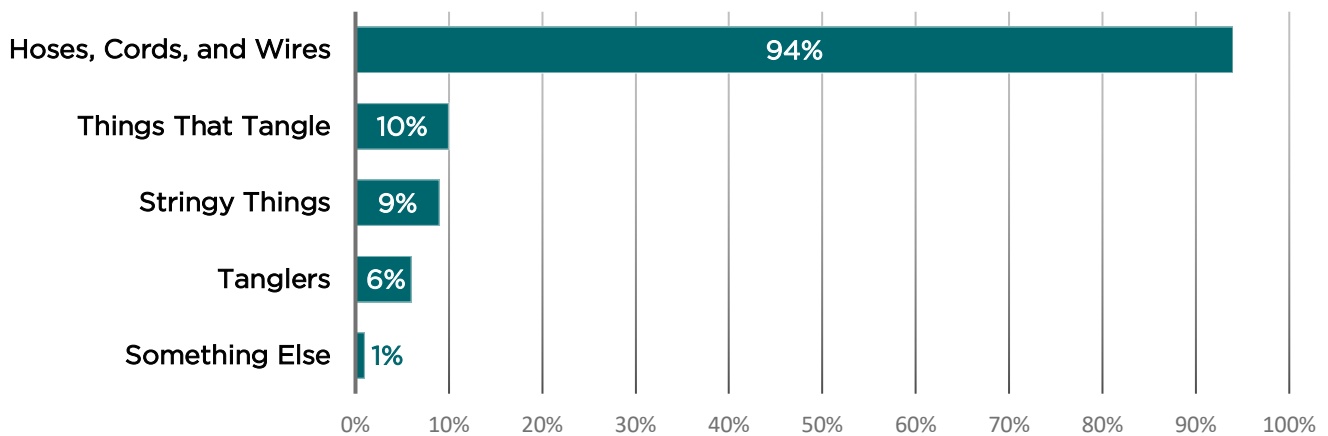
In a second test, survey respondents were shown an image that included a string of Christmas lights, a tangle of electrical cords, and a coiled garden hose. Again, they were asked the open-ended question, “What would you call the category of items you see on the screen?”

Their answers focused on the literal, suggesting a wide variety of possibilities, including “wires,” “wires and hoses,” “hoses and cords,” “electric wires and hoses,” “cords,” “cords and hoses,” and “cables.” As in the other category, a significant number offered the idea that this category should be labeled “non-recyclable,” or something similar.



Then, survey participants were offered the choices “hoses, cords, and wires,” “stringy things,” “tangles,” and “things that tangle.” The choice was overwhelmingly (94%) the most literal and descriptive one of “hoses, cords, and wires.”

Which of these best describes the category of items you see on the screen?



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This study was developed and conducted by OpinionWorks LLC, an independent research organization based in Annapolis, Maryland on behalf of The Recycling Partnership.