

Environmental Behavior's Dirty Secret: The Prevalence of Waste Management in Discussions of Environmental Concern and Action

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Abstract Humankind and the planet face many thorny environmentally related challenges that require a range of responses, including changing behaviors related to transportation, eating habits, purchasing, and myriad other aspects of life. Using data from a 1201-person survey and 14 Community Listening Sessions (CLSs), we explore people's perceptions of and actions taken to protect the environment. Our data indicate a striking prevalence of waste management-related actions. Survey respondents described actions and concerns related to trash, recycling, and composting as the most common environmental behaviors; similarly, participants in CLSs discussed waste-related topics, for which we did not prompt, as frequently as those topics for which we specifically prompted. Explanations for this prevalence emerging from the data include (1) the nature of waste-related behaviors (concrete, supported by infrastructure, simple, compatible with lifestyle); (2) norms and social dynamics (family interactions,

feelings of belonging/participation, government policy); and (3) internal psychological processes (internalized norms and environmental concern). We also found that many waste-related discussions were relatively superficial, focusing on immediate waste-related issues (e.g., litter or recycling) rather than larger issues such as consumption. Our results may provide insight into future efforts to encourage pro-environmental behavior. Given that most pro-environmental behavior involves tasks more complex and lifestyle-changing than those related to simple aspects of waste management, we suggest focusing on the latter two intertwined categories that our data suggest are important: encouraging social dynamics and related development of norms concerning environmental behavior (category 2), and fostering internalized norms and environmental concern (category 3).

Keywords Environmental education · Litter · Pro-environmental behavior · Recycling · Self-efficacy · Social norms

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Introduction

If you asked five people on the street in a typical U.S. city what they personally do to take care of the environment, chances are many of the first answers you would hear would be “recycle.” In a 2007 national poll, when respondents were asked to list “the one or two most important things the average American should do in order to address environmental problems,” the most common response (30 % of respondents) was recycling and reuse (Gallup 2007). In the 1970s, ‘80s and early ‘90s, solid waste concerns—including litter and ‘the Three R’s’ (Reduce–Reuse–Recycle)—received much attention. This was

fueled by advertisements and slogans (e.g., the slogan, “If you’re not recycling, you’re throwing it all away” accompanied by the visual of a hand crushing the planet Earth) and highly publicized events (e.g., the 1987 Mobro barge incident, when a barge carrying New York City’s waste was turned away from its North Carolina destination due to lack of landfill space).

Social science research followed suit, with a proliferation of studies in the late 1980s and 1990s on recycling and waste management (Vining and Ebreo 1989; Schultz et al. 1995). These studies implicitly supported the prevailing societal frame of recycling and not littering as archetypal environmental behaviors (e.g., Cialdini et al. 1990). Researchers often used waste-related behavior as a proxy to represent environmental behavior more generally.

Scientific understanding of ecosystems and the social context of environmental behavior have changed substantially since the 1970s. Current scholarship, reflecting increasing recognition of the deep interconnectedness of environmental problems, rarely classes solid waste as a key issue. It focuses, instead, on broad, systemic challenges such as climate change, water shortages, and exposure to and persistence of toxic chemicals. This shift is demonstrated, for instance, in the United Nations Environment Program’s *Year Book: Emerging Issues in Our Global Environment* series, which hardly mentions waste management (UNEP 2013). Reasons for this focal change include increasing (if complex and debated) evidence that the overall impact of waste management on resources is minimal when compared to the impact of other behaviors (Shulman et al. 2012). Thus there is an apparent mismatch: while the number-one action listed by the public as “environmental” is recycling, environmental scientists now pay little attention to recycling and solid waste.

This study explores whether the mismatch still occurs, and if so, why. Using quantitative and qualitative data collected through surveys and focus groups, we address the following questions: Are waste-related behaviors more prevalent in consideration of the environment and environmental behavior than other pro-environmental behaviors, even today and in a population known for being environmentally conscious? Why are people focused on waste-related behaviors? And, do waste-related discussions indicate understanding of or engagement with underlying, systemic issues (or are they more indicative of a relatively mechanical compliance with desired behavior)? We consider potential explanations from past research, while maintaining openness to emerging additional explanations. Gaining insight into answers to these questions may help to guide future scholarship and interventions in environmental learning and behavior change.

Background

What does past research suggest about the reasons behind the mismatch in perception between the public and scientists studying today’s environmental challenges? Other factors, in addition to media attention, may explain waste management’s emergence as a default environmental behavior in the public’s eye. In many industrialized countries, recycling and refraining from littering are arguably the only environmental behaviors that have become normalized (Darnton 2004). Scholars offer a number of potential explanations for this. One is the upwelling in the 1980s of institutional (governmental and non-governmental) support for waste-related action (Schultz et al. 1995), including intertwined social marketing and informational campaigns (e.g., Woodsy Owl’s “Give a hoot, don’t pollute”), policy prescriptions (e.g., fines for littering or not recycling), and infrastructural modifications (e.g., curbside recycling) (Folz 1991).

Behavior theory provides another perspective. This theory, which increasingly emphasizes that diverse environmental behaviors are not part of the same phenomenon, and should be treated separately (e.g., Lavelle et al. 2015), suggests that the inherent characteristics of waste-related actions may increase the likelihood that people will undertake them. Recycling is the kind of tangible action that appears achievable and thus is more likely to be adopted (Schultz 2011). Most other environmental issues, and the behaviors related to them (e.g., climate change and personal transportation), present numerous cognitive challenges: slow and gradual environmental change; non-immediacy of consequences of those changes; and deep embeddedness in complex systems (Kollmuss and Agyeman 2002). In contrast, recycling is concrete, of manageable scope, and prone to habit-forming (Heimlich and Ardoin 2008). The effects of proper waste disposal occur at temporal and geographic scales detectable to people—unlike the effects of, for instance, riding a bike instead of driving, which does not provide immediate, local, or visual evidence of environmental impact (Uzzell 2000). For these reasons, recycling is a behavior for which self-efficacy (Bandura 1986) and locus of control (Bandura 1986; Ajzen 1991), two demonstrated antecedents of environmental behavior, are likely to be greater.

Using a novel combination of qualitative and quantitative data from the San Francisco Bay Area, a stereotypically environmental area, we first determine whether waste management seems more “top-of-mind” than other environmentally related behaviors. We then analyze our data to explore these potential explanations for why people are so focused on waste.

Methods

We analyze two data sources that are part of a larger initiative called *Environmental Learning in the Bay Area*, a four-year study investigating how people learn about the environment in their everyday lives and what motivates them to act sustainably. We focus on data collected through Community Listening Sessions (CLSs), or focus groups designed with an open-ended format, and a survey ($n = 1201$) of residents of the San Francisco Bay Area.

Study Area

We conducted this study in the U.S. San Francisco Bay Area, a 12-county metropolitan region. This area has a population of 7.9 million people with diverse socioeconomic backgrounds. The study area covers 33,000 square kilometers and encompasses a variety of land cover types, including coastal, estuarine, redwood forest, oak woodland, urban centers, suburban areas, and rural areas.

Randomized Survey

Between July and September 2013, we hired a professional survey company to conduct a random-sample telephone survey with 1201 adults (age 18+) in the San Francisco Bay Area. The company used a Random Digit Dialing approach, reaching both cell phones and land lines. To allow coverage of more topics, we used a split sample: select questions were asked of only half the sample. Respondents' average age was 51.5 (SD = 17.1, median = 55, $n = 1142$). The majority (60 %) were female. Most (62 %) self-identified as White/Caucasian only; the next largest racial/ethnic groups were Hispanic only and Asian only (19 and 7 %, respectively; $n = 1126$). In this paper, we analyze data from survey questions regarding respondents' environmentally related behaviors.

Community Listening Sessions

Between December 2012 and May 2013, we conducted 14 community listening sessions (CLSs) with a total of 115 participants; each session lasted about 1.5 h. For each session, we partnered with a community institution (e.g., neighborhood group) to organize a small gathering to discuss perspectives on environmental issues. Questions sought detail on actions that individuals might take that were motivated by the environmental concerns they described (see Table 1). We asked specific questions about three behavioral areas. Food and transportation were chosen for their centrality to everyday life and large aggregate carbon footprints. Outdoor activity was chosen for its expected relevance to environmental learning, a key focus

of the larger project. The CLSs were similar to traditional focus groups, but drew on principles of Learning Circles (Bishop and Gibson 1999) in order to create an atmosphere of active exchange.

Between five and ten participants attended each CLS. We aimed for enough attendees to obtain different perspectives, but few enough to engage participants in thoughtful conversation (Stewart and Shamdasani 2014). We deliberately included populations that are typically harder to reach with random-sample surveys, such as those with lower socioeconomic status and non-Native English speakers (Mokdad et al. 2007). To ensure diversity within our sample, we selected groups based on purposeful stratified sampling (Seidman 2013). (See Online Resource 1 for details about the variation of our stratified sample and types of partner organizations.)

Data Analysis

The CLS data include transcripts of the recorded discussions. We analyzed CLS data using a two-stage, primarily deductive coding scheme, with codes based on the research questions outlined above as well as previous research on environmental behavior and learning. We reviewed team reflections and existing academic perspectives (Maxwell 2005) to develop a stage-one coding scheme. In this analysis, we coded primarily for environmental action, environmental learning, environmental topics of concern, and what matters (to participants) in everyday life. Using NVivo 10 (QSR International), two researchers independently coded two transcripts, compared codes through percent agreement and extensive conversation, and then refined the coding structure and process. Once satisfactory reliability (minimum 80 % inter-coder agreement) was established for all codes, each researcher coded half of the remaining transcripts.

Stage-two coding focused on waste-related comments identified in stage one (e.g., addressing recycling, litter, composting, and waste management). We focused on the reasons people gave for engaging, or not engaging, in waste-related activities. We used a combination of emergent (open) and a priori coding, with a priori categories derived from the literature of environmental behavior, particularly on why people undertake (or do not undertake) pro-environmental behaviors. We briefly define relevant terms from this literature used in coding in the “Results” section.

We analyzed the following data resulting from survey items that addressed recycling: self-reports of frequency of recycling (closed-ended item; all respondents) and brief responses as to “why” people recycle at that frequency (open-ended item; half of respondents, randomly selected). We coded open-ended responses using an

Table 1 Primary questions used in Community Listening Session guide; variants of most of these questions were asked in every session in the fluid CLS protocol

1. Please share your name and tell us what matters most to you in your daily life.
2. What comes to mind when you hear the word “environment”?
3. Now that you have defined the environment, what does taking care of it mean to you?
4. What people or things in your life make it easy to act in a way that is good for the environment?
5. What makes it harder or impossible to act in a way that is good for the environment?
6. If you want to better understand environmental or other issues, what do you do? Where do you go? Who do you ask?
7. How—if at all—do you think what you learn influences your choices or what you do?
8. What other things influence the choices you make?
9. I’m guessing that you’ve heard people say before that the Bay Area is one of the “greenest places” on Earth. If I asked you to take me somewhere in the Bay Area where you think people are doing a good job of being “green” or taking care of the environment on a day-to-day basis, where would you take me? What might we see there?

iterative process similar to that described above. Coding occurred independent of CLS coding; survey coders were unfamiliar with CLS coding. We compared frequencies for participating in recycling versus other behaviors, and we tabulated frequencies of reasons given for recycling behavior.

Results

We present our results in the form of a framework developed in iterations between the data collected and the literature addressing motivations for environmental behavior. Accordingly, we introduce key concepts from the literature as we present results. We report on survey and CLS results jointly, referring, for clarity, to survey *respondents* and CLS *participants*.

The Prevalence of Waste in Discussions and Self-Reported Behavior

Waste, which we define as any mention of litter, trash, recycling, or composting (Fig. 1), was a significant topic of conversation in almost all of the community listening sessions, despite the lack of prompting for it (Fig. 2). CLS participants mentioned issues of waste and waste management without prompting in all but one session (the session conducted in a low-income area with young adults as participants). Figure 2a demonstrates the overall prevalence of CLS discussion of different types of environmental behavior; of particular note are the top four most-discussed behavior types. Prompts in our CLS protocol addressed food, transportation, and outdoor activities, but not waste. Figure 3 offers one example of the primacy of waste in participants’ conceptions of ‘acting environmentally.’

Similarly, survey results showed a marked contrast between recycling and other environmental behaviors. Of the respondents ($n = 1201$) to the survey, 93.8 % reported that they ‘nearly always’ recycle. This participation rate exceeds all other surveyed environmental behaviors by at least 30 % (Fig. 2b).

Survey respondents and CLS participants indicated a strong association between notions of caring for the environment and waste management. In the survey (Table 2), over half of responses to the question of “why do you recycle” related to environmental concern or morality, often in a general, ‘big picture’ way (e.g., it’s “better for the environment”). Discussions following broad questions in the CLSs (e.g., “What comes to mind when you hear the word ‘environment?’”) often focused on waste management, in many cases as the immediate or dominant response. In one session, for example, the first response to the question of what comes to mind related to ‘environment’ was “For me it’s recycling all the time.” Another response was “If you say environment now ... it’s environmental consciousness, and it’s, you know, do you compost? Do you recycle? It’s all that stuff.” (See Fig. 3 for an additional example).

Why a Focus on Waste?

Despite the open-ended nature of the survey question, “Why do you recycle?,” over three-quarters of these responses fell into two main categories: infrastructural aids (e.g., “the bins make it easy”) and the closely related concepts of concern or morality (e.g., “it’s the right thing to do”) (Table 2). Analyzing the CLS discussions provided further nuance to help explain these responses. Three categories of reasons underlying participants’ frequent discussions of waste emerged from the CLS data: (1) the nature of waste-related behavior

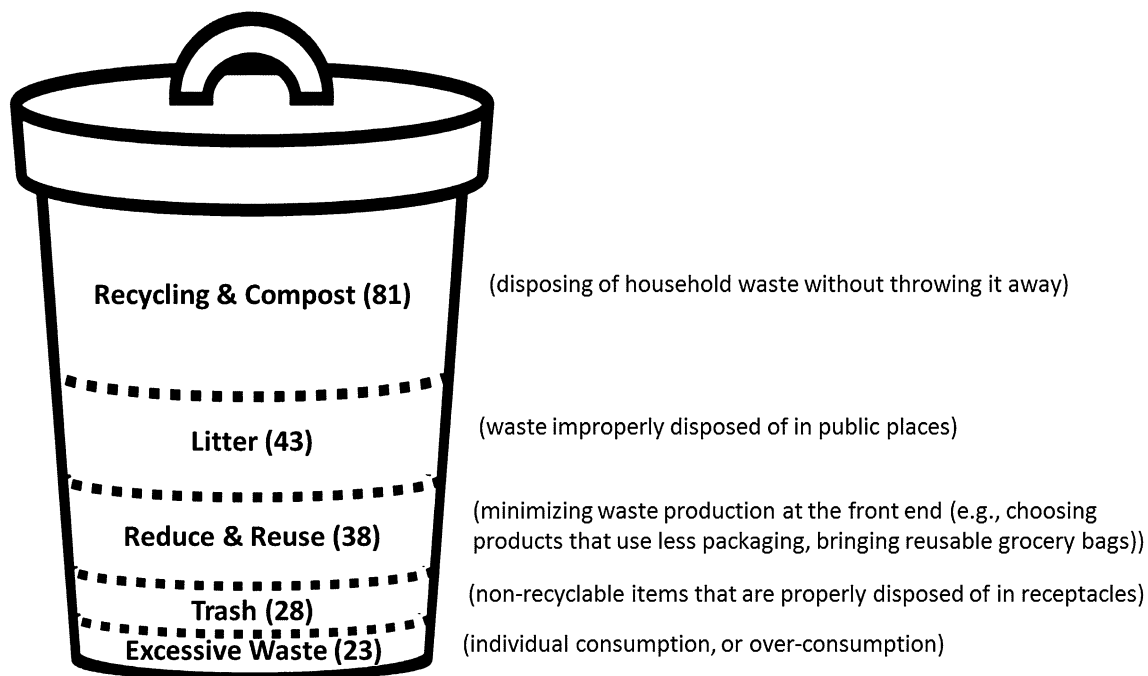


Fig. 1 Mentions of types of waste in Community Learning Sessions and general explanation of waste-related content in each type; bin size represents the total number of times each type was mentioned and parentheses contain number of mentions

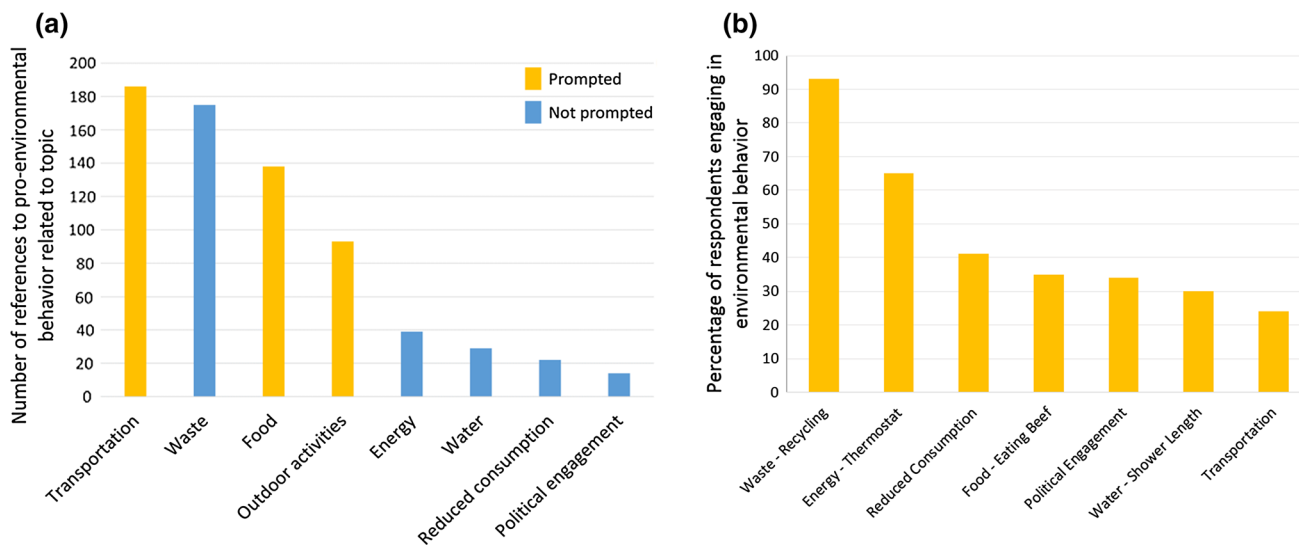


Fig. 2 a Prevalence of self-reported pro-environmental behavior from survey (see Online Resource 1 for details on what was categorized as the pro-environmental behavioral option);

b demonstration of the prevalence of discussions of waste-related behaviors across all community listening sessions, despite the lack of specific prompting for waste-related topics

and self-efficacy, (2) norms and social dynamics, and (3) personal values and internalized norms (Fig. 4). The first and third categories correspond closely with the two main themes that emerged from survey data. The second category, social norms, is well known to be difficult to discuss and detect (Nolan et al. 2008); nevertheless, two of the less frequently occurring codes that emerged from

the survey data (identity and people) fell into this category.

Nature of Waste Management Behaviors

Certain characteristics of waste management may contribute to its prevalence in discussions and actions. When

Facilitator: If I asked you to take me somewhere in the Bay Area, where you think people are doing a good job of being green and taking care of the environment on a day to day basis, where would you take me?

Participant 1: I'd take you to [our town]. As far as I know we have the best trash pick-up system in our region. We have three bins, one for trash, one for—

Participant 2: One for compost.

Participant 3: And one for recycle.

Fig. 3 CLS Exchange demonstrating the immediacy and prominence of waste management in participants' perceptions of what constitutes "acting environmentally"

participants discussed waste management behaviors—including recycling, picking up litter, and composting—they often implied how normal these tasks were in their lives. Informed by multidisciplinary literature on factors facilitating environmental behavior (e.g., Kollmuss and Agyeman (2002), Heimlich and Ardoin (2008), and as cited

below), we identified in participants' comments four characteristics of waste management behaviors that contribute to their widespread adoption. Waste management behaviors, or their impacts, are (1) concrete and visible, (2) supported by infrastructure, and (3) simple. Collectively, these elements increase feelings of (4) self-efficacy.

Concrete and Visible Many comments suggested the importance of the visible, concrete nature of waste-related behaviors. Survey respondents implied the importance of recycling's immediate impacts by explaining that they recycle because "it keeps garbage organized" and that it "save[s] on how much I put in my garbage can." Expanding the concrete to outside the home, one CLS participant explained:

The best learning experience I had was when I did my first beach clean-up because you realize how much crap is on the beaches, like it's insane... you're bending over and it's back-breaking work and you're like, 'this is stupid; why is there so much trash on the beach?' Maybe I won't throw [away] as much stuff. That was big for me.

In multiple CLSs, a number of participants referenced the power of visual depictions; many referred to image of the Pacific Gyre (i.e., the approximately one-million-square-mile cluster of human-generated debris in the Pacific Ocean). For example, "If you see pictures of [the Pacific Gyre] or you watch a documentary, it feels a lot

Table 2 Emergent themes that explain why people recycle (from responses to open-ended survey question: "Is there any particular reason you [previous response indicating frequency of recycling (nearly always, sometimes, rarely, or never)] recycle at your home?")

Reason for recycling	Number of responses	Examples
Environmental concern	194 (36.3 %)	"Better for the environment." "Environmentally friendly." "I understand environment issues."
Infrastructure	179 (33.5 %)	"Recycling bins are so easy." "Company picks it up." "You have to in the city."
Moral	77 (14.4 %)	"It is the right thing to do." "Consciousness." "I believe in it strongly."
Habit	23 (4.3 %)	"It's a good habit." "I just do it." "Way I grew up."
Other	39 (7.3 %)	
Identity	7 (1.3 %)	"Huge recycling fan." "That's what we do."
Logical	9 (1.6 %)	"The intelligent thing to do." "Not recycling is stupid."
Social influence	14 (2.4 %)	"Everyone does." "Husband makes me."
Preference	9 (1.6 %)	"I like to recycle when given the option." "Nice to do it."



Fig. 4 Summary of the three reasons our data suggest for the prevalence of waste in peoples' perceptions of environmental action

more real than if you're just reading it or someone's like, 'oh yeah, it's bad for the environment [to litter].' People are persuasive when they've created some kind of documentary or visual." Some participants explicitly contrasted the visible nature of waste with other environmental issues that may be less visible, saying that we can recycle, but "there's still so much environmental impact on things that we buy and consume that we don't see it all..."

Supported by Infrastructure Participants described the importance of infrastructure, particularly to making recycling and composting habitual. A common theme was the importance of curbside bins. One senior citizen, for instance, described how having a bin eased the burden of composting: "I got our own composting bin before the county started doing this, and tried that for a while. But it

meant walking down a lot of steps to dump it, and then walking back up, and at the time I had a ceramic thing that was too heavy to carry, and that was too much trouble. So now it's a bit easier, I have the bin they gave me, and I don't have to walk as far to dump it." Survey respondents also indicated the importance of infrastructure, reporting that they recycle because "it is for the most part set up that way here" or is "pick[ed] up every week." When curbside bins were absent in one low-income community, the participants from this community expressed frustration, emphasizing the critical role of infrastructure.

Simplicity A third characteristic of waste management evident in participant comments is its lack of complexity. Past work on promoting, or supporting, pro-environmental behaviors suggests that simpler tasks are more likely to be adopted and sustained (Monroe 2003). Waste management tasks are fairly straightforward: do not litter, pick up others' litter, and follow rules about what to put in each bin. Participants' descriptions of their behaviors generally illustrate this simplicity: "It's really easy! You read the thing, right there it says [what can be composted], you know? How hard is that?" or "I mean, how difficult is it to have a couple of cloth bags in the back of your car?" Survey respondents also mentioned simplicity, many of them using words such as "easy" in explaining why they recycle, for example, "it's easy to put in the right bins" and "it's so easy; why wouldn't you?"

Link to Self-Efficacy A key implication of these characteristics—concrete and visible, supported by infrastructure, and simple—is that they enhance feelings of self-efficacy. Self-efficacy is a psychological construct involving a person's beliefs about his or her ability to complete a task or reach a goal (Bandura 1986). People are more likely to undertake tasks for which perceived self-efficacy is high and through which they can derive a sense of satisfaction from their competence (Zimmerman 2000). Many of our participants' comments about the nature of waste-related behaviors imply feelings of self-efficacy. All of the exemplar comments in the preceding "*Simplicity*" section, for instance, denote attitudes of self-efficacy in which individuals imply they can easily engage in a waste management behavior. Another participant described how 'simple choices' at a restaurant engenders feelings of efficacy and impact: "At McDonald's I don't take the tray. I don't need the tray and the paper on it. So that's a waste, to me. So I think I do that now. I practice that. So they can take mine back."

Although comments implying self-efficacy were less frequent in the section of the survey soliciting short responses, a number of respondents implied the importance of feeling effective; comments included "I think

[recycling] is helpful,” “it’s responsible,” and that recycling “is part of the routine to help lessen human impact.”

Norms and Social Dynamics

Participants and respondents frequently discussed social influences on their waste management behavior. Comments about social dynamics fell into four emergent categories: (1) family interactions, (2) participation as part of a collective, (3) others’ judgment, and (4) government policies. All of these social influences appear to create and reinforce social norms supporting particular waste management actions.

Family Interactions Participants and respondents reported family as one source of influence to recycle or not litter. Survey responses referencing family included “my mother raised me that way!” and “my son is collecting money from recycling.” One CLS participant explained “If it’s convenient I try to [dispose of waste properly]. So, I’ve rolled down the window, maybe once or twice, and [I] got ready to throw something out, and my son yells at me from the back, ‘Don’t do that!’” Children teaching parents how to recycle or compost was a common theme in a session with immigrant participants. Immigrant groups also discussed the pervasiveness of attention to waste management as a difference between the United States and their home country. They described how their children’s learning affected them, for example, “In school they also don’t throw their garbage on the ground... and I’m grateful to the teacher.” Conversely, in non-immigrant groups, descriptions of family influences tended to focus on how parents instructed their children to manage waste and food scraps. One parent described:

I was telling my boys ... how do we do things to help the environment? And they said, ‘Well, we recycle.’ Right then. And you know, we do the green waste, we separate everything, make sure everything goes in the green bag, the green can from Waste Management. So we do everything that we do ... to represent as best we can, to raise our boys in that manner.

Participation When discussing waste, many participants also addressed issues that we—following the Reasonable Person Model (Kaplan and Kaplan 2009)—termed “participation”: a sense of satisfaction arising from joining with others in a collective goal or activity. One participant, for example, described a city’s general orientation toward the environment and waste management: “I think [my city] and a lot of cities ... make you feel like you’re doing a lot of really good things for the environment. Like, recycling is really easy, and we have composting.” Some participants

mentioned how their schools, workplaces, or other organizations collectively manage waste. For example, “Girl Scouts has a strict policy against using disposables. We don’t use paper cup[s], and you have to use your own cup. I know one troop where they have a party and everyone has to bring their own cup. If you forget your cup, then, ‘oh well.’ (laughter) You have to remember to bring your cup because [the leader] doesn’t provide a cup.” A survey respondent directly referenced the importance of participation by explaining that she recycles because doing so is “part of my community.”

Social Norms and Judgment of Peers This evidence related to participation also suggests the existence of social norms around waste-related behaviors. The norm, or expectation, in the Girls Scouts group, for example, is to bring a reusable cup. A survey respondent indicated the importance of social norms by stating that he recycles because “everyone does.”

The inverse of participation was also reported by participants: feeling judgment from others due to lack of compliance with perceived norms, or frustration with others not complying with norms. A participant whose city banned plastic bags described how shame or fear of scorn serves as a reminder to bring reusable shopping bags: “I have to remember to bring a bag with me; otherwise everyone looks at me like I’m crazy sometimes. [Judgmental tone and expression] ‘Oh, you don’t have your own bag?’ It happens. It does.” Another participant described how reflecting on norms led to changes in his behavior:

I’m kind of angry at people [and] ... I’m a little more vocal when I see someone throwing trash on the floor. It helps me think about my own actions too, like when I’m fishing, you see stuff floating down the river constantly, and it’s like, ‘Who upstream would throw that in the river?’ So, I’m always really careful to take my worm containers back with me and not to leave anything on the banks and make sure nothing floats down the streams.

Government Policies Social norms are reinforced by government policies, and participants and respondents mentioned these policies in a number of sessions. Numerous survey respondents reported that they recycle because “it’s required by law” or “required by the city.” Many CLS participants discussed newly implemented charges for disposable shopping bags, describing how the small (usually ten cent) charge for a disposable bag contributes to their habit to bring reusable bags. For instance, “You have to pay for a bag so it’s cheaper if you bring your own. If I didn’t have to pay for [the disposable bag], I would probably not bring [a reusable bag].” Multiple participants

discussed their reactions to new government policies regarding composting: “I’m glad that, I guess, the county has gotten into composting. So, that feels good to have our food waste be useable.” Other respondents shared the thought process behind deciding on how to dispose of waste and how government institutions facilitated responsible disposal, for example, “what about the batteries? It was like, of course, we take those to Alameda County waste disposal.”

Internal Psychological Processes

A final category of reasons raised in discussions focused on participants’ personal attitudes or values related to waste. These comments include what we call internal psychological processes: internalized norms (the desire to ‘do the right thing,’ guilt from not ‘doing the right thing’ (Thøgersen 1996) and concern (for the planet or other people) (Dunlap and Jones 2002).

Internalized Norms Many survey respondents said they recycle because “it’s the right thing to do,” and multiple CLS discussions about motivations also related to doing the right thing. Discussion among participants emphasized this internalized norm—that recycling is simply the right thing to do—even if they could not always specify why this was the correct way to behave. A number of participants implicitly indicated the idea of a moral imperative, a clear ‘should,’ with comments such as “Of course you compost all your garbage.” One participant expressed the concept of internalized norms particularly well; this individual linked recycling with courteous and respectful behavior, suggesting that recycling is in the same category as good manners—something an average good citizen is simply supposed to do: “I think I’m kind of your average citizen in terms of environment, in that I try to be observant. I recycle, I do all that stuff that I’ve been trained to do, and try to be courteous and respectful of people.”

Conversely, participants expressed guilt when they felt their actions fell short of the standards (norms) they believed they should be upholding, even when they received no direct or immediate feedback from others about infringing on those norms. One participant explained, “Living in [my city] you kind of have this feeling like, I’m kind of like a bad person if I throw away a water bottle for whatever reason [laughter]. I didn’t want to be a bad person.”

Environmental Concern Finally, participants and respondents suggested how concern for the planet and/or other people inspires or underlies their waste-related actions. Survey respondents expressed concern by

answering the “why do you recycle?” question with comments such as “to save the Earth,” “saving the world,” “we think it will save our earth eventually,” and “we have to take care of our mother earth.”

CLS comments provide more nuance related to concern. One listening session participant displayed concern about how litter affects other people: “...what’s important to me is to be able to walk around the neighborhood and not have too much garbage, and to keep it clean. It’s my village and I try to keep it nice ... for other people.” Many participants also displayed concern for non-humans when discussing waste, for example, “When we have cans, and that ring that holds the can together; I cut [the rings] up so the birds won’t get caught...”

Perfunctory Nature of Most Waste-Related Discussions

CLS participants mentioned waste management behaviors often as their top-of-mind environmental behaviors, but most of the time, these discussions indicated relatively superficial engagement with waste-related issues. Although there was some dialog about waste reduction and over-consumption, those more systems-level considerations were dwarfed by discussions related to litter, recycling, and composting (Fig. 1). Many of the comments related to waste gave little indication of deeper engagement with issues underlying waste and waste management. When one participant asked, for instance, “What’s a #2 [on a bottle]?” another responded, “I don’t know. Some type,” and the conversation moved on. The comment, quoted above, that “I recycle; I do all that stuff that I’ve been trained to do” also demonstrates the surface-level engagement with environmental behavior evidenced by the majority of participants.

Two aspects of our data speak to this relative superficiality of most waste-related comments. As reported above, only 31 % (61 of 199 comments about waste) address issues of reduction, reuse, or the excessive amount of waste; of these, the vast majority address purchasing. Most comments did not display evidence of a more sophisticated understanding of how waste management relates to other issues. We noted exceptions to this general pattern, which were evident primarily because of their scarcity. In a limited number of cases (approximately 5 % of waste mentions), discussion of waste-related behaviors coincided with or led to more nuanced discussion of connections between waste and consumer culture, political issues, or responsibility. There was a rare participant who discussed the relative importance of recycling to a person’s environmental impact: “if you’re depending on ... freeways, automobiles to get around, I mean, you have to do a lot of

recycling to make up for burning 20 gallons of gas.” Another instance occurred in this same listening session, which included a group of residents who live within a large National Recreation Area. The waste-related discussion was intertwined with conversation about simplicity and avoiding over-consumption. The comment, “I think that the way to live is *just simply*. Live *simply*. Shop at Goodwill. We don’t buy new clothes,” for example, was followed by another participant’s reflection, “I think the concern is over-consumerism. I think that’s hurting the planet altogether.” The discussion in this session, and a few other comments across the different sessions, reflected ideas about waste management being an effort embedded in a larger framework of human-environment relations rather than a series of rote rules (e.g., ‘put plastic in a blue bin’).

Discussion

Summary of Results

Using data from two sources, we find that, even in a region known for environmental consciousness and progressivism, waste-related concerns overshadow other environmental issues in both prevalence of unprompted discussion and reported engagement in pro-environmental behavior. In the listening sessions, frequencies of waste-related discussion were on par with discussions of food and transportation, despite the fact that discussion facilitators prompted participants to discuss food and transportation, but not waste. In the survey, self-reported participation in recycling activities was substantially higher than other environmentally related behaviors. Our findings are consistent with past work that addresses multiple forms of environmental behavior: waste management tends to be more widely adopted than other environmental behaviors (e.g., Wester and Eklund 2011). Despite widespread recent attention to other environmental concerns by scientists, government, and the media, our results highlight that even in a region as reputedly “green” as the San Francisco Bay Area, many ordinary citizens still equate being environmental with managing waste properly.

We build on these findings indicating ‘top-of-mindness’ to explore two questions: why are references to waste so prominent, and do waste-related discussions indicate understanding of or engagement with related issues? The following section discusses our findings related to these two questions; we then explore what the widespread awareness and normalization of waste-related behaviors might suggest about encouraging other pro-environmental behaviors.

Reasons for Prevalence of Waste

This study reveals a complex, interlocking suite of reasons that underlie the prevalence of waste in conceptions of environment and environmental action. The categorized suite of reasons that emerged from our data can serve as a framework for developing successful initiatives to influence other pro-environmental behaviors. This framework considers the three thematic areas we found in our data on waste-related discussions: task characteristics, external influence, and internal psychological processes. These categories coincide with a wealth of prior scholarly work, as previously mentioned, on general environmental behavior and on waste management in particular.

Task Characteristics Our results indicate that one possible explanation of waste’s prominence is the nature of waste-related tasks: they are concrete, visible, and relatively simple; thus, they do not require massive lifestyle changes. These characteristics lead to waste-related actions being likely to foster feelings of self-efficacy that support individuals in taking action. Behavioral research demonstrates greater uptake of simpler, more bounded tasks (Schultz 2011) and reduced uptake of tasks requiring larger lifestyle changes (Heimlich and Ardoin 2008). Research also demonstrates the importance of visible effects of environmental behavior: observing the impact of environmental issues predicts concern and action (Mobley 2015), and many people find it discouraging to engage in a behavior with an outcome that is not observable at individual human temporal or geographic scales (Myers and Macnaghten 1998; Uzzell 2000). Relatedly, our data suggest that underlying the success of these task characteristics is their promotion of self-efficacy: disposing of waste properly does not require major personal outlays in terms of money or time (Diekmann and Preisendörfer 2003); it is something that everyone can do relatively easily, and thus is personally satisfying (Bandura 1986).

External Influences (Norms) One notable advantage of combining our survey results with narrative data is that, in the latter context, people discuss—even if implicitly—more subtle influences on their behavior. Researchers have found evidence of the power of peer effects in a variety of contexts: installation of home solar arrays (Bollinger and Gillingham 2012), household energy conservation (Schultz et al. 2007), and, relevant to our study, recycling (Burn 1991; Schultz 2002). Normative influence, however, is notoriously difficult to detect empirically (Nolan et al. 2008), particularly in countries that prize individualism, such as the United States (Schultz

and Zelezny 2003). Despite this difficulty, numerous listening session comments indicate how belonging and participation influenced behavior; discussions of “dirty looks” when not bringing a reusable bag to the grocery store provide one example. We suggest that the open, social format of our CLSs may have encouraged some of our respondents to reflect on and articulate these subtle, often-unexamined influences. This category also included infrastructural influences on behavior (e.g., curbside bins); most past research has found these infrastructural aids to be important factors influencing recycling behaviors (e.g., Garcés et al. 2002).

Internal Processes We distinguish and discuss the third category distilled from our data—internal psychological processes—with recognition that internalized norms and environmental concern are continually and thoroughly influenced by social context (Cooter 1996; Dunlap and Jones 2002). Our distinction here is that, in discussions of internal processes, participants spoke only about their personal experience and did not include others. This last category, however, links closely with norms: people feel guilty when they cannot or do not engage in certain behaviors, and guilt resulting from not engaging in a behavior is a well-recognized sign that something is a norm (Cooter 1996). This theme in our results includes people’s often deeply rooted attitudes about what they believe to be important, right, and good.

Although a substantial portion of respondents (about one-third in the survey) discuss the ease of recycling as a primary motivation, our results make clear that many people do not engage in waste-related behaviors only because they require minimal effort. Some people see waste-related actions as a venue for expressing environmental values; others see it as a civic responsibility (sometimes directly via the judgment of others, sometimes indirectly so). Over 20 years ago, a study of recycling in four communities found a related pattern that the most important reasons participants cited for recycling were altruistic—mostly, conserving resources (Vining et al. 1992). The deeper question, then, is what influences these connections, between waste and environmental values, and between waste and responsible citizenship? The comments in our sessions suggest the intertwined influence of emphasis from environmental campaigns promoting habits (e.g., the common use of the catchphrase ‘reduce, reuse, recycle’ in our sessions); governmental policies (e.g., the frequent mention of disposable shopping bag bans or fees); and other people (e.g., discussion of family, teachers, and community members in general).

Reflections on Results: Connecting to Today’s Environmental Challenges

Our findings suggest that waste-related issues are prominent in people’s minds, there are three sets of reasons for this prominence, and most waste-related discussions are relatively perfunctory in content. What is the larger meaning and importance of these findings? We suggest two frames for interpreting these results: (1) a critical social science frame; and (2) a social marketing versus education frame.

Critical Social Science

The top-of-mind nature of waste management we observed—the fact that people see waste management as a primary way to act pro-environmentally—relates to critiques of the environmental movement from a number of scholarly fields. The rise of neoliberalism, and the forms of citizenship it encourages, undergirds all of these critiques. The first critique centers on concerns, from the fields of sociology, philosophy, and critical geography, that focusing on individual consumer activity may distract from deeper systemic issues. Sociologist Szasz (2007) describes a phenomenon using the case of bottled water: when people buy bottled water, they are personally protected and thus less compelled to advocate for higher water quality in the public system. Similarly, philosopher Sagoff (1988) distinguishes between “consumers” and “citizens,” describing consumers as those who respond to threats through market activity (in Szasz’s example, by buying bottled water) and citizens as those who respond to threats through civic action (in Szasz’s example, by advocating for enhanced water quality). Geographer Dunaway (2015) critiques the focus on recycling as environmental action, arguing that this approach obscures issues of power and the need for larger systemic changes. Consumer science researcher Ekström (2014) makes a similar point, saying that waste is a veneer over an underlying, foundational issue: a consumption-focused society.

Our results—including the finding that discussions of excessive waste and a consumptive society (systemic issues) are dwarfed by discussions related to reducing litter, recycling, and composting (personal action related to consumption)—suggest that, for many (though not all) people, a sense of complacency or lack of awareness of systemic issues may be connected to the widespread focus on proper waste management. A number of participants expressed frustration that once people can ‘check-off-their-list’ that they are helping the environment by, for instance, refraining from littering, picking up litter, or recycling, they stop caring about changing the system to make waste

less of an issue. Our data—collected from both the few vocal individuals who critiqued this check-off-the-list mentality and the majority of respondents who were quick to discuss waste and report it as the environmentally behavior in which they most commonly engage—suggest that these concerns may be warranted; for at least some of our respondents, the top-of-mind, and in some cases primary, way they help the environment is to manage their personal contributions to societal waste. This focus on personal behavior, rather than civic engagement, may reflect a larger, and potentially problematic, societal tendency to express concerns through consumer behavior and individual identities, rather than civic and collective identities.

Social Marketing Versus Education

A second frame to interpret these findings is the distinction between social marketing and environmental education approaches to environmental behavior (Monroe 2003). Reviews of the historical approach to waste-related campaigns suggest that the majority of efforts have been fairly consistent with social marketing approaches, which tend to emphasize direct messaging to promote specific pro-environmental behaviors (Shrum et al. 1994; cf, Porter et al. 1995). Scholars have studied various approaches to disseminating recycling-related messages (Chan 1998; Haldeman and Turner 2009; Cotterill et al. 2009); the content of these messages tends to focus on (1) the fact that people should recycle, and (2) nuts-and-bolts information related to how to do so. The content rarely delves deeply into consequences, impacts, or deeper issues recycling raises. When education appears in these studies, it is most often as a means to improve the social image of recycling (e.g., Hornik et al. 1995), the pre-identified behavior, rather than a means to promote deeper understanding of waste-related issues.

Social marketing approaches can, and often aim to, focus attention on a particular action. Extensive research has explored ‘spillover effects’—the extent to which engaging in one pro-environmental behavior impacts (positively or negatively) engagement in other pro-environmental behaviors (Truelove et al. 2014; Dolan and Galizzi 2015). Our results are largely consistent with negative spillover effects. Weber (2010) provides one portrayal of negative spillover effects: ‘single action bias,’ or the tendency of people who are facing complex situations that require multifaceted action (such as, in Weber’s work, climate change) to take on a “one-and-done” mentality. Our work aligns with past work that has detected this same phenomenon in connection with recycling; economist Thøgersen (1996) suggests that recycling is what many people do to satisfy themselves that they are ‘acting

environmentally.’ Relatedly, in a detailed study of the practice of recycling, Ackerman (1996) labels recycling as a “feel-good only” action: one that makes people feel responsible, but may have minimal environmental impact. Although scholars made these suggestions decades ago, our findings suggest that their messages persist.

Our data indicate that many people, at least in our study area, understood, and in many cases internalized as the mark of an ‘environmentally responsible citizen,’ the behavioral mandate of waste-related campaigns and policies. Although broader perspectives on waste arose occasionally in our respondents’ free discussions about litter and recycling (in both the survey and CLSs), those discussions were most often superficial. Our data thus suggest that people may not have the complex mental frameworks surrounding these issues that help create the conditions for being able to respond to changing and novel conditions. Flexibility and ability to respond to changing conditions are the goal of many environmental education programs; this contrasts with more specific, action-focused social marketing efforts (Monroe 2003).

Limitations

A societal focus on waste-related behavior is, as our data suggest, widespread in California’s San Francisco Bay area. This focus, however, is certainly not universal. An interesting direction for future research would be to conduct similar focus groups and surveys in a context much different from this one, such as an area that is less stereotypically environmentally conscious and in which recycling may be less of a norm.

Moreover, determining discrete causal links related to individual environmental behavior is extraordinarily complex and, some would argue, an impossible task. Because numerous influences are intertwined, trying to unravel specific relationships may not be the most fruitful direction. Psychological work, such as that underlying Cialdini’s *Influence* (2007), identifies patterns in influences of behavior. Our findings suggest that some of our respondents manage their waste in a way consistent with the “click-whirrrr” responses Cialdini describes: responses to certain stimuli are subconscious, automatic, and therefore unexamined. Yet behaviors as frequent and pervasive as waste management can involve a variety of cognitive and social processes. Exploring how people learned and think about waste management may be another important area for future study. Research questions might include when, where, and how have people learned about recycling and waste management? What cognitive processes are involved in people’s repeated decisions to dispose of waste responsibly? What might these findings suggest for other environmentally related behaviors?

Implications

Although waste management—including disposal, recycling, composting, and initial source reduction overall—is important, as a society, we also have numerous global change issues arguably more urgent and more salient. Individual human behavior change comprises part of the road toward addressing these problems. Our first finding—that, for many people, ‘acting environmentally’ is primarily about managing their personal waste through disposal, recycling, composting, or other responsible means—suggests a thorny challenge to addressing global environmental change. The first of the three components that we found to be important—task characteristics—flips to work against us with respect to most other behaviors that address environmental change. One of our participants expressed a common sentiment after listing a few behavioral choices (e.g., recycling or not, walking or driving): “It’s an equation of convenience versus sacrifice.” Most of the non-waste-related behavioral changes needed (consider, for instance, switching to bicycle commuting from solo driving) might be what this respondent considers a “sacrifice”: they are not simple, are incompatible with existing lifestyles, and lack impacts that are visible or concrete.

We suggest that our results’ trilogy of explanations (task characteristics, external social influence, and internal psychological processes) may serve as a guide for addressing the complexity and amorphous nature of many of these more challenging, yet more impactful, behaviors. We can, at a minimum, focus on making these more complex behaviors more concrete and supporting them with infrastructure (Schultz 2011). We also, however, will likely need to focus on the more socially complicated and involved arenas of norms, social dynamics, and individual values.

Norms are powerful, as suggested in the abundant evidence we have described; we know less, however, about how norms develop and change. Although behavior research recognizes the importance of such socially embedded approaches (Heimlich and Ardoin 2008), the current study could serve as a reminder for environmental practitioners and researchers and as an impetus to encourage engagement beyond waste-related behaviors. Our results suggest that reaching a desired state of prevalent and salient norms related to desired pro-environmental behaviors may still be a distant goal.

We now return to the “mismatch” identified in the introduction that between public perception and scholarly understanding of environmental issues and the actions needed to address them. Our results suggest that in many cases, what people learned about waste management did not connect with a more holistic understanding of their actions and how those actions might change, temporally, spatially, and contextually. In today’s world, where

environmental change issues are increasingly complex and interconnected, we seem to be witnessing the result of that stagnancy. Although the environmental movement has largely moved on from waste and related issues, the public remains focused on litter and recycling.

Our findings, instead of being demoralizing, can suggest opportunities for new strategies that combine some of the characteristics of the successes of the waste management movement with increased social dialog about broader systemic changes and issues. Future research can help this opportunity to materialize by exploring research questions such as what can we learn from the widespread awareness and adoption of waste disposal behaviors, particularly the seemingly successful creation of social norms related to these issues? At the same time, how can we build on the success of waste-related behaviors and leverage the singular-task focus into a broader discussion that connects these discrete actions with larger-scale, more systemic issues?

Conclusions

Our results suggest that, for many people, environmental concern and action center around waste disposal. In this study, we provide data from a large-scale survey as well as narrative evidence of a series of phenomena more typically studied with limited samples (e.g., college psychology students) and via controlled, targeted experiments and single-variable assessments. Our results corroborate findings from past work and, at the same time, contribute insight into domains that experimental and statistical approaches rarely consider (Schultz et al. 1995), including context and the multifaceted social interactions impacting environmental behavior. Our data provide an overview of people’s self-described concept of environmental behavior in their everyday lives that for many people, “environmental behavior” is heavily weighted toward waste-related actions, and thus limited in scope relative to the multitude of current environmental issues.

Our results provide reasons for simultaneous optimism and concern. Reasons for optimism include the fact that, in many ways, individuals have successfully adopted waste management behaviors; recycling and refraining from littering are now social norms that are so strong that they are seen, by some, as moral imperatives. Concerns center on the nature of waste management challenges in comparison with other pressing environmental challenges. Historically, campaigns largely consistent with social marketing approaches have encouraged litter reduction and recycling. With the straightforward task characteristics of litter and recycling, social marketing was effective. In addressing current environmental challenges, however, social

marketing techniques may play important roles, but they alone will likely not suffice. The now-necessary lifestyle changes may be more extensive, requiring behaviors that are complex and which have less-visible outcomes. More subtlety, and perhaps more substantially, our results imply that part of the change now needed is one of responsibility and community—of, as Dunaway (2015) discusses, seeing ourselves not as individual consumers looking out for ourselves, but as members of communities looking out for one another.

Our study and the scholarly research supporting it suggest two broad reasons for a more embedded, educative, and socially mediated approach to encouraging environmental behavior that the tasks at hand are no longer confined or simple, and that a primary focus on individual tasks detracts from a sense of common goals, belonging, and citizen action. External and internalized norms will likely be a crucial element of this more socially mediated approach.

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