Shaping Waste Attitudes: A Psychological Analysis

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Introduction

There are several methods in which we can approach the perceptions and reactions to food waste. Relevant methods for this peer analysis research could include positive reinforcement for actions of waste prevention, monitoring, and management. These behaviors could be reflected through habits of meal planning, planned purchasing, waste separation or composting. Influencing the formation of sustainable habits and motivation remains a lofty goal when considering the size of this country alone, which consists of roughly 323.29 million people with varying experiences, cultures, and beliefs.

Abstract

Where does food waste begin and where does it end? Food waste is a pervasive problem that exists within sectors of agriculture, economics, engineering and culture. Beyond accounting for roughly “21% of [our] freshwater, 19% of our fertilizers, 18% of our cropland... [and] 21% of our landfill volume,” (Lewis 2022, 1) waste has historically accounted for “$161 billion [about $500 per person in the U.S.] worth of food in 2010 [alone]” (U.S. Department of Agriculture 2023, 1). These figures have only risen since 2010, with an estimated increase of 5% from 2010 to 2024. Each sector within the agricultural cycle is offering new solutions to slow the effects of this problem through methods of direct physical influence or

social communication. Physical solutions offer an engineer's approach by implementing systems of anaerobic digesters, composters, or incinerators to deal with post-consumer waste via disposal or repurposing. Although these solutions have been shown to successfully reduce food waste, they contribute to the principle of sum cost. This principle states that there is an increased possibility of inflicting feelings of obligation to manage and use these processes onto participating individuals, which may be detrimental to American families and businesses that will not receive additional funding.

What if a costless approach was considered? How could behavior observation and alteration mitigate food waste? Food waste behavior is a learned response to the issues present within the global circular cycle. The unregulated and unhealthy approach to over-farming, processing, distribution, and consumption normalizes waste behavior. Furthermore, the industrialization and commercialization of agriculture has put forth an unrealistic standard for “quality” and “portion,” which is then reflected through self-reported data depicting that consumers justify waste due to inadequate quality or overwhelming portions. These “justifications” are internal responses to learned or observed behavior over time. The presence of these unsustainable environmental cues triggers a lack of urgency and poor habitual behaviors.

Background

Food waste is a systemic crisis, but what can consumers do about it? According to the “Reduce and Reuse: Reimagining Food Waste” panel that took place in the United States on August 29, 2016, roughly 30-40% of food produced in the U.S. was wasted annually and approximately 31-44% of that was by consumers alone. This baseline remains, with “U.S. families self-report[ing] a 280% increase in discarded food between early 2021 and early 2022” (Ellison and Wilson 2023, 1). By breaking down the statistics of what is commonly wasted, it can be observed that from 2015 to 2024, almost 50% of purchased seafood was wasted while other forms of waste included 22% of purchased meat, 52% of produce, 38% of grains, and 20% of purchased dairy products. Furthermore, “The Natural Resources

Defense Council (NRDC) established that food waste ends up wasting a quarter of our water supply in the form of uneaten food" (Lewis 2022). This translates to $392 billion (about $1,200 per person in the U.S.) in water wasted to "grow, transport and process 70 million tons of food that eventually ends up in landfills" (Lewis 2022). When comparing this data with self-reported causes of waste, some common patterns arise in relation to health concerns regarding storing specific products and short shelf lives. Still, aside the tangible food wasted, Lewis states in in How Does Food Waste Affect the Environment? that "when we throw away food, we also throw away the precious resources that went into producing this food. This includes the use of land and natural resources, the social cost to the environment, and our biodiversity" (2022). The waste to resource ratio is often grossly underestimated, but it "accounts for one-third of all human-caused greenhouse gas emissions, generate[ing] 8% of greenhouse gases annually" (Lewis 2022). An attempt to eliminate food waste is plausible by observing actions beyond the home, in which behavior can be broken down by considering individual habits and the presence of waste behavior in relation to the effects such behavior can have on the environment and economy.

Analysis

Breaking down behavior

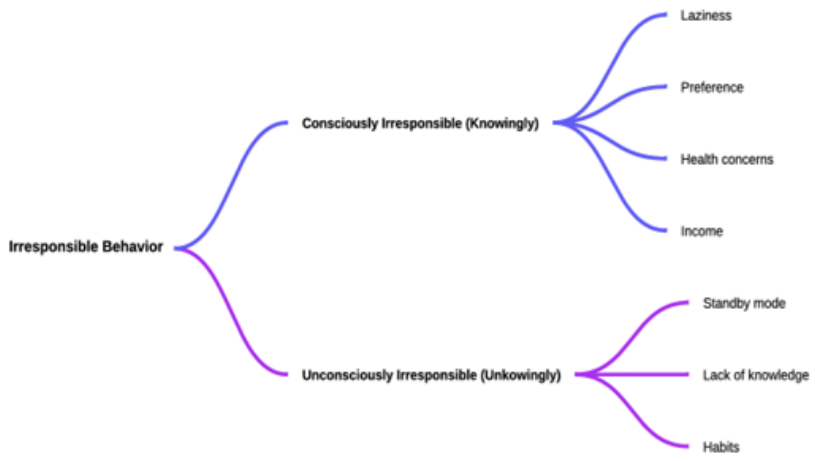

Figure 1

To uncover the causes and justifications of waste behavior, a solid understanding of where these reactions come from and why they persist is necessary. The suggested causes of waste behavior in Figure 1 are derived from the structure of the norm activation model created by Gerrit Antonides, Jos Bartels, and Marleen C. Onwezen in 2013 to define the relationships between natural concepts and the indirect or direct personal experiences of the consumer. Antonides et al. note that "the main causes associated with food waste at final consumption level relate to an incorrect interpretation of expiration dates, inadequate sales planning, the lack of proper food storage, a lack of culinary skills that allow the individuals to reuse food scraps in other recipes, and in certain countries the use of big portion sizes that end up not being consumed (BCFN 2012)" (Ludovica 2018, 7). For example, children may learn through experience that a food item becomes inedible when past expiration. In response, the child or their guardian may have thrown away the food. This lesson creates a prototype of 'correct' behavior associated with the event, resulting in the creation of unconscious behavior. By using the irresponsible behavior flow chart depicted, waste behavior can be broken down into categories of conscious or unconscious behavior that may be linked to external or internal causes motivating the responsive behavior. In this case,

conscious behavior is linked to reactions of habits, income, or emotion, while unconscious behavior is linked to ignorance or a diffusion of responsibility. These response behaviors can be applied to food waste in the sense of how consumers respond or to waste responsibilities.

Education

Education is a crucial factor in determining how consumers react and process thoughts and actions in response to stimuli that may be unsavory or confusing. Many individuals experience various levels of cognitive dissonance when it comes to food waste, meaning that most people recognize the need for waste mitigation but do not because they are unaware of how to do so. Nils-Gerrit Wunsch, a senior expert in global food and nutrition, found that 50% of individuals in Germany, South Korea, the United Kingdom, and the United States believe food waste is morally wrong while others expressed external reasons for believing in the mitigation of food waste such as privilege, environmental awareness, and economy (2020). Considering such statistics, most individuals have a self-reported interest in mitigating food waste but do not have the resources or knowledge to reflect internal feelings by acting.

However, dealing with food waste once it is physically present is not the only issue. In the United States, ambiguous definitions and different state laws cause an increase in waste behavior in response to a ‘misleading’ status quo. As a country, consumers have been unconsciously conditioned to believe that food becomes inedible once the packaging date passes, when most products are still safe to consume. According to the USDA Food Safety and Inspection Service, ‘Best By' and ‘Use By’ labels are used to indicate to consumers “when a product will have the best flavor or quality” while ‘Sell By’ dates are used to inform stores “how long to display the product for sale" while ‘Freeze By’ [dates] are used to indicate to both stores and consumers “when a product should be frozen to maintain peak quality” (Brown 2021, 1). Additionally, in large stores like Sam's Club or Costco, there are distinct types of food labels that can be identified as open dated or closed dated. According to the U.S. Department of Agriculture Food Safety and Inspection

service, “Open dating is easier for consumers to read and understand. It shows a day and month (and year for frozen and nonperishable items)” (Brown 2021, 1). Open dating uses phrases such as ’Best-By,’ ’Use-By,’ or ’Sell-By‘ while “Closed dating consists of a series of numbers and/or letters that tell the day the product was made and is usually used on boxed or other non-perishable items that can be stored at room temperature” (Brown 2021, 1). Regardless of whether Americans know the differences, a substantial portion have been shown to default to habitual behavior formed over time from a lack of clear communication from stores and companies regarding food expiration.

Methods

Habit Formation

Habit formation is a learned response to the repetitive routine or occurrence of a specific cue, response, and outcome. This process can begin with a stimulus of any size that triggers the recognition or parallel to an associated action or event, resulting in the action or event being performed. If successful, this process concludes in the expected outcome that serves as a type of internal or external reward for reacting to the stimulus by completing the anticipated action. However, for the stimuli to be recognized, there must be a goal associated with the actions or thoughts being performed. This process is crucial to improving perception of food waste by first having families identify current habits and how they can incorporate sustainable practices in their place. When dealing with food waste, consumers tend to default to the “easiest” option of throwing anything and everything in a single bin. Normalizing this method forms unconscious habits as a result. A way to combat this would be to tap into operant conditioning by implementing sustainable habits such as meal planning, planned purchasing, waste separation, or composting into daily or weekly routines, followed by a positive association. This association could be sourced from external or internal factors due to the necessity of positive association and reinforcement. When the new behavior is reinforced or associated with a specific time or event, it has a higher chance of becoming a habit. A possible way of implementing this type of habit training would be to create a sense of

normalcy in the environment that will positively correlate to the desired behavior and incorporate a reminder to complete the action within a continuous schedule while pairing the reaction with a positive stimulus.

A different approach to the formation of sustainable habits can involve the manipulation of personal motivation. A reactive behavior previously mentioned was laziness; in most cases, this emotion can stem from a lack of motivation, goal or ambition. By creating new motivation for sustainable waste habits, food waste can be approached differently. This process could begin by slowly incorporating ideas of extrinsic (external) motivation such as increased funds, less smell, or other external sources of satisfaction until the association of these actions become intrinsic (internal) motivators that could include feelings of self-importance, pride, contentment, or ambition.

Additional Research

The behavioral approach towards waste mitigation has been extensively researched through the analysis of various theories, including the Theory of Planned Behavior (TPB), the social learning theory, the social conformity theory, and the bystander effect. Each theory implements a different function of waste behavior. The TPB suggests a link between personal beliefs and behavior by connecting attitudes, subjective norms and self-control to behavioral intentions. Unlike social learning and conformity theories, which focus on external influences on behavior, the TPB focuses on how the individual's internal beliefs can be expressed through external actions. Theories of social learning and conformity consider this subject of research by highlighting the correlation of observational learning and peer pressure on external behavior. These theories approach the analysis of individual action with the consideration of external influencers. Similarly, the bystander effect suggests the correlation between a diffusion of responsibility with waste behavior due to a belief that the responsibility for addressing waste lies with a power greater than themselves—in this case, the government or producer business supplying the product. The presence of this effect may increase the chance of consumers experiencing levels of cognitive dissonance towards waste disposal and reacting by

not taking personal action. By breaking down relevant behavioral theories, a deeper understanding of waste behavior can be observed and researched. In the context of food waste, these theories guide sociocultural research towards individuals' beliefs, habit formations, and social pressures.

Conclusion

Approaching waste mitigation through cognitive understanding and sociocultural observation has been shown to depict waste demographics categorically and numerically by considering the beliefs, habits and expectations held by each individual sector of the production cycle. When hypothesizing and experimenting with potential solutions to a systemic issue as extensive as food waste, simply asking “why” will not yield an answer, but another question. This analysis explores possible actions consumers can take to mitigate household waste behavior at a minimal financial cost. This includes self-analysis, self-education of sustainable habits, reworking of habitual behavior and enforcement of sustainable activities.

References

Afridi, Muhammad Asim, Shakir Hafeez, and Muhammad Wasif Hanif. 2023. "Does Wastophobia Bring Sustainability in Consumers’ Responsible Behavior? A Case of Electricity Waste Management." *International Journal of Energy Sector Management* 17 (2): 265-287. HTTPs://doi.org/10.1108/IJESM-07-2021-0013.

Anekwe, T.D., Cho, C., Dicken, C., Effland, A., Elitzak, H., Guthrie, J., Hamrick, K., Hyman, J., Jo, Y., Lin, B., Mancino, L., McLaughlin, P.W., Okrent, A., Rahkovsky, I., Ralston, K., Saksena, M., Smith, T.A., Stewart, H., Todd, J.E., and Tuttle, C. 2018. *America’s Eating Habits: Food Away From Home*. U.S. Department of Agriculture, Economic Research Service.

Brenna, Ellison and Wilson, Norbert. 2023. “E206: Results from a National Household Food Waste Survey. The Leading Voices in Food.” World Food

Policy Center, June 6, 2023. https://wfpc.sanford.duke.edu/podcasts/national-household-food-wastesurvey/.

Brown, Isabel. 2021. "'Best by' vs. 'Use by': What you need to know about food dating." *PIRG,* September 14, 2021. https://pirg.org/edfund/resources/best-by-vs-use-bywhat-you-need-to-know-about-food-dating/.

Lewis, Jangira. 2022. "How Does Food Waste Affect the Environment?" *Earth.org*, October 17, 2022. https://earth.org/how-does-food-waste-affect-the-environment/.

NeuroLaunch. 2024. "Psychology Behind Habits: Unraveling the Science of Behavior Formation." *NeuroLaunch*, September 15, 2024. https://neurolaunch.com/psychology-behind-habits/.

Principato, Ludovica. 2018. *Food Waste at Consumer Level: A Comprehensive Literature Review*. Springer International Publishing. https://doi.org/10.1007/978-3-319-78887-6.

Qi, Danyi, and Brian E. Roe. 2016. "Household Food Waste: Multivariate Regression and Principal Components Analyses of Awareness and Attitudes among U.S. Consumers." *PLoS ONE* 11(7). https://doi.org/10.1371/journal.pone.0159250.

USDA Food Safety and Inspection Service. 2023. "Food Product Dating | Food Safety and Inspection Service." USDA Food Safety and Inspection Service. https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/food-product-dating.

Verplanken, Bas. 2006. "Interventions to Break and Create Consumer Habits." *Journal of Public Policy & Marketing* 25(1): 90-103. https://doi.org/10.1509/jppm.25.1.90.