# AN EVALUATION OF THE MASTER RECYCLER PROGRAM FOR THE LANE COUNTY WASTE MANAGEMENT DIVISION

by

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A THESIS

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# An Abstract of the Thesis of

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Title: An Evaluation of the Master Recycler Program for the Lane County Waste Management Division

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Primary Thesis Advisor

## The Master Recycler Program and Evaluation Overview

The Master Recycler Program, coordinated by the Lane County Waste Management Division, engages participants in a range of activities and experiences, including educational lectures, facility tours, hands-on activities, an online curriculum, and volunteer service. The program ultimately aims to reduce local waste generation and associated greenhouse gas emissions to mitigate the environmental, social, and economic impacts of climate change. The program's goal is expected to be achieved by increasing participants' knowledge of waste-related topics, personal adoption of waste management practices, and sharing of waste-related information with the broader community. This mid-term evaluation assesses the design and effectiveness of the Master Recycler Program, highlighting its strengths, areas for improvement, and achievement of intended proximal outcomes, while offering recommendations for future program development.

## Methods

This evaluation employed a mixed-methods approach, including a survey distributed to 840 former program participants, with 130 responding, and a focus group of seven spring 2025

cohort members. The survey employed a retrospective pre-post design, chosen due to a lack of baseline data, to minimize response shift bias, and to include former participants from a range of cohorts. This design is an appropriate approach for assessing program outcomes and enables the evaluation to generate hypotheses about potential associations. However, reliance on self-reported data and the absence of a control group limit causal inferences.

The survey included Likert-scale, multiple choice, and open-ended questions assessing participants' motivations for program enrollment, waste-related knowledge acquisition, engagement in waste management practices, frequency and audiences of waste-related information-sharing, program communication and participants' understanding of program objectives, perceptions of content quality, overall satisfaction, as well as the perceived most valuable aspects of, improvements for, and experiences with the Master Recycler Program. The focus group explored similar topics in greater depth and also gauged perceptions of the program's name. Quantitative data were analyzed using descriptive statistics and chi-squared tests ($p > 0.05$) to assess pre-post shifts in response distributions at the group level. Qualitative data were analyzed using thematic coding to identify key themes and recurring patterns.

**Results**

Results indicated that the Master Recycler Program was associated with self-reported increases in participants' (1) waste-related knowledge, including the environmental impacts of waste, the waste management prioritization hierarchy, locally-relevant resources and infrastructure, and principles of reducing, reusing, recycling, and composting; (2) engagement in sustainable practices, including reducing, reusing, recycling, composting, and volunteering; and (3) sharing of waste-related information with personal networks and the broader community. These findings suggest that the Master Recycler Program strengthens participants' system-level

understanding of waste and applied skills knowledge, supports participants' adoption of household-level and community-facing waste-related behaviors, and fosters a distributed network of informal educators who extend the program's educational reach across multiple spheres of participants' lives.

The majority of respondents reported neutral agreement with early communication of program objectives and a neutral understanding of program goals, rated the program's content as high quality and the program's learning materials as highly supportive in their understanding of topics, indicated that the program exceeded expectations, and reported being highly likely to recommend the program to others. Field trips, guest speakers, knowledge of local resources, and community participation opportunities were identified as particularly valuable aspects of the program and described as effective in achieving the program's intended proximal outcomes. Participants' suggestions for improvements encompassed opportunities to enhance program organization, outreach and advertising, engagement with graduates, and participants' information retention. Perceptions of the program name were mixed, revealing tensions between brand recognition and credibility, with concerns about content clarity and social justice implications.

**Recommendations**

Following participants' recommendations, inquiries from program managers, and a review of relevant research, the Master Recycler Program should consider strategies such as (1) making adjustments to program content and delivery, including dedicating the first class to explaining foundational waste-related concepts, reviewing content covered each lecture to emphasize key takeaways, aligning weekly lecture content with Recycling 101 content, providing a Canvas walkthrough, and shortening lecture duration; (2) sustaining graduate

engagement, by offering brief refresher sessions and/or increasing email communication with graduates regarding local waste management updates and volunteer opportunities; and (3) expanding outreach and diversifying participants through ongoing engagement with underrepresented communities, culturally tailored and translated materials, and advertising to younger generations through a stronger social media presence. While a program name change is not recommended, clarifying program content and emphasizing "mastery" as an ongoing process on the programs' websites, materials, and during program sessions may reduce confusion and address social justice implications. These recommendations are intended to strengthen learning outcomes, support engagement in sustainable waste management practices, and broaden the program's reach.

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# Introduction

Waste generation poses serious environmental, social, and economic threats to current and future livelihoods at local, national, and global scales. As population growth and consumption continue to rise, the volume of waste generated at all levels is rapidly rising as well. Increasing waste generation strains municipal resources, contributes to climate change, and threatens public health. Some jurisdictions are implementing strategies that extend beyond infrastructure and policy by targeting the behavioral drivers of waste generation through environmental and action-oriented education.

Community-based waste education programs aim to influence participants' knowledge, attitudes, and behaviors to extend sustainable waste management practices into households, workplaces, and social networks. The Master Recycler Program, operated by the Lane County Waste Management Division, educates and trains participants to encourage personal engagement in sustainable waste management and to educate others about sustainable practices to support local reductions in waste generation.

Despite the Master Recycler Program's 24-year existence, the program has not been formally evaluated to assess its effectiveness in achieving its intended proximal outcomes. Similarly, iterations of the Master Recycler Program implemented in other jurisdictions within and outside of Oregon have not been evaluated. Conducting an evaluation presents a valuable opportunity to understand whether the Master Recycler Program's design and implementation align with its intended outcomes, identify strengths and areas for improvement, and inform future evaluations, program development, and investment decisions.

The purpose of this evaluation is to examine the Master Recycler Program's effectiveness in increasing participant knowledge acquisition, adoption of waste-related practices, and educational outreach following program completion. This evaluation also identifies:

- Participants' motivations for enrolling in the program;
- The program's communication of objectives and participants' understanding of the program's goals;
- Participants' perceptions of the program's content quality and supportiveness of learning materials;
- Participants' overall satisfaction with the program and advocacy for the program;
- Program elements that participants perceive as meaningful or valuable and support achievement of the program's intended outcomes;
- Program elements that participants perceive as needing improvement and hinder achievement of the program's intended outcomes;
- Participant's perceptions of the program's name.

This evaluation first reviews waste generation trends at the global, national, state, and local levels, discusses the environmental, economic, and social impacts of waste generation, and identifies key drivers of waste generation and pro-environmental behavior. The evaluation then describes the Master Recycler Program's history, goals, activities, and theory of change. Finally, the report explains the evaluation's methods and limitations, presents findings from survey and focus group data, discusses the interpretations and implications of the results, and provides participant-informed and evaluator-informed recommendations for program development.

## Waste Generation Globally and in the United States

Globally, the world generates over 2 billion tons of *municipal solid waste* (MSW) per year (Karah et al., 2012) – defined as everyday items that individuals, businesses, organizations, and institutions use and throw away (EPA, 2016). Developed countries generate significantly more waste than emerging economies, both in total waste generated and per capita generation. As of 2024, East and Southeast Asia have the highest total MSW generation, followed by North America. However, North America leads in per capita waste generation, followed by Western Europe (UNEP, 2024). *Figure 1* presents a regional breakdown of MSW generated in 2024.

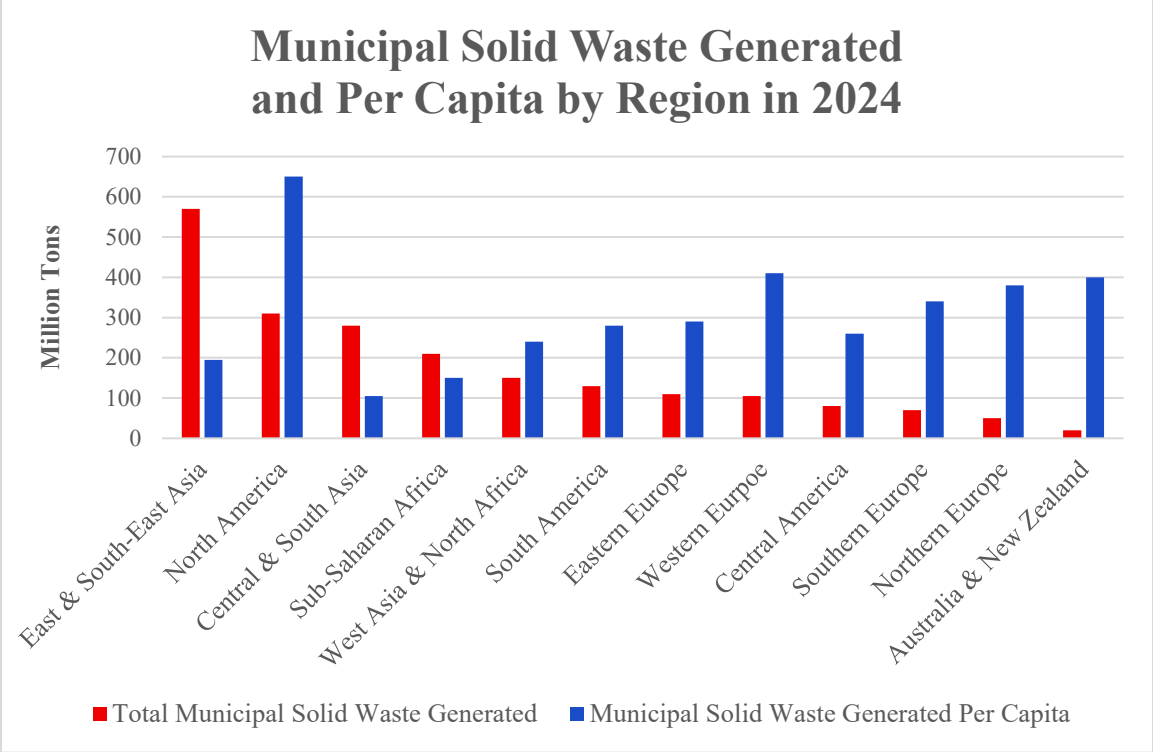


Figure 1: Total Municipal Solid Waste Generated and Per Capita by Region in 2024.
Data sourced from the United Nations.

Waste generation is a growing and persistent problem, particularly in the United States (U.S.). *Waste generation* refers to the total quantity of waste materials (e.g., municipal solid waste, industrial waste, hazardous waste) produced by individuals, businesses, institutions, or other sources within a specified area and period before any reusing, recycling, recovery, or treatment processes are applied. It is commonly expressed in tons, pounds, or kilograms per capita, per year, or per day.

According to the most recent data set from the U.S. Environmental Protection Agency (EPA), approximately 292 million tons of MSW were sent to landfills in the U.S. in 2018. The largest category of waste was paper (23%), followed by food (22%) and plastics (12%) (EPA, n.d.). *Figure 2* displays the MSW generated in the U.S. by material in 2018. Although waste generation has increased, waste recovery efforts have also grown. In 2018, about 94 million tons of waste were either recycled or composted in the U.S. (EPA, n.d.). *Figure 3* illustrates the historical trend of total waste sent to landfills and waste recycled or composted in the U.S.

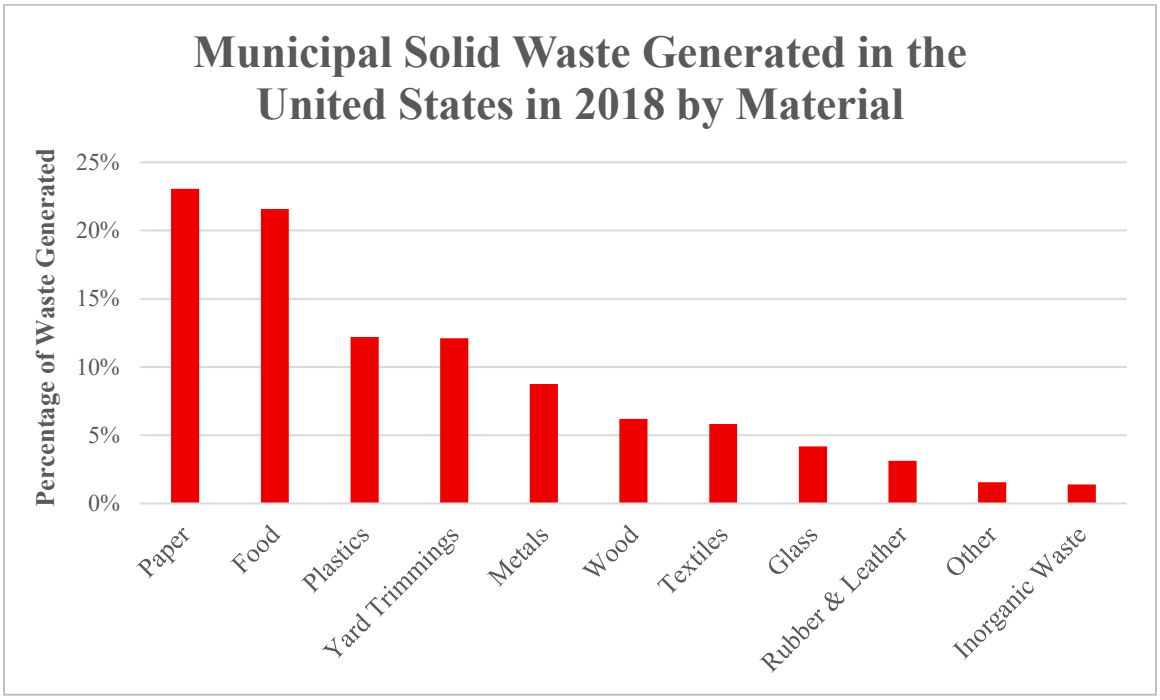


Figure 2: Municipal Solid Waste Generated in the U.S. in 2018 by Material
Data sourced from the United States Environmental Protection Agency

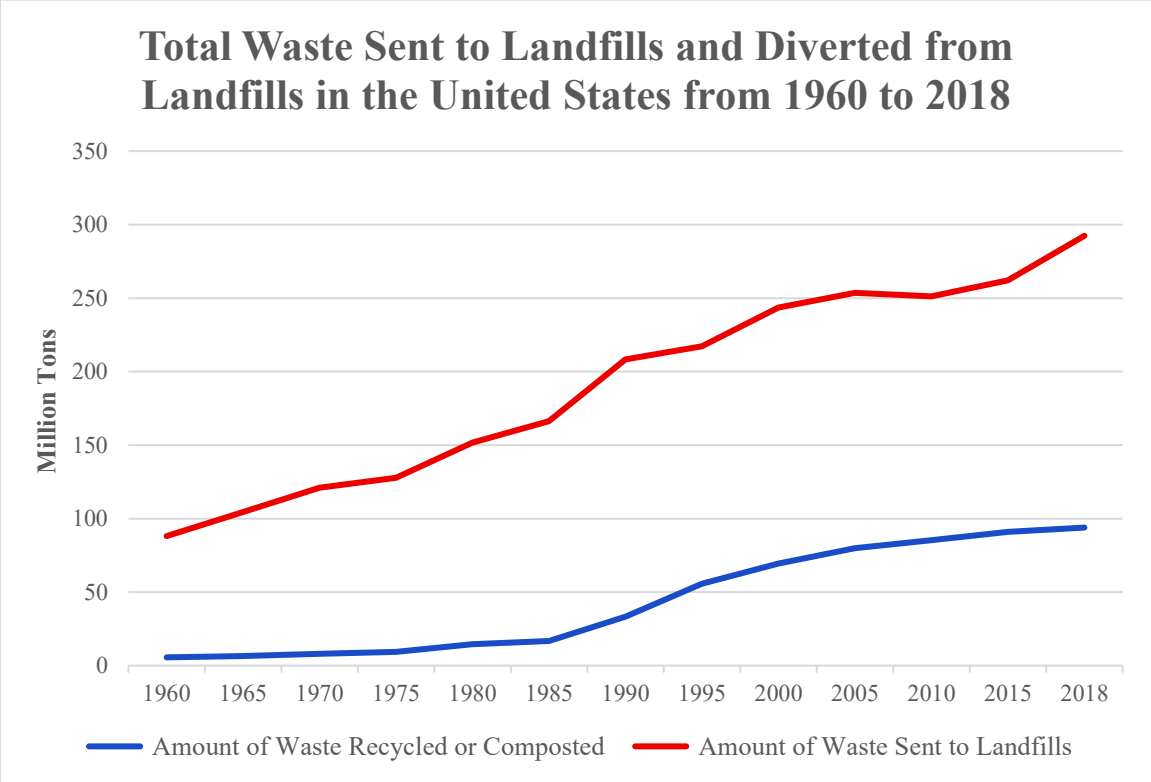


Figure 3: Total Waste Sent to Landfills and Diverted from Landfills in the U.S. from 1960 to 2018. Data sourced from the Environmental Protection Agency.

## Waste Generation in Oregon and Lane County

According to the Oregon Department of Environmental Quality (DEQ), Oregon generated approximately 6.5 million tons of waste in 2021 (DEQ, 2021). While overall waste generation has increased, recovery rates have shown a similar upward trend. A *recovery rate* is "the percentage of total waste generated that is recovered for recycling, composting, or energy recovery rather than landfilling" (Lane County Waste Management Division, 2024). In 2021, Oregon recovered approximately 2.4 million tons of waste (DEQ, 2021). *Figure 4* illustrates the historical trend of total waste generated and recovered in Oregon. The recent decline in 2022 is

reportedly due to destructive wildfires, and the true number is approximately 16,000 tons lower than 2021, not 400,000 tons (DEQ, 2022).

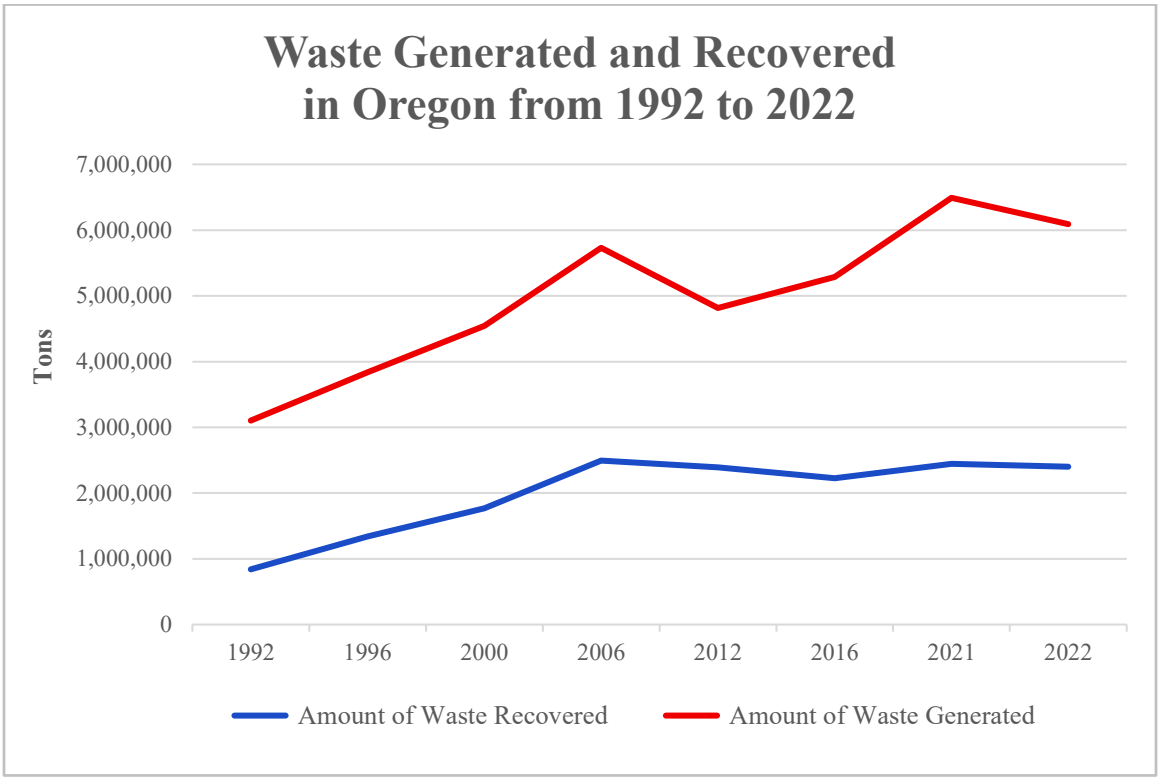


Figure 4: Waste Generated and Recovered in Oregon from 1992 to 2022.
Data sourced from the Oregon Department of Environmental Quality.

In Lane County, approximately 256,000 tons of waste were generated in 2016. Food waste made up the largest category, accounting for 18% of the total, followed by wood waste at 15% (Lane County, 2016). In accordance with the Opportunity to Recycle Act, Lane County set a goal of achieving a 63% material recovery rate by 2025. While Lane County did not meet the 63% goal, the county is committed its recovery rate goal, constructing an advanced waste recovery facility (expected in 2026), which reportedly could divert 80,000 tons of waste annually and exceed a 63% material recovery rate in Lane County (Lane County, n.d.).

## Impacts of Waste Generation

The growing volume of waste generated has serious environmental, economic, and health consequences. Several greenhouse gases (GHGs) – including carbon dioxide, methane, nitrous oxide, and fluorinated gases – are emitted throughout the lifecycle of materials, from production and transportation to disposal. Notably, food waste alone accounts for nearly 8% of total global GHG emissions, primarily carbon dioxide and methane (Subri et al., 2025). In 2022, landfills were responsible for 17% of America's methane emissions, a gas that is 25 times more potent at trapping heat than carbon dioxide. *Figure 5* displays a breakdown of methane sources in the U.S. in 2022 (EPA, n.d.).

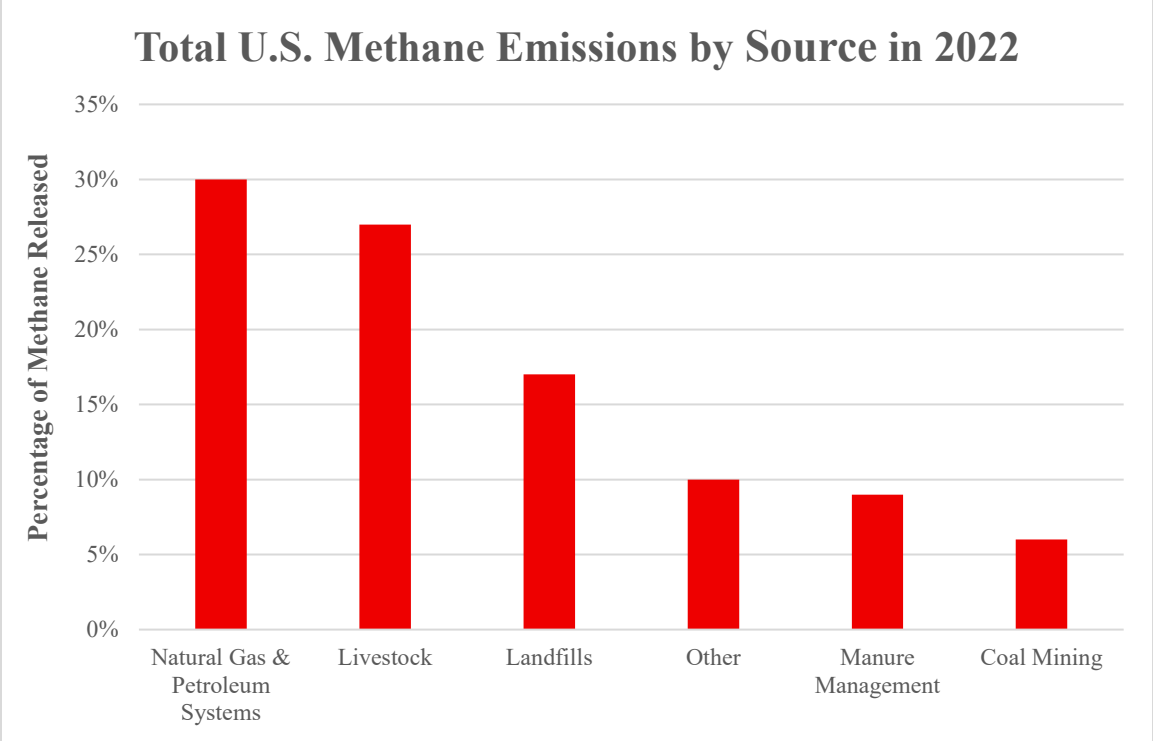


Figure 5: Total U.S. Methane Emissions in 2022 by Source.
Data sourced from the Environmental Protection Agency.

GHG emissions are accelerating climate change, leading to rising global temperatures, precipitation fluctuations, and an increase in the frequency and severity of climate-related

disasters (EPA, 2021). Incorrect waste disposal can deposit hazardous chemicals into soil, bodies of water, and the air, leading to damaged flora and fauna and loss of biodiversity (UNEP, 2024). Waste generation also impacts human health as incorrect disposal can contaminate drinking water and food and create breeding grounds for insects, rodents, and disease vectors (WHO, 2025). Furthermore, proximity to waste treatment and disposal facilities has been linked to higher risks of cancer, asthma, and other long-term health outcomes due to exposure to toxic emissions (EPA, n.d.). Globally, between 400,000 and 1 million people die *every year* from diseases caused by mismanaged waste, such as diarrhea, malaria, heart disease, and cancer (Williams et al., 2019; UNEP, 2024).

Climate change, accelerated by GHG emissions, imposes significant public and private economic costs. Economic losses from climate change, such as disaster relief and recovery expenditures, agricultural restoration, and health care treatment (Gasper et al., 2011; Titus, 1992), affect individuals, local jurisdictions, and governments. Households may incur up to $1,000 annually from climate-related expenses, such as higher insurance prices, increased energy costs, property damage, and health-related expenditures (Clausing et al., 2025). From 1980 to 2024, weather and climate disasters cost the U.S. approximately $2.9 trillion, averaging about $65 billion per year (NOAA, 2025).

Moreover, waste generation contributes to the release of GHGs. GHG emissions accelerate climate change, posing serious threats to ecosystems, economies, and the current and future livelihoods of communities globally. However, adopting and investing in strategies such as reducing, reusing, and recycling can help mitigate the effects of waste generation. For example, in 2022, material recovery efforts in Oregon reduced approximately 3 million tons of carbon dioxide emissions (DEQ, n.d.).

## Drivers of Waste Generation

Several factors have been identified as key drivers of waste generation. These include population dynamics, demographic variables, and a lack of environmental awareness and waste education among individuals and communities. This section reviews these drivers and connects some to the current context of Lane County.

### Demographic Factors

Demographic factors, particularly socioeconomic status, influence waste generation. Those with higher incomes and affluence often generate more waste due to greater consumption of items (Bandara et al., 2007; Buenrostro et al., 2011; Sukholthaman et al., 2017; Senzige et al., 2014). Jadoon et al. found that high-income households produced approximately 43% more waste than low-income households and that the composition of waste differed significantly. High-income households generated more paper, glass, and textile waste, while plastic dominated the waste stream of lower-income households (Jadoon et al., 2014).

A region's growing economic performance, as measured by gross domestic product (GDP), has been similarly linked to increased regional waste generation (Samson et al., 2017). This is relevant to Lane County, as out of 36 counties in Oregon, Lane County ranks as the 14$^{th}$ wealthiest county (Best Neighborhood, n.d.). Age may also be a contributing factor, with some studies suggesting that younger individuals are more likely to generate higher volumes of waste (Beigl et al., 2004; Beigl et al., 2008; Lindh, 2003). However, this relationship is debated, with others finding the impact of age on waste generation to be inconclusive (Irwan et al., 2013).

**Population Variables**

Population growth, density, and household size are contributors to increased waste generation. As a region's population increases, the amount of waste it produces increases as well (Senzige et al., 2014; Dangi et al., 2011; Dyson & Chang, 2005). However, scholar Grazhdani concluded that population growth may not directly result in increased waste generation (Grazhdani, 2016). Despite this, visualization of the total U.S. population alongside total waste generated throughout the years indicates that national waste generation trends parallel population trends (U.S. Census Bureau, 2021; EPA, n.d.; see *Figure 6*). The population driver is relevant in the context of Lane County, which is the fourth most populous county in Oregon (U.S. Census Bureau, n.d.). Although recent trends show a slight decline in population, the area remains highly populated as of 2024 (Neilsberg Research, 2024).

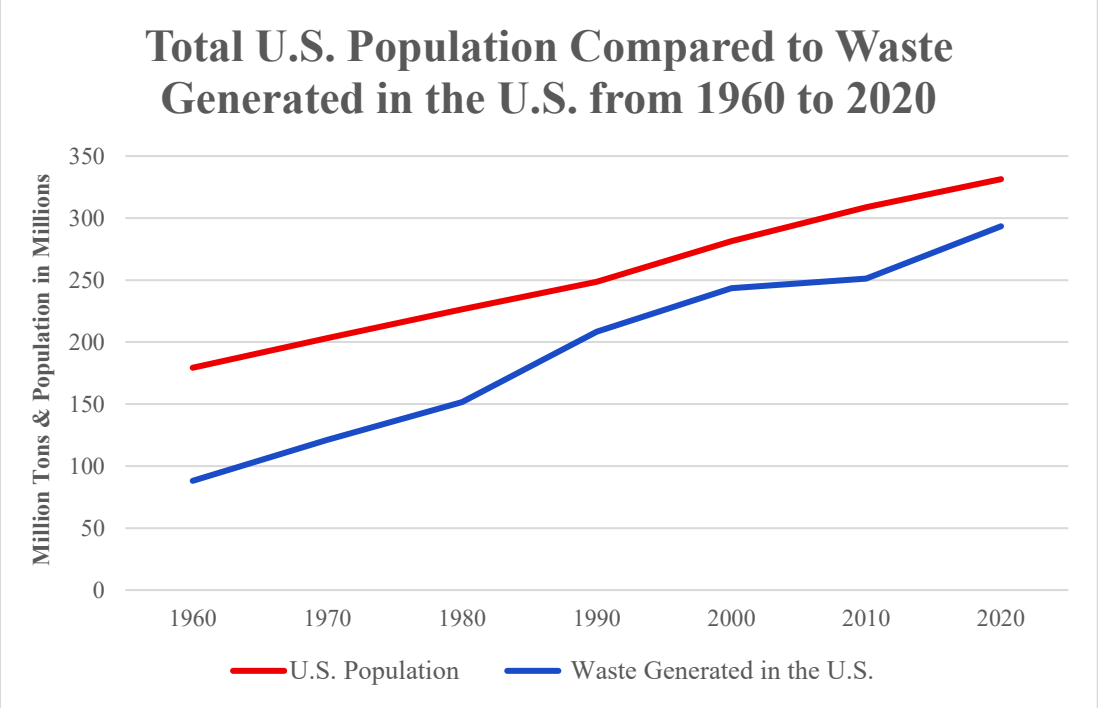


Figure 6: U.S. Population Compared to Waste Generated from 1960 to 2020.
Data sourced from the Environmental Protection Agency and the U.S. Census Bureau

Population density also plays a role in waste generation. Densely populated areas tend to generate more waste per unit of area compared to less densely populated regions (Senzige et al., 2014; Dangi et al., 2011; Thanh et al., 2010). Similarly, household size influences the volume of waste generated, with larger households typically generating more waste (Afroz et al., 2011; Monavari et al., 2012).

**Awareness and Education**

Environmental awareness and waste education are also predictors of individual waste-related behaviors. *Environmental awareness* is the ability to understand how human actions impact the environment. *Waste education* includes environmental awareness as well as practical waste management techniques. An individual's lack of environmental knowledge about the impacts of waste generation and practical knowledge on how to sustainably manage waste contributes to higher levels of personal waste generation (Subri et al., 2025; Hasan, 2004; Samson et al., 2023; Nurhayati & Nurhayati, 2023; Khatibi et al., 2021; Fredrick et al., 2018).

The awareness and education driver of waste generation is grounded in the knowledge, attitudes, and practices (KAP) model, which suggests that increased knowledge about a topic shifts attitudes, which in turn influence behavior. In the case of waste generation, the KAP theory argues that increased environmental and waste-related knowledge fosters more positive attitudes towards sustainability, subsequently leading to engagement in pro-environmental behaviors and waste management practices (Subri et al., 2025). *Figure 7* illustrates this relationship. However, critiques of this theory argue that knowledge and attitudes alone do not guarantee behavior change (Ajzen & Fishbein, 1980; Blake, 1999). Earlier research argues that increased environmental and waste-related knowledge may not always translate into behavior change (Kempton et al., 1995; Burgess et al., 1998; Diekmann & Preisendörfer, 1992).

## Drivers of Pro-Environmental Behavior

In addition to identifying what causes waste generation, research also explores why individuals choose to engage in *pro-environmental behavior* – conscious behavior and intentional actions that aim to minimize negative impacts on the environment (Kollmuss & Agyeman, 2002). Several factors influence whether individuals adopt sustainable behaviors, including social and cultural norms, age and gender, political affiliation, level of education, personal experiences, environmental knowledge, access to relevant infrastructure, economic constraints or incentives (Kollmuss & Agyeman, 2002), and locus of control (whether individuals feel their actions make a difference) (Newhouse, 1990). Understanding these drivers is essential for designing effective programs like the Master Recycler Program, which aims not only to educate participants but also encourage them to adopt and maintain sustainable behaviors within their personal lives and educate others on how to implement similar practices.

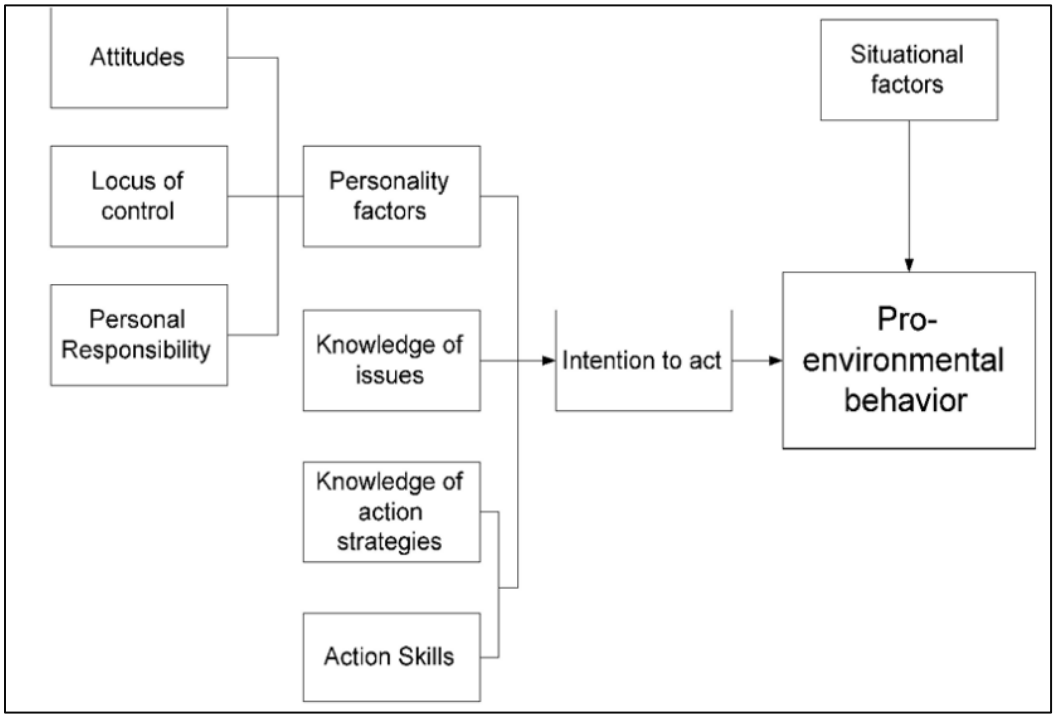


Figure 7: Predictors of Environmental Behavior (Hines et.al., 1987).

## Reason for Evaluating the Master Recycler Program

Since the inception of the Master Recycler Program, there has been no summative evaluation of the program. Several similar programs exist within Oregon and other states under the same or similar names. For example, Lane County's Master Recycler Program was modeled after Portland's Master Recycler Program (Metro et al., n.d.). However, there has never been a comprehensive evaluation of the program's effectiveness. *Program effectiveness* is the extent to which a program achieves its intended outcomes, namely, participants will acquire waste-related knowledge, adopt and maintain waste management practices, and share their knowledge and practices with their respective communities and networks. The overarching goal of these outcomes is to increase waste recovery and decrease overall local waste generation to subsequently lower associated greenhouse gas emissions and support climate change mitigation. These long-term downstream impacts were not assessed in this evaluation.

Although there is substantial literature on waste education in formal institutions, relatively few studies (Khatibi et al., 2021; Nurhayati & Nurhayati, 2023; Subri et al., 2025; Fredrick et al., 2018) have evaluated community-based programs that aim to build *local* leadership in waste management and how these programs influence individual-level behavior. Evaluating the Master Recycler Program presents a unique opportunity to assess not only participants' knowledge acquisition but also behavior change and educational outreach following program completion.

## Program Description

The Master Recycler Program is an educational and hands-on initiative operating under the Lane County Waste Management Division. The program typically offers four in-person or online sessions annually in Eugene/Springfield and Florence, Oregon. The program engages participants through a combination of lectures, guest presentations, facility tours, an online curriculum, hands-on demonstrations, and volunteer service. Its overarching goal is to bridge the gap between environmental awareness and action in correlation with the waste management hierarchy (*Figure 8*) to contribute to Lane County's broader waste reduction and recovery objectives.

In 2000, the Master Recycler Program began with support and grant funding from the Oregon DEQ and the Oregon State University Extension Service. The first class session was offered in 2002 after the Lane County Waste Management Division adopted the program. Since 2002, the program has successfully graduated over 1,300 Lane County residents. Between 2002 and late 2007, the program was coordinated by five or more individuals. In December 2007, Kelly Bell became the program's full-time coordinator. The Master Recycler Program is fully funded by the Lane County Waste Management Division through the System Benefit Fee to support the implementation of strategies and actions outlined in the Lane County Solid Waste Management Plan (Lane County, 2019). The program is supported by a network of nonprofit partners, such as BRING Recycling, Materials Exchange Center for Community Arts (MECCA), NextStep, and St. Vincent De Paul, for program content, marketing, and promotion.

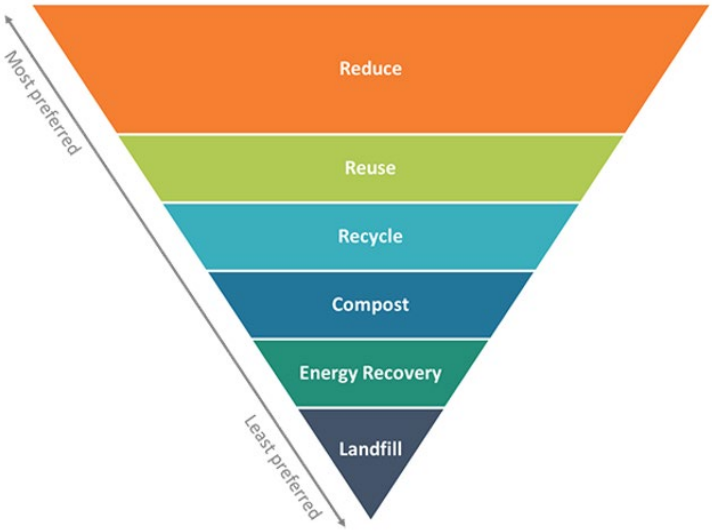


Figure 8: Waste Management Hierarchy.

On average, each program session enrolls approximately 12 participants, totaling around 48 per year. Typically, two participants either cancel or withdraw per session, resulting in an estimated eight dropouts annually (see *Figure 9*). Before the COVID-19 pandemic, class sizes were capped at 25 participants, but since then, participation limits have been lifted. Recruitment primarily occurs through word-of-mouth, often sparked by community members' interaction with Master Recyclers at public events. While social media is now the program's main advertising tool, earlier outreach efforts relied on local radio and print media.

The Master Recycler Program also partners with Churchill High School through the Rachel Carson Environmental Science Academy, offering the only high school-based Master Recycler initiative in Oregon. Established in 2007, this adaptation of the program engages high school seniors in many of the same activities of the adult program but extends the experience over a nine-month school year. The most notable change is the required nine-month field training, which includes activities such as weekly recycling collections and cleaning and maintenance of recycling bins. Initially launched with eight students, the program now averages

20 to 24 participants annually. While this high school-based version aligns with the broader goals of the adult Master Recycler Program, it is not included in the scope of this evaluation.

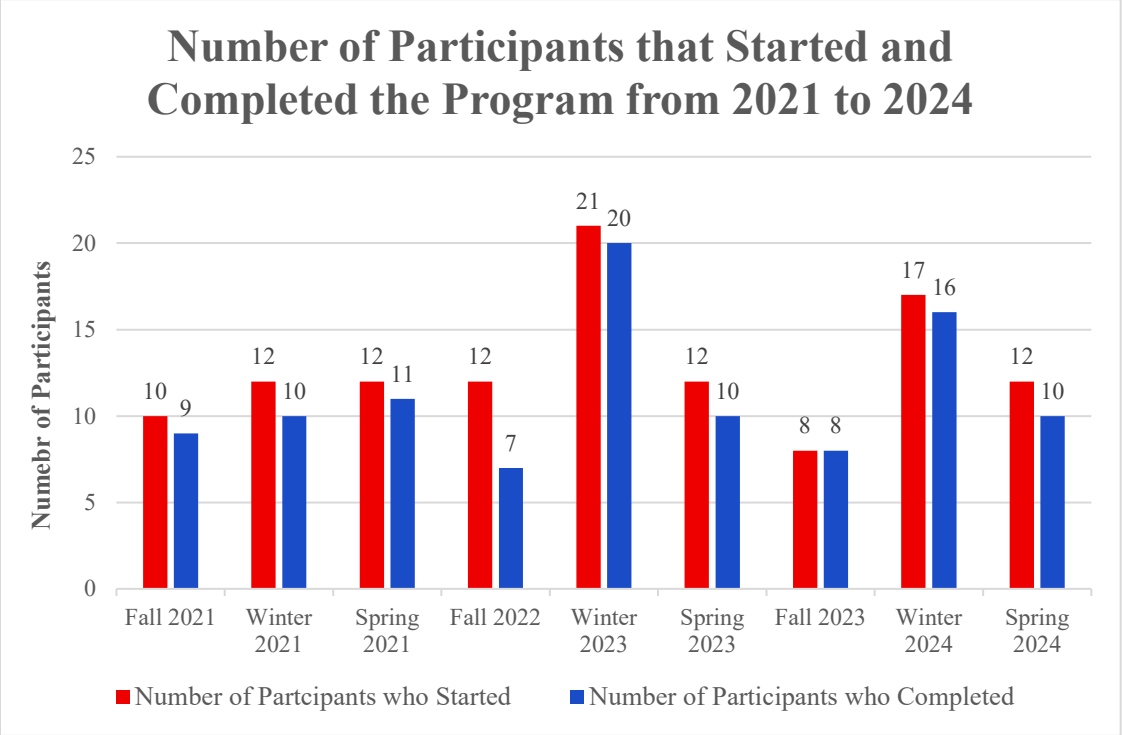


Figure 9: Number of Participants that Started and Completed the Program from 2021 to 2024. Data sourced from the Master Recycler Program Coordinator, Kelly Bell.

Program completion is dependent upon the successful fulfillment of three core activities: class lectures and tours, online coursework, and volunteer service. Overall, Master Recyclers receive over 30 hours of comprehensive education and training in waste-related topics, and in return, each Master Recycler dedicates at least 30 hours supporting local waste management efforts or teaching fellow Lane County citizens to reduce, reuse, recycle, and rethink.

Historically, participants attended a weekly three-hour lecture over the course of nine weeks, totaling 27 hours of in-class instruction. For 2026, the program consists of 11 consecutive weekly sessions, each lasting two hours. Lectures are facilitated by the program coordinator and guest speakers from governmental entities or local organizations that manage waste sustainably.

The role of the presenters is to discuss a waste-related topic and demonstrate what their organization, department, or program does to manage waste sustainably.

In addition, participants attend two tours. Participants are not required to attend these tours to receive their Master Recycler certificate, but participation is highly encouraged. One of these tours takes participants to Lane County's municipal landfill, the Short Mountain Landfill, where participants observe the volume of waste generated locally, understand how waste is managed in Lane County, and learn about what the county does to reduce the environmental impacts of waste, such as methane capture strategies and the adjacent wetlands that filter pollutants and preserve ecological habitats. The second tour visits a local organization that manages waste sustainably in some capacity. This tour may vary per session depending on local availability.

Participants must also complete *Recycling 101*, an online curriculum offered free of charge through Oregon State University. This curriculum consists of eight educational modules and quizzes, and participants must achieve a minimum overall score of 75% to fulfill this required activity. *Recycling 101* covers similar topics explored in the program's weekly lectures, such as sustainable materials management, current relevant laws and procedures, available resources for waste management, and the importance of managing waste sustainably (OSU, n.d.).

To fulfill service requirements, participants must complete at least 30 hours of waste-related volunteer service or volunteer for a waste-related organization in some capacity. Volunteer hours are broken down into three main categories: public outreach and education, hands-on service (a maximum of 10 hours credited), or creative contributions, such as publishing written or visual content (also capped at 10 hours). Volunteer hours are not required to be completed within the nine to eleven-week course period; however, if the volunteer requirement

remains unmet after two years, participants are invoiced a $50 fee, otherwise the program is completely free. Between 2009 and 2018, 97 invoices were issued to participants for incomplete service hours.

Program activities have remained mostly consistent since the Master Recycler Program's inception. One notable change occurred in September 2015, when the *Recycling 101* online curriculum was added as a required activity for program completion. Therefore, participants who took the program before September 2015 did not have to complete the *Recycling 101* activity. Secondly, while the structure and topics of weekly lectures have remained largely consistent, the specific guest presenters and tours vary depending on local availability. As a result, some waste-based organizations are not featured in every program session. Lastly, some content from the lecture curriculum was cut in response to participant feedback, although the overarching themes and learning objectives – namely, reduce, reuse, recycle, and compost – have remained consistent over time.

A key component of the Master Recycler Program's design is its emphasis on sustaining participant involvement beyond program completion. The program maintains a lifelong relationship with participants who wish to stay engaged. As of 2025, 840 individuals remain on the program's active Master Recycler email list. The program maintains regular communication through at least four newsletters annually, which include volunteer opportunities, updates on local waste prevention projects, and information on community events. In addition, the program maintains contact with participants through anniversary letters and progress notifications for those who have not yet fulfilled their 30-hour volunteer service requirement. In 2025, program coordinator Kelly Bell initiated a series of weekly Zoom sessions for graduates, each focused on a specific waste prevention category.

## The Master Recycler Program's Theory of Change

A program's *theory of change* outlines why a program's activities are expected to lead to certain outcomes and ultimately address a broader problem. The Master Recycler Program's theory of change, presented in *Figure 10*, was developed by the evaluator and informed by 15 stakeholder interviews and relevant literature.

The Master Recycler Program's theory of change believes that a combination of educational, experiential, and application-based opportunities will lead to an increase in participants' knowledge of waste-related topics, engagement in sustainable practices, and sharing of knowledge and practices with community members or within participants' inner circles. These outcomes are expected to lead to sustained behavior change among participants, a community culture shift that embraces waste-reduction norms and supports broader behavior change across Lane County as information spreads, and reduced local waste generation. The expected long-term downstream impact of the program's outcomes is to mitigate the effects of climate change by reducing the volume of waste generated and the subsequent GHG emissions, resulting in several environmental, economic, and social benefits.

The Master Recycler Program's theory of change is rooted in behavioral and educational research, as well as the KAP model. Studies analyzing the effectiveness of waste education programs suggest that such programs can reduce waste generation by increasing participants' knowledge and shifting attitudes, which subsequently encourages engagement in pro-environmental behaviors (Fredrick et al., 2018; Subria et al., 2025; Nurhayati et al., 2023; Velasco et al., 2024; Khatibi et al., 2021; Conti et al., 2024; Torress-Pereda et al., 2020). Research methodologies typically include surveys, questionnaires, interviews, focus groups, or a combination of such methods (see *Appendix 1*).

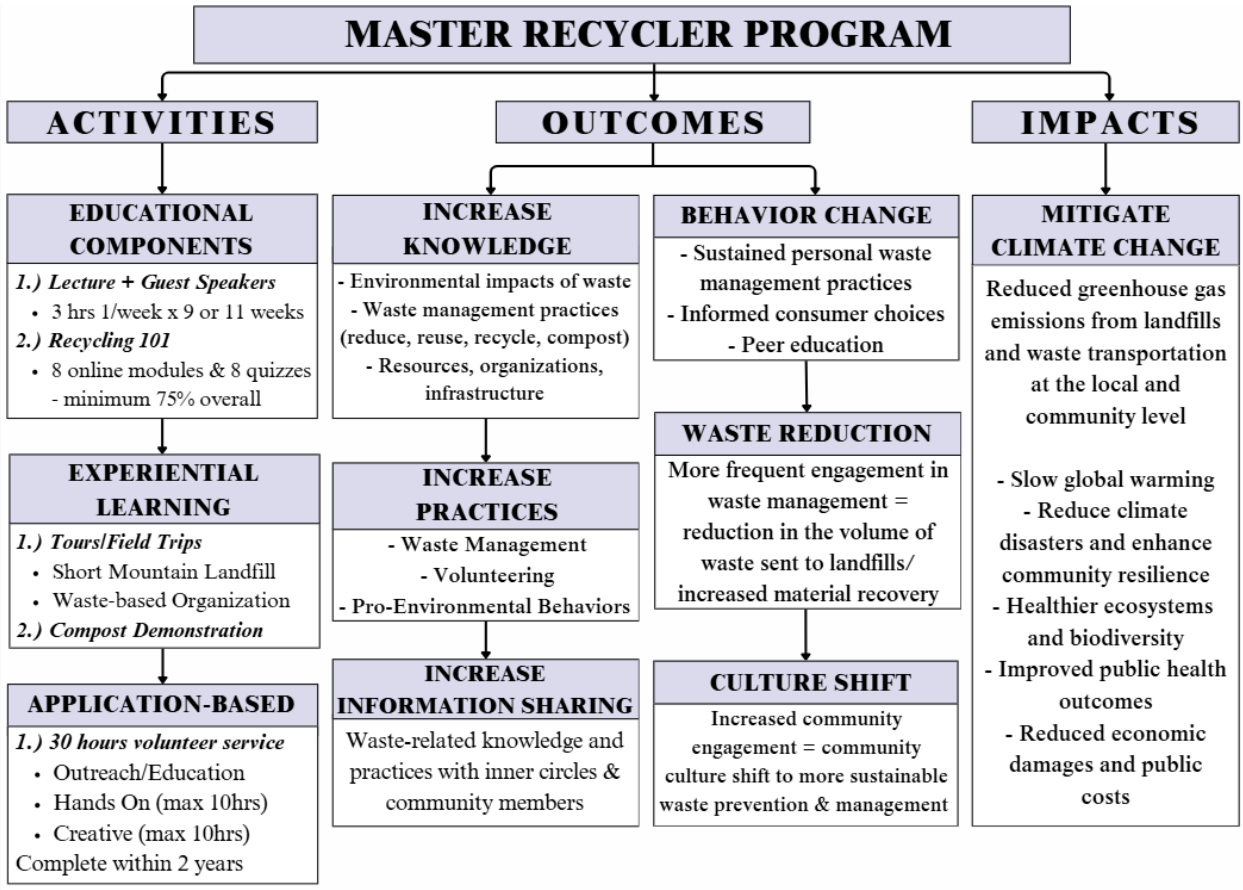


Figure 10: Master Recycler Program Theory of Change

## Key Assumptions

The Master Recycler Program's theory of change is based on a few underlying assumptions about participant behavior and external conditions. A primary assumption is that participants will apply the knowledge they gain from the program in their personal lives and share this information with others. However, there is some debate about whether education leads to behavior change and several external factors may affect one's engagement in pro-environmental behaviors. Furthermore, the program's theory of change assumes that participants will act as ambassadors of waste-related knowledge and practices. While this evaluation explores information-sharing as an outcome, there is limited insight into how waste education programs impact participants' information-sharing specifically. A third assumption is that participants have

the opportunities, infrastructure, and access needed to implement what they have learned, such as access to curbside recycling, disposal facilities, local waste reduction organizations, and volunteer opportunities. However, the program actively educates participants regarding the resources within Lane County and Oregon that support waste management, such as acceptable recyclables and relevant regulations, facility locations, and local organizations. Furthermore, the program communicates with participants and graduates regarding relevant volunteer opportunities or events when they arise.

**Contextual Variables**

Contextual variables are external factors beyond the program's control that may influence its effectiveness. For the Master Recycler Program, three primary contextual variables are relevant: policy shifts, the political climate, and funding stability. Policy changes can significantly affect waste diversion outcomes. For example, Oregon has implemented the Plastic Pollution and Recycling Modernization Act, effective July 2025, which is intended to enhance statewide recycling access, expand acceptable recycling items, and increase producer incentives to reduce and recycle materials (DEQ, n.d.). The political climate can also impact program success. For example, if the County Administrator decides to cut System Benefit Fees that are directed to waste reduction programming, the Master Recycler Program may face budget constraints. Consequently, funding constraints can impact the program's ability to perform its activities.

# Methods

This evaluation used a mixed-methods design to assess the effectiveness of the Master Recycler Program across three primary outcome areas: participants' knowledge of waste-related topics, engagement in waste management practices, and information diffusion. The evaluation employed additional questions to determine program elements that support or diminish the achievement of the program's intended outcomes. Additional questions were included to address inquiries identified by the program's managers, including concerns about the program's name and participant diversification. The evaluation questions were selected based on the program's theory of change, relevant literature, and common outcome evaluation criteria, including effectiveness, efficiency, and relevance.

## Evaluation Questions

To assess *program effectiveness*, the primary questions this evaluation addresses include:

1.) Did the program increase participants' knowledge of waste?
    a. The impacts of waste generation, awareness of local waste-related resources and opportunities, and principles of reducing, reusing, recycling, and composting.
2.) Did the program increase participants' engagement in waste management practices?
    a. Waste-based volunteering, reducing, reusing, recycling, and composting.
3.) Did the program increase participants' sharing of waste-related information with others?
    a. Who are participants sharing waste-related information with?

To assess *program design and efficiency*, questions this evaluation addresses include:

1.) What aspects of the program are worth maintaining or expanding because they are effective for meeting the program's intended outcomes?

2.) What aspects of the program could be modified or eliminated because they diminish the achievement of the program's outcomes?

Questions informed by the program managers include:

1.) Should the Master Recycler Program change its name?
    a. Are there potential hierarchical connotations of the term "master" and confusion about the program's broader focus on topics that go beyond recycling.
2.) How can the program diversify its participants?
    a. Specifically participation from younger generations and underrepresented communities.

**Survey Overview**

A 20-question Qualtrics survey was distributed via Mailchimp by the program coordinator, Kelly Bell, to 840 recipients on the Master Recycler email list on July 31, 2025. One email address bounced and was not delivered. The average opening rate for this first email was 22.4%. A reminder email was sent on August 10, 2025, via Mailchimp by the program coordinator. Two email addresses bounced and were not delivered. The average opening rate for the reminder email was 31.5%. The survey closed on August 15, 2025. By the close of the survey, 130 responses were received, yielding a response rate of approximately 15.5%. When accounting for email open rates, the response rate among recipients who opened the email was between approximately 50% and 70%. Survey respondents were not compensated for participation.

The survey included Likert-scale, multiple-choice, and open-ended questions designed to assess participants' perceptions and outcomes related to knowledge acquisition, practice

implementation, information-sharing, program content, satisfaction, valuable program aspects, and program aspects to improve (see *Appendix 2*). The survey used a retrospective pre-post design, in which participants assessed their knowledge, practices, and information-sharing behaviors before and after program completion at a single point in time. The consent form described the survey's reflective nature and the task the participant was being asked to complete.

Depending on the question type, survey responses were analyzed through chi-squared tests, descriptive statistics, or thematic analysis. For all chi-square tests, survey responses were organized into contingency tables in Excel at the group level. Expected frequencies were calculated using the standard formula, $E = \frac{(\text{Row Total}) \times (\text{Column Total})}{\text{Grand Total}}$. The chi-square statistic was calculated as $x^2 = \sum \frac{(Observed\ Value - Expected\ Value)^2}{Expected\ Value}$. The Excel =CHISQ.TEST function was used to obtain the associated *p*-values. Using a 95% confidence level, results are considered statistically significant if their *p*-values are less than 5% ($p < 0.05$), indicating that the probability of the observed result occurring by chance is significantly low. The chi-square tests assess pre-post shifts in response distributions at the group level, rather than the magnitude of effect. All percentages reported are rounded to their nearest integer.

**Focus Group Overview**

A focus group was conducted with participants from the spring 2025 Master Recycler cohort. The evaluator invited all 20 cohort members via email on June 30, 2025, and seven participants (n = 7) attended the focus group on July 20, 2025, at the Lane County Waste Management Facility in Eugene. The discussion occurred approximately 1.8 months after participants completed the program. With the focus group discussion lasting approximately 1.5

hours, participants received 1.5 hours of credit toward their volunteer service requirement under the creative contributions category if they wished to report the hours.

The focus group explored the same three primary outcomes – knowledge acquisition, practice implementation, and information-sharing – using open-ended qualitative questions. Participants were also asked to discuss their perspectives on the program's name (see *Appendix 3*). With participant consent, the discussion was audio-recorded and transcribed by the evaluator. The transcript was coded and analyzed using thematic analysis to identify recurring themes. All percentages reported are rounded to their nearest integer.

## Quantitative Analysis

### *Knowledge Outcome*

To assess participants' acquisition of waste-related knowledge, survey respondents rated a series of statements across five topic areas: reduce, reuse, recycle, compost, and Lane County-specific waste-related resources and opportunities. Respondents retrospectively assessed their waste-related knowledge before and after program completion by rating the same ten statements twice on a four-point Likert agreement scale (disagree, neutral, agree, unsure). Chi-squared tests were used to assess differences in response distributions between pre- and post-program ratings at the group level. The primary indicator for this outcome was statistically significant shifts in the distribution of responses toward higher reported agreement across knowledge topic areas following program completion.

### *Practices Outcome*

To assess participants' engagement in waste management practices, survey respondents rated a series of statements across five topic areas: reduce, reuse, recycle, compost, and

community waste-related activities. Participants retrospectively assessed their frequency of engagement in waste management practices before and after program completion by rating the same five statements twice on a six-point Likert frequency scale (never, less than once a month, a few times a month, a few times a week, almost daily or daily, unsure). Chi-squared tests were used to assess differences in response distributions between pre- and post-program ratings at the group level. The primary indicator for this outcome was statistically significant shifts in the distribution of responses toward higher reported frequencies of engagement following program completion.

### *Information-Sharing Outcome*

To assess participants' sharing of waste-related knowledge, resources, and sustainable practices, survey respondents retrospectively rated how frequently they shared waste-related information during three time periods: the three years before participating in the program, the time shortly after completing the program, and within the past year. Frequency was measured using a six-point Likert frequency scale (never, less than once a month, a few times a month, a few times a week, almost daily or daily, unsure). Participants also identified with whom they shared waste-related information by selecting all applicable categories, including family, friends, coworkers, community members, and "other." Chi-squared tests were used to assess differences in response distributions across all three time period ratings at the group level. The primary indicator for this outcome was statistically significant shifts in the distribution of responses toward higher reported frequencies of sharing following program completion.

**Descriptive Analysis**

The survey included descriptive questions related to participant motivation, understanding of program objectives, and overall satisfaction. Participants identified factors influencing their decision to participate in the Master Recycler Program using a 'check all that apply' format. Participants also rated their understanding of the program's goals and whether the program's objectives were communicated by the program from the start using a four-point Likert agreement scale (disagree, neutral, agree, unsure). Four additional questions assessed overall satisfaction with the program, including the extent to which the program met expectations, participants' likelihood of recommending the program to others, the quality of the program's content, and the supportiveness of program learning materials, using corresponding Likert scales in a multiple choice format. These questions were analyzed descriptively using frequencies and percentages.

**Qualitative Analysis**

The survey included three open-ended questions for participants to share additional comments about their perceptions of the most valuable or meaningful aspects of the program, suggestions for improvement, and overall experience with the program. Responses to open-ended questions were coded and analyzed using thematic analysis to identify recurring themes, and theme frequencies were calculated. Similarly, the focus group discussion was audio-recorded, transcribed, and analyzed using thematic analysis to identify recurring themes.

## Limitations

This evaluation provides valuable insights into the Master Recycler Program. However, methodological and contextual factors should be taken into consideration when interpreting the results. This section highlights the evaluation's limitations.

### *1.) Lack of Control Group & Traditional Pre-Post design*

This evaluation employed a retrospective pre-post design due to a lack of baseline data, to minimize response shift bias, and to include former participants from a range of cohorts (Howard, 1980; Sibthorp et al., 2007). As a result, the ability to establish causal relationships between program participation and reported outcomes is limited. External factors may have influenced participants' knowledge and behaviors rather than the program. Moreover, while the evaluation's retrospective pre-post design is an appropriate approach to assess program outcomes (Pratt et al., 2000; OFA, 2010), results – particularly for the three primary outcomes – provide hypotheses about potential associations (Song, 2010). Focus group data helped contextualize survey results by revealing participants' perceptions of the program's role in influencing their waste-related knowledge and behaviors.

### *2.) Self-Reported Data and Recall Bias*

This evaluation relied heavily on participants' self-reported reflections before and after completing the Master Recycler Program. As a result, findings are subject to potential recall bias. Some participants may have had difficulty accurately recalling their pre-program knowledge and behaviors, or distinguishing knowledge gained through the program from knowledge acquired through other sources.

### *3.) Social Desirability and Non-Response Bias*

Given the environmental focus of the Master Recycler Program, findings are subject to social desirability bias. Participants may have overstated their waste-related knowledge or behaviors to align with perceived social norms or the program's goals, potentially leading to an overestimation of the program's effectiveness. Additionally, non-response bias was a potential limitation, as individuals who are more engaged in waste prevention or who had positive program experiences may have been more likely to participate in the survey and focus group. These participants may have been more inclined to report favorable outcomes or rank statements more highly. Conversely, individuals who found the program less impactful or who did not maintain waste-related behaviors may have been less likely to respond, potentially skewing the results toward more positive outcomes. Survey anonymity was intended to encourage participation from a broad range of respondents.

### *4.) Longitudinal Variability*

This evaluation assumed a degree of consistency in program content over its 24-year history; however, variations in its content and delivery occurred. Most notably, the *Recycling 101* online curriculum was introduced in 2015 and became a required component for program completion, whereas earlier cohorts did not receive this course. Additionally, guest presenters and field trip opportunities varied over time due to local availability. These differences may have influenced participant experiences and outcomes.

# Results

This section presents findings with a focus on program effectiveness, components of the Master Recycler Program that are performing well, and components that may benefit from refinement to improve learning and behavioral outcomes. Findings are organized to support practical decision-making for program management and continuous improvement. With 130 completed surveys, the survey results have an estimated margin of error of approximately $\pm 8$ percentage points at the 95% confidence level ($z = 1.96$). While 130 responses were received, some respondents did not answer every question; the number of responses per question typically ranged from 120 to 126.

## Respondents' Characteristics

Survey respondents reported completing the Master Recycler Program across a range of years. Approximately 39% of respondents reported completing the program between 2020 and 2025, followed by 29% between 2019 and 2014. Earlier cohort respondents were also present, as 14% reported completing the program between 2013 and 2008, 13% between 2007 and 2002, and 4% before 2002. *Figure 11* displays the distribution of respondents by program completion timeframe. The results also show that the *Recycling 101* requirement for program completion varied among respondents, as 49% reported that Recycling 101 was required during their participation, 39% reported it was not required, and 13% reported uncertainty.

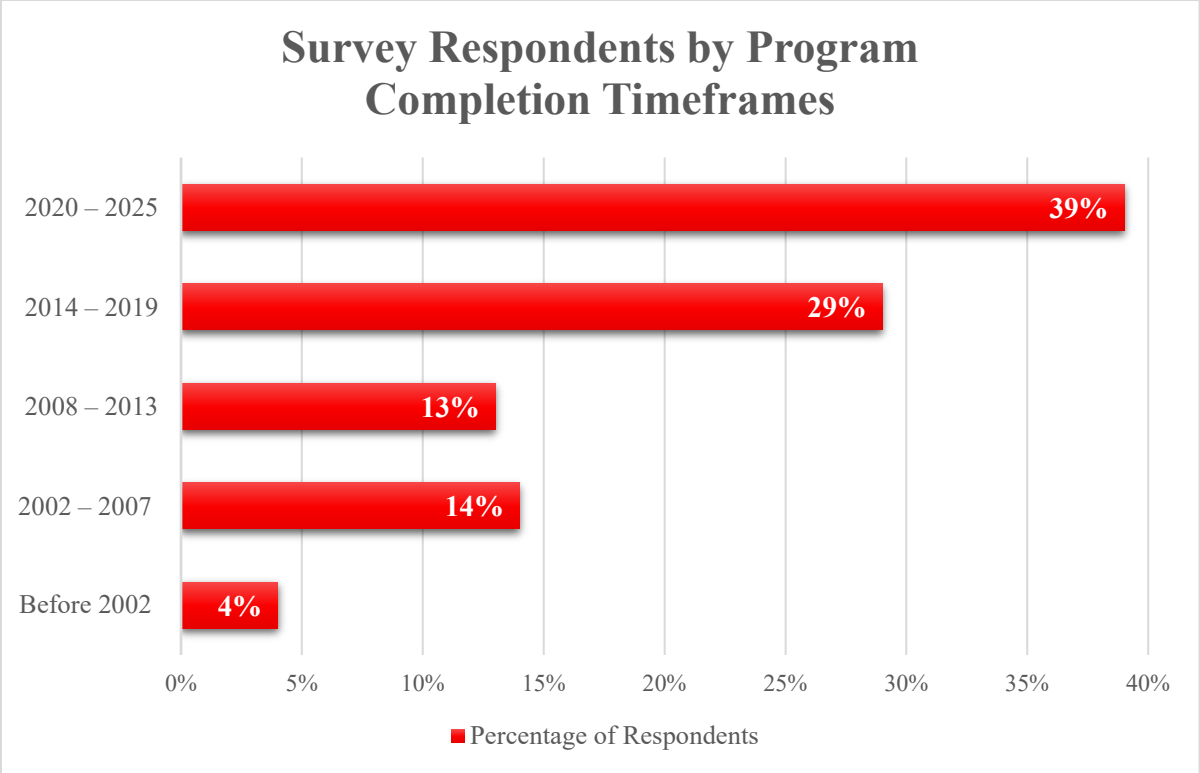


Figure 11: Timeframes of when Survey Respondents Reported Completion of the Master Recycler Program.

**Motivations for Program Enrollment**

Survey respondents selected a variety of reasons that influenced their decision to participate in the Master Recycler Program. Most respondents reported that they enrolled in the program to learn more (85%), followed by personal passion for the topic (80%) and a desire to reduce their personal environmental impact (72%). Other reported motivations included educating or helping others (63%), curiosity (43%), work-related reasons (25%), and through a recommendation (21%). Approximately 7% of respondents selected 'other.' *Figure 12* displays the categories of reasons and the percentage of respondents who selected each reason. Thematically coded responses in the "other" category included personal history or previous engagement (57%), professional development or career alignment (43%), and community engagement or civic contribution (29%). These findings suggest that the Master Recycler

Program attracts participants with diverse motivations and reasoning for enrollment, indicating the program's perceived value or purpose among prospective participants.

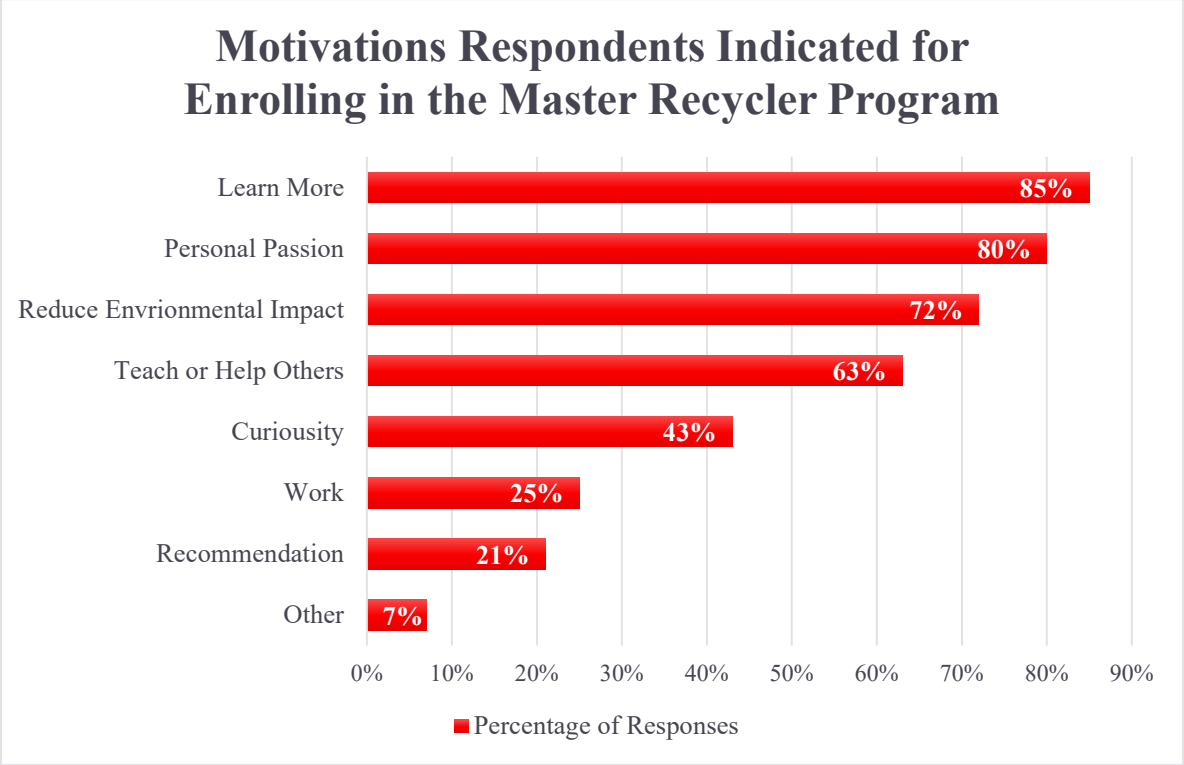


Figure 12: Motivations Respondents Indicated for Enrolling in the Master Recycler Program.

**Knowledge Acquisition and Impact on Thought Processes**

Survey results provide retrospective ratings of ten statements assessing respondents' knowledge of waste-related topics before and after completing the Master Recycler Program. Results show statistically significant shifts in the distribution of responses toward agreement across all ten statements ($p < 0.05$). The focus group discussion indicates that participants entered the program with varied levels of waste-related knowledge, described great understanding of waste-related topics following program completion, and articulated knowledge gains as not only informative but also cognitively transformative. These results suggest that the Master Recycler Program is associated with increased self-reported knowledge of waste-related

topics, including a deeper understanding of system-level and applied skills knowledge, consistent with the program's knowledge acquisition outcome. *Table 1* summarizes the knowledge-related survey questions and their corresponding *p*-values.

| Question | *p*-value |
|---|---|
| I was/am aware of the negative environmental impacts of improper waste disposal | 0.007 |
| I understood/understand the hierarchy of waste management (reduce, reuse, recycle, compost, energy recovery, landfill). | < 0.001 |
| I knew/know how to reduce my personal consumption to minimize waste. | < 0.001 |
| I knew/know how to repurpose items to extend their life. | < 0.001 |
| I understood/understand how to properly prepare recyclables (e.g., clean, dry, separate). | < 0.001 |
| I understood/understand how composting works. | < 0.001 |
| I knew/know where to find reliable information on waste management in Lane County. | < 0.001 |
| I was/am aware of community programs and events related to waste education in Lane County. | < 0.001 |
| I was/am aware of local reuse organizations and donation centers in Lane County. | < 0.001 |
| I was/am familiar with Lane County's waste disposal and recycling facilities. | < 0.001 |

Table 1: Knowledge-Related Survey Questions and Their *P*-Values.

### *1.) Core Waste System Literacy (High Performance)*

Survey respondents reported significant gains in foundational waste system knowledge, including awareness of the environmental impacts of improper waste disposal ($p = 0.007$) and understanding of the waste management hierarchy ($p < 0.001$). Focus group participants similarly articulated that the program enhanced their understanding regarding the scale of waste generation (particularly from the Short Mountain Landfill Tour), the consequences of waste

generation (particularly food waste impacts), relevant local legislation such as the Recycling Modernization Act, and the industrial and economic dimensions of waste. These findings suggest that the Master Recycler program is associated with self-reported increases in participants system-level understanding of waste following program completion.

***2.) Applied Skills Knowledge (High Performance)***

Survey respondents reported significant gains in applied skills knowledge, including an understanding of how to reduce consumption, reuse materials, prepare recyclables correctly, and compost items (all $p < 0.001$). Focus group participants described uneven entry-level knowledge of applied skills, particularly regarding hazardous waste identification and proper disposal and composting mechanisms. Post-program, participants retrospectively described a deeper understanding of appropriate disposal methods for different waste types. These findings suggest that the Master Recycler program is associated with self-reported increases in participants applied skills knowledge following program completion.

***3.) Information and Resource Navigation (High Strategic Value)***

Survey respondents reported significant gains in knowledge of how to locate reliable waste-related information, as well as awareness of locally relevant organizations, community events or programs, and infrastructure (all $p < 0.001$). Focus group participants similarly highlighted greater awareness of local waste management resources (particularly nonprofit organizations) and expressed appreciation and surprise at how broad and proactive Lane County is in waste management. These findings suggest that the Master Recycler program is associated with self-reported increases in participants awareness of waste-related resources following

program completion that can support personal implementation of sustainable practices and participants role as informal community educators.

### *4.) Impact on Thought Processes (Valuable Insight)*

Focus group participants described knowledge acquisition as transformative, articulating greater consciousness of the environmental impacts of actions, heightened questioning, and deeper emotional investment in waste management behaviors. The following reflective comments during the focus group discussion suggest that the Master Recycler Program demonstrates influence on participants' mindsets and knowledge acquisition extends beyond factual understandings to critical thought processes in participants' daily lives:

- "I started questioning everything…I'm constantly thinking about what's recyclable, what isn't, [and] what can I just make at home that would be more environmentally friendly."
- "You just see things differently" and "You just learn so much and keep thinking, 'where is this thing gonna be?'"
- "It affected my life a lot because I see all these things and I say, 'I'm having a lot larger footprint than I thought'" and "I can't not see food waste going in the garbage, and it's just really bothering me all the time now."
- "Almost every day, my mind goes to recycling at work."
- "I think it's like re-entering society after you've been at war."

### *5.) Program Components That Supported Participants' Knowledge Acquisition*

Focus group participants identified several program components that supported their knowledge acquisition. These included field trips and tours, guest speakers, particularly the

composting presentation, and the *Recycling 101* online curriculum. These program components were described as helpful for knowledge acquisition as they provided visualizations of systems "in the real world," which fostered a deeper connection with in-class content, were interactive experiences, which deepened engagement with content, or supported review and re-review of material at a personalized pace. These findings suggest that the Master Recycler Program's interactive and engaging activities, such as the field trips and guest presentations, as well as self-paced components, such as the Recycling 101 curriculum, support participants' reported knowledge acquisition.

### *6.) Continued Learning Post-Completion (Valuable Insight)*

Focus group participants also described continuing to learn about waste-related topics and proper waste disposal after program completion through online searches, volunteering activities, interactions with other Master Recyclers, and optional educational sessions, particularly the Zoom sessions hosted by Kelly Bell in 2025. These findings suggest that some participants continue learning beyond program participation and provide valuable insights when considering learning opportunities for graduates.

## Practice Implementation and Behavior Change

Survey results provide retrospective ratings of five statements assessing respondents' frequency of engagement in waste management practices before and after completing the Master Recycler Program. Results show statistically significant shifts in the distribution of responses toward more frequent engagement across all five statements ($p < 0.05$). Focus group discussions indicate that participants entered the program with varied levels of engagement in waste-related

practices and articulated adopting or expanding specific waste management practices post-program. Findings suggest that the Master Recycler Program is associated with increased self-reported engagement in both household-level and community-facing practices, consistent with the program's behavior change outcome. *Table 2* summarizes the practice-related survey questions and their corresponding *p*-values.

| Question | *p*-value |
|---|---|
| I reduced/reduce the amount of waste I produced (e.g., avoiding single-use items, buying less packaging). | < 0.001 |
| I reused/reuse items instead of throwing them away. | < 0.001 |
| I separated/separate and recycled appropriate materials according to local guidelines. | < 0.001 |
| I composted/compost food scraps or yard waste at home or through a community program. | < 0.001 |
| I participated/participate in community waste-reduction activities (e.g., cleanups, educational events, workshops). | < 0.001 |

Table 2: Practice-Related Survey Questions and Their *P*-Values.

### *1.) Household-Level Practices (Strong Adoption)*

Before program enrollment, some focus group participants described direct engagement in reducing, reusing, or recycling, noting that these practices were common growing up or routine in their households. Other participants described indirect or vicarious engagement in recycling or composting, articulating that while these practices were common in their households, family members took primary responsibility for sorting materials, correcting mistakes, and handling final waste disposal, with limited understanding regarding the rationale, scope, or broader impacts of these actions.

Survey respondents retrospectively reported more frequent engagement in reducing, reusing, recycling, and composting behaviors after program completion (all $p < 0.001$). Similarly, focus group participants described adopting or expanding waste management practices in their daily lives post-program. *Table 3* summarizes the waste-related practices focus group participants reported engaging in following program completion and their corresponding waste management category. These findings suggest that participants had varied entry-level engagement in waste management practices, and the Master Recycler program is associated with increased self-reported adoption of household-level sustainable waste management practices following program completion.

| Practice Type | Practice Implemented |
|---|---|
| **Reducing** | Reducing consumption of processed and non-recyclable packaged foods; buying more food in bulk; reducing fast food consumption/waste |
| | Checking labels and researching the recyclability of products before purchase |
| | Strategically choosing companies with minimal packaging |
| | Shopping less and with a product's end-of-life outcomes in mind |
| | Avoiding single-use products (e.g., razor blades) |
| | Using home-grown remedies for cleaning and pesticides (43%) |
| | Using glass containers to avoid plastic ones |
| **Reusing** | Using reusable dishes and silverware more frequently |
| | Going to more local organizations to donate or dispose of items |
| **Recycling** | Googling disposal methods for materials and avoiding disposal of non-recyclable items (e.g., blister packs) |
| | Recycling more items (e.g., bread bags, plastic wrapping, and nutrients) |
| | Properly disposing of hazardous waste at home |
| **Composting** | Removing compostable items from trash cans when sorted incorrectly |
| | Composting more foods at home |
| | Collecting food scraps at work for proper disposal |

Table 3: Practices Focus Group Participants Mentioned Engagement with Post-Program.

### *2.) Community-Facing Practices (Strategic Leverage Point)*

Survey respondents reported increased participation in community waste reduction activities ($p < 0.01$). Focus group participants described displaying disposal practices in workplace settings and engaging with community members through volunteer activities more frequently. Sharing waste-related information with community members and personal networks was also highlighted in the survey and focus group and is further discussed in the Sharing of Waste-Related Information section. These findings suggest that the Master Recycler Program is associated with increased self-reported engagement in community-facing practices, such as volunteering, participation in community waste-related events, and educational outreach following program completion.

### *3.) Program Elements that Supported Participants' Practice Implementation*

Focus group participants identified program components that were motivating or supportive factors for engaging in waste-related practices. These included knowledge of local resources and opportunities to observe the impacts of their efforts. Resources were described as helpful, as they provided clear and actionable guidance on where and how to properly dispose of waste. Teaching and informing others at community events about how to implement sustainable practices was described as motivating for personal engagement, as it fostered a sense that participants' efforts were meaningful and "web spreading" through the community. These findings suggest that the Master Recycler Program's content regarding local waste-related systems, resources, and organizations, as well as opportunities to engage with the community, supports participants' reported implementation of waste management practices.

## Sharing of Waste-Related Information

Survey results provide retrospective ratings of a statement assessing respondents' frequency of sharing waste-related information – such as knowledge of waste generation and practical guidance on implementing sustainable practices – with others across three time periods: three years before program enrollment, shortly after program completion, and within the past year. Results show statistically significant shifts in the distribution of responses toward more frequent engagement shortly after program completion and within the last year ($p < 0.05$). Findings indicate that the Master Recycler Program is associated with increased self-reported information diffusion, consistent with the program's educational outreach outcome.

### *1.) Frequency of Sharing Information (High Performance)*

Before program enrollment, most survey respondents retrospectively reported infrequent information-sharing (never or less than once a month). Shortly after completing the program, respondents reported more frequent information-sharing (a few times a week, almost daily, or daily). Within the past year, reported sharing frequency declined slightly but remained significantly higher than pre-program levels (a few times a month or more frequently). *Table 4* presents the percentage of responses and their corresponding frequencies across the three time periods. Focus group participants similarly described frequently sharing information related to reducing, reusing, and recycling, as well as the Recycling Modernization Act, through conversations, presentations at clubs, and distribution of printed handouts. These findings suggest that the Master Recyclers act as informal educators who extend the Master Recycler Program's educational capacity into workplaces, neighborhoods, events, and social networks.

| | Never | Less than Once a Month | A Few Times a Month | A Few Times a Week | Almost Daily or Daily |
|---|---|---|---|---|---|
| **Before program** | 28% | 50% | 19% | 1% | 7% |
| **Shortly after program** | 0% | 5% | 28% | 41% | 27% |
| **Within the past year** | 0% | 8% | 37% | 34% | 19% |

Table 4: How Frequently Survey Respondents Shared Waste-Related Information Results.

### *2.) Diversity of Information Recipients (Program Reach)*

Survey respondents reported that they shared waste-related information with friends (88%), family members (82%), community members (64%), and coworkers (58%). Approximately 15% of respondents selected 'other.' Thematically coded responses in the "other" category included neighbors or neighborhood associations (21%), social media, radio stations, and publications (21%), customers (16%), volunteers and career-related connections (16%), students or art-camp goers (11%), and church members or Lane County fair attendees (11%). *Figures 13* and *14* present the distribution of responses by recipient category and coded "other" audiences.

Similarly, focus group participants described actively sharing waste-related information across a range of settings, including workplaces, volunteer events, social clubs, online platforms, and within personal circles of friends, family members, and neighbors. These findings suggest that Master Recyclers share waste-related information within their inner circles, professional networks, and broader communities, extending the Master Recycler Program's content across multiple spheres of participants' lives.

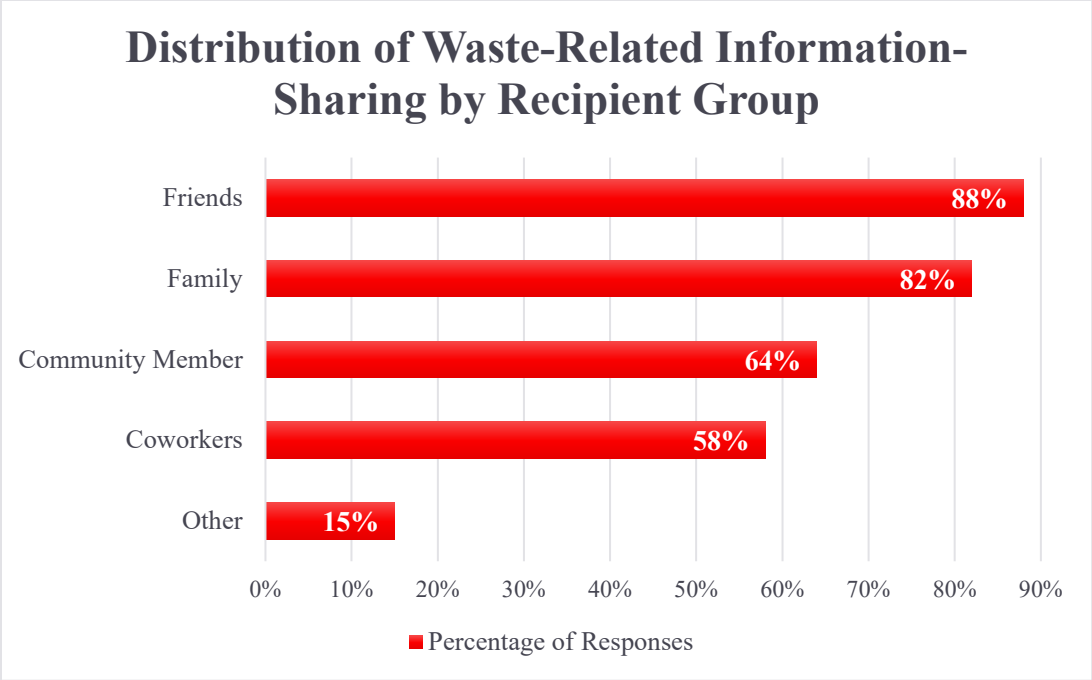


Figure 13: With Whom Respondents Shared Waste-Related Information.

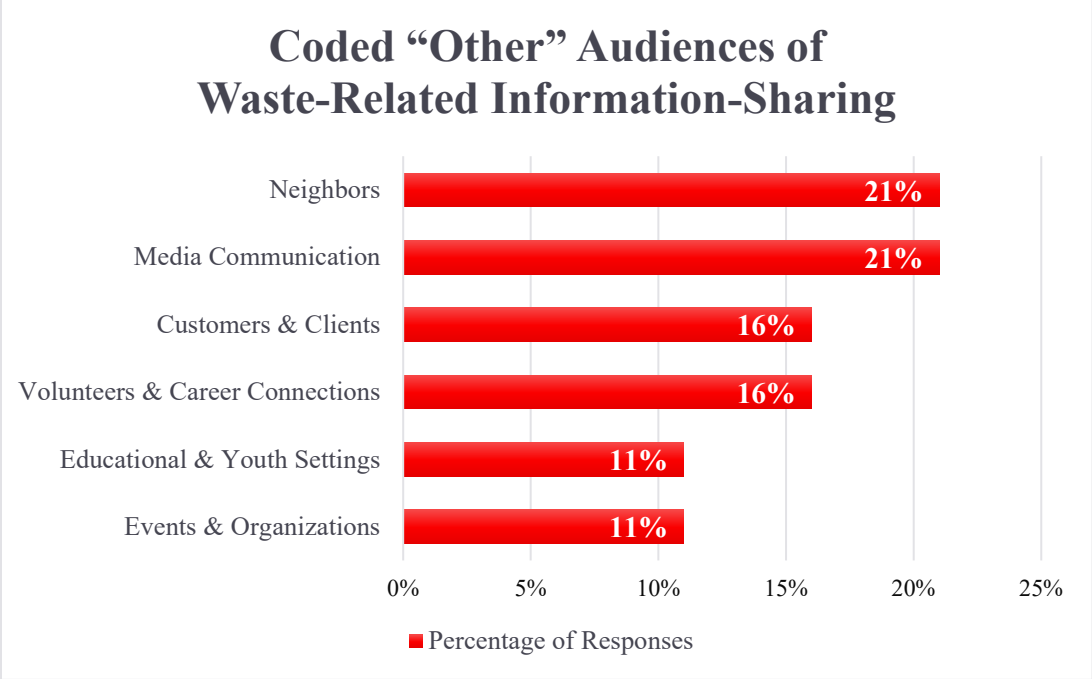


Figure 14: Coded "Other" Audiences Respondents Shared Waste-Related Information With.

### *3.) Community Members Outreach, Perception of Master Recyclers, and Impact of Conversations (Strategic Value and Insight)*

Focus group findings suggest that the Master Recycler Program supports information-sharing behaviors, as participants described enhanced perceived credibility or "legitimacy" as a Master Recycler and increased confidence in their ability to speak with others and communicate accurate information. Furthermore, a participant mentioned that being a Master Recycler serves as a "way to connect with people," answer questions, and clarify misinformation.

Focus group participants articulated that they frequently became a point of contact or "resource" for others following program completion. Participants described being approached by community members, coworkers, friends, and strangers with questions about proper and sustainable waste management practices. Volunteer activities and wearing the Master Recycler pin were reported to facilitate community interactions and prompt others to initiate conversations. Participants also noted that these interactions were motivating, particularly when recipients expressed interest in implementing the practices they learned about or observed at volunteer events. A participant noted that being a resource to others was "the best part of being a Master Recycler." At the same time, a participant noted challenges translating complex or vast program content into messages that would be accessible, engaging, or motivating for recipients.

These findings indicate that the Master Recycler Program facilitates participants' role as waste-related information ambassadors, and some community members perceive Master Recyclers as credible and approachable resources for guidance on implementing sustainable practices. However, findings also indicate variability in participants' ability to share information, particularly due to difficulty relaying extensive information learned from the program.

### *4.) Information Receptiveness (Output Boundary)*

Focus group participants noted varying receptiveness among information recipients. One participant described encountering skepticism, frustration, or annoyance related to the frequently changing waste management system when sharing information about the Recycling Modernization Act. At the same time, this participant mentioned that other recipients expressed enthusiasm and high interest, asking "a million questions." Another participant described trying to "instill…topics" with their inner circle and noted that "some people are receptive and some aren't." One participant relayed a situation where they were "teased" by family members for trying to pick up trash at a festival and reuse paper plates at a family event.

Participants described strategies for sharing information to promote positive and receptive responses, including starting with small, concrete actions "rather than starting with the big picture," and allowing others to initiate conversations instead of "pushing a topic onto them." These approaches were described as productive strategies to spark curiosity and encourage others to adopt sustainable waste management behaviors. These findings suggest that while results indicate that the Master Recycler Program supports participants' sharing of waste-related information, variation in recipient receptiveness represents a contextual constraint on the program's distributed educational outreach through Master Recyclers, though targeted framing strategies by Master Recyclers may reduce this boundary.

## Program Communication of Objectives

Three survey questions assessed respondents' perceptions of how clearly the Master Recycler Program communicated its objectives at the start of the program and their understanding of the program's goal. No respondents reported disagreement that the program's objectives were clearly communicated or that they understood what the program aims to achieve.

Most participants selected *neutral* for both statements, with 90% reporting neutrality regarding early communication of program objectives and 95% reporting neutrality regarding their understanding of program goals. A small number of respondents expressed agreement, with 8% agreeing that objectives were clearly communicated at the start of the program and 4% agreeing that they understood what the program aims to achieve. *Table 5* presents the percentage of responses and their corresponding agreement across the two statements.

| | **Disagree** | **Neutral** | **Agree** | **Unsure** |
|---|---|---|---|---|
| **Program objectives were clearly communicated at the start.** | 0% | 90% | 8% | 3% |
| **I understand what the program aims to achieve.** | 0% | 95% | 4% | 1% |

Table 5: Respondents' Agreement with the Communication of Program Objectives and Understanding of Program Goals.

An open-ended question asked participants how the communication of the program's objectives could be improved. Responses were thematically coded, and frequencies were calculated for each theme. Approximately 33% of respondents indicated that they had **nothing to add** or felt the program's objectives were clearly communicated, suggesting that the Master Recycler Program's communication of objectives is functioning well for many participants.

Approximately 17% of responses emphasized **stating the program's objectives explicitly**, with suggestions including having the Master Recycler mission statement in email signature lines, placing objectives clearly on the program's website, and "changing [the] name from Master Recycler program," which may help "emphasize that recycling is not the only waste element discussed."

Approximately 19% of responses expressed a desire for **broader program reach and additional resources**, suggesting integration of program content into K-12 school curricula, expanding outreach to younger generations, increasing advertising within the community, and

strengthening social media presence. Respondents also noted a need for more "waste-wise materials" for distribution and guidance on communicating with neighbors.

Approximately 10% of responses recommended **"refresher" classes and regular updates** on waste-related changes for graduates. An additional 10% of responses expressed a desire for **more activities** and applicant-focused learning, such as a "reuse workshop." A few respondents (6%) suggested improvements to **course structure**, including a more "structured syllabus…that matched the content delivered in the OSU online course" and an "outline of the classes at the start of the course." Finally, a few respondents (6%) identified **participation barriers**, such as assuming that participants "would know a bit more" and difficulty navigating the online Recycling 101 course. *Table 6* presents the identified themes, percentage of responses, and key quotes.

| Theme | % of Responses | Key Quotes |
|---|---|---|
| **No Comment / Clearly Communicated** | ≈33% | Program's objectives are being communicated effectively. Kelly does a great job; The program communicates appropriately every time there is something to say. I appreciate this level of communication. |
| **Community Outreach, Education Expansion, & More Resources** | ≈19% | Add more info to school programs K-12; Reaching out to younger generations; Distribute waste wise materials for us to distribute; Helpful suggestions to communicate with neighbors; The classes could be advertised more in the community. |
| **State Objectives Explicitly** | ≈17% | State the goals of the program, state how those goals will be met, do what it takes to meet those goals; Make it clear that the objectives will change as laws, needs, and common materials change; [emphasize] the value of spreading the message of sustainability, & correct information. |
| **Refresher Classes and Updates for Graduates** | ≈10% | Including new mini update knowledge refresher class; Lots of items have changed. Time for a refresher course to update; Emailed communication every time rules change. Or periodic update classes to stay up to date on local recycling efforts. |
| **More Activities & Applicant-Focused Learning** | ≈10% | More in person hands on; Maybe more examples could be given at the start on how your knowledge could be used; I would say more interactive/ hands/on activities. |

| | | |
|---|---|---|
| **Clearer Outline & Structure** | ≈6% | An outline of topics at the beginning or before would have helped; A more structured syllabus, and a syllabus that matched the content delivered in the OSU online course (content did not compliment one another throughout the weeks; content was jumbled). |
| **Accessibility & Participation Barriers** | ≈6% | Seeing where everybody is at with their knowledge. Most people know a bit more than others, so when I went in people assumed that I would know a bit more and it felt like there was some things I couldn't learn; I remember not feeling comfortable with recycling 101 materials (basic stuff) before jumping into more advanced topics; the online program was hard to use |

Table 6: Themes, Percentage of Responses, and Key Quotes of Respondents' Suggestions for Communication of Program Objectives.

### Program Content Quality and Supportiveness of Learning Materials

The survey included a question assessing participants' perception of the overall quality of the Master Recycler Program's content. No respondents rated the program's content as low quality. Approximately 15% of respondents rated the content as adequate, meaning it was generally clear and relevant, but could be improved in some areas. Approximately 80% of respondents rated the content as high quality, meaning it was well-organized, engaging, and highly relevant to the program goals. A few respondents (5%) selected 'other.' One notable response stated, "information keeps changing, so it is good to update things. Perhaps a yearly refresher going over new guidelines or laws, or hauler info." *Table 7* displays the percentage of responses and definitions of each category. These results suggest that the Master Recycler Program delivers content that is well-organized, engaging, and relevant, and most participants perceive the program's content as of high quality. At the same time, the findings also indicate areas to improve content clarity and accuracy through periodic updates or refresher materials.

| Low Quality | Adequate Quality | High Quality | Other |
|---|---|---|---|
| 0% | 15% | 80% | 5% |
| The content lacked clarity, relevance, or organization. | The content was generally clear and relevant but could be improved in some areas. | The content was well-organized, engaging, and highly relevant to the program goals. | Please specify |

Table 7: Results of Respondents' Rating of the Quality of the Program's Content.

The survey included a question assessing how well participants felt the Master Recycler Program's learning materials supported their understanding of topics. No respondents reported that the materials were not supportive in their learning process. Approximately 18% of respondents rated the materials as somewhat supportive, meaning that they were helpful in parts but lacked clarity or depth in some areas. Approximately 75% of respondents rated the materials as highly supportive, meaning they were clear, relevant, and significantly enhanced their understanding of topics.

A few respondents (7%) selected 'other.' One lengthy response noted prior familiarity with much of the content, felt that the program should be a required course for all Oregonians, and thought the program was great for beginners. At the same time, another respondent stated, "there was a lot more info than I was able to integrate at once." A focus group participant similarly noted that lectures and slides often moved too quickly for retention, stating, "in class, it was just a constant go, go, go, and then all of the sudden, it was the end of class and…I felt like I didn't learn anything this day." One survey response noted that the teacher and student support in answering questions was helpful, but frequent changes in information made retention "a bit static." *Table 8* presents the percentage of responses and definitions of each category. These results suggest that for the majority of participants, the Master Recycler Program's learning

materials are effective in supporting understanding of topics. At the same time, findings indicate areas to improve participant information retention through adjustments to lecture pacing and the volume of information presented.

| Not Supportive | Somewhat Supportive | Highly Supportive | Other |
|---|---|---|---|
| 0% | 18% | 75% | 7% |
| The materials were confusing, irrelevant, or did not help me understand the topics. | The materials were helpful in parts but lacked clarity or depth in some areas. | The materials were clear, relevant, and significantly enhanced my understanding of the topics. | Please specify |

Table 8: Results of Respondents' Rating of the Supportiveness of the Program's Learning Materials on Understanding.

**Program Expectations and Recommendation to Others**

The survey included a question assessing the extent to which the Master Recycler Program met respondents' expectations. Approximately 33% indicated that the program *met their expectations*, and approximately 62% indicated that the program *exceeded their expectations*. A small proportion of respondents (3%) selected 'other.' Open-ended responses included statements reflecting a lack of initial expectations due to employer-directed program participation and high perceived program value, with a comment highlighting amazement "at all the things that Master Recyclers are doing…[and] the responsiveness of Kelly in shepherding MRs to continue to be involved, show up and create new ideas." *Table 9* presents the percentage of responses. These results suggest strong satisfaction and alignment between the Master Recycler Program's delivery and initial expectations of the program among participants.

| Did not meet my expectations | Met my expectations | Exceeded my expectations | Other (please specify) |
|---|---|---|---|
| 1% | 33% | 63% | 3% |

Table 9: Results of Respondents' Rating of Whether the Program Met their Expectations.

The survey also included a question assessing respondents' likelihood of recommending the Master Recycler Program to others. No respondents reported being unlikely to recommend the program. Approximately 14% of respondents indicated they would be somewhat likely to recommend the program, meaning that they might recommend it depending on the person or situation. Approximately 82% of respondents indicated they would be very likely to actively recommend the program to others. A small proportion of respondents (3%) selected 'other.' These respondents indicated they had already told others about the program or they recommend it frequently. *Table 10* presents the percentage of responses and definitions of each category. These results suggest that the Master Recycler Program demonstrates a high likelihood of program endorsement to others among participants.

| **Not Likely** | **Somewhat Likely** | **Very Likely** | **Other** |
|---|---|---|---|
| 0% | 14% | 83% | 3% |
| I would not recommend this program to others. | I might recommend it depending on the person or situation. | I would actively recommend this program to others. | Please specify |

Table 10: Results of Respondents' Likelihood of Recommending the Program to Others.

**Most Meaningful or Valuable Aspects of the Program Indicated by Respondents**

The survey included one open-ended question asking respondents to describe which aspects of the Master Recycler Program they found the most meaningful or valuable. Approximately 76% of participants responded. Responses were thematically coded, and frequencies were calculated for each theme. Some responses referenced multiple aspects and were therefore coded into more than one theme. *Figure 15* presents the identified themes and the percentage of responses associated with each. Findings from this section identify program

elements that present opportunities for the Lane County Waste Management Division to protect, expand, or invest in.

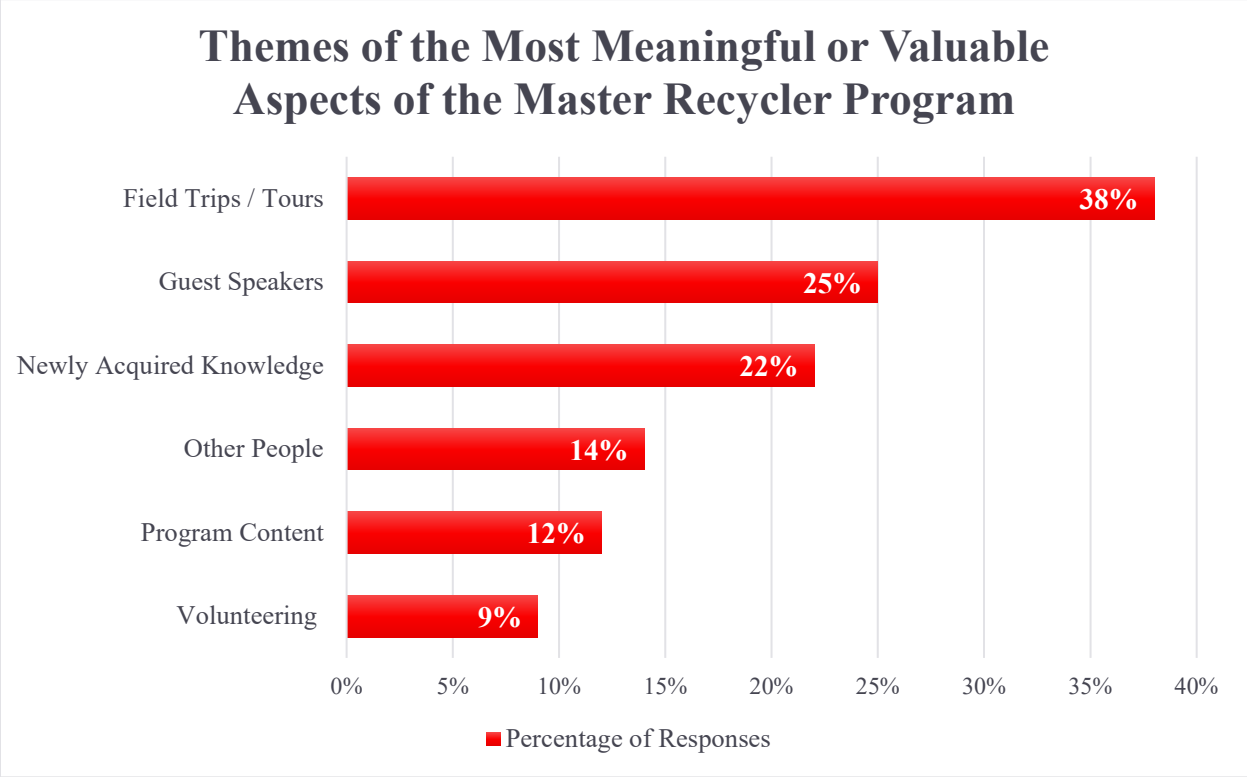


Figure 15: Themes of the Most Meaningful or Valuable Aspects of the Master Recycler Program for Respondents.

### *1.) The Program's Experiential, Practitioner-Led, and Locally Grounded Components*

The program's **field trips and tours** were the most prominent theme, appearing in approximately 38% of responses and mentioned by 43% of focus group participants. Responses and discussions indicate that field trips enhanced learning by allowing participants to interact directly with experts in the field, visualize concepts and systems discussed in class, and observe the real-world scale of waste generation. Several respondents and participants described the Short Mountain Landfill Tour in particular as "life-changing," noting a profound and memorable impact on their learning, worldviews, and decision-making.

The **program's guest speakers** were also a prominent theme, appearing in approximately 25% of responses and mentioned by 43% of focus group participants. Similarly, these responses and discussions suggest that participants valued guest presentations as they provided access to experts with rich and practical knowledge, offered a variety of perspectives on waste-related systems, practices, and challenges, strengthened their ability to connect course material to local application, and expanded their knowledge of local waste-related resources. Respondents indicated that these presentations enhanced learning, particularly because they were engaging and provided opportunities to ask real-time clarifying questions. Interactive instruction was described as particularly beneficial, as focus group participants identified the engaging composting presentation as significantly helpful for understanding composting processes.

These findings suggest that the Master Recycler Program's experiential, practitioner-led, and locally grounded learning components, such as its field trips and guest speaker presentations, play a central role in enhancing knowledge acquisition among participants. This outcome is a key indicator of program effectiveness and points to important considerations for protecting and expanding experiential and interactive experiences when planning program modifications, resource allocation, and activity inclusion.

### *2.) The Program's Facilitation of Knowledge Acquisition*

Approximately 22% of responses highlighted newly acquired knowledge, information, or resources as the most valuable or meaningful program outcome. These responses highlighted knowledge acquisition related to local nonprofit organizations, waste management infrastructure and systems, material life cycles, environmental impacts and scale of waste generation, and proper waste disposal guidelines and practices. These responses indicated that this knowledge

acquisition strengthened participants' confidence in sharing accurate information with others. Focus group participants similarly noted that learning about locally-relevant resources and organizations was especially valuable because they supported correct waste disposal behaviors and community education.

### *3.) The Program's Content, Structure, or Delivery*

The program's content, structure, or delivery was referenced in approximately 12% of responses. Respondents highlighted specific content, such as hazardous waste, the program's overall emphasis on waste management beyond recycling, and education on new laws, resources, and observations of "live examples." Respondents also expressed that the program's materials were well-organized, instructors were knowledgeable, and the overall format was "easy to understand" and "presented in a manner that made learning easy." Positive, rather than negative, framing of content and encouragement to educate others in the community were also noted as meaningful. Additionally, two focus group participants identified the Recycling 101 online curriculum as particularly valuable, noting that the self-paced format supported review of content and retention of information more effectively than class lectures, which were described as moving through content too quickly.

These findings suggest that the Master Recycler Program's educational focus on locally relevant waste-related systems, resources, policies, practices, as well as knowledge and observation of the impacts and scale of waste generations, plays a central role in strengthening participants' personal practice implementation and their confidence in sharing accurate information with others. Furthermore, the Master Recycler Program's content, which covers several waste-related topics, in-person and online instruction, and focuses on practical actions to

mitigate waste generation, supports participants' understanding and application. These outcomes are key indicators of program effectiveness and point to important considerations for reinforcing locally framed, knowledge-centered, and action-oriented components when prioritizing, modifying, or expanding program content, structure, or delivery.

### *4.) The Program's Emphasis on Volunteerism and Facilitation of Community Building*

Interpersonal connections and appreciation for other people was referenced in approximately 14% of responses. These responses emphasized the value of being around like-minded, passionate individuals, including fellow participants, practitioners, and especially Kelly Bell, the program coordinator. Responses indicated these relationships fostered a sense of community, reinforced respondents' motivation and confidence to create meaningful change and engage in collective action and created opportunities to exchange practical knowledge and clarify questions. Similarly, approximately 8% of responses and 43% of focus group participants identified volunteering or community engagement as the most meaningful aspect of the program.

These responses and discussions suggest that participants value interactions with the community and like-minded individuals, as they provide opportunities to learn more, build connectedness, and educate others. Furthermore, focus group participants mentioned that community involvement helped them "see the impact" of their efforts, which was described as a motivating experience for continued engagement in sustainable behaviors.

These findings suggest that the Master Recycler Program's emphasis on volunteerism and community involvement, as well as opportunities to connect with like-minded, passionate individuals, fosters a sense of collectivism while supporting participants' motivation and engagement in environmentally conscious and information-sharing behaviors. These results point

to important considerations for maintaining and expanding community-based and socially engaging components when planning program activities, participant involvement, and available opportunities.

**Participant's Recommendations for Program Improvement**

The survey included one open-ended question inviting respondents to provide suggestions for improving the Master Recycler Program. Approximately 51% of participants responded. Responses were thematically coded, and frequencies were calculated for each theme. Some responses contained multiple suggestions and were therefore coded into more than one theme. *Figure 16* presents the identified themes and the percentage of responses associated with each. Findings from this section identify program elements that present opportunities for the Lane County Waste Management Division to adjust, enhance, or invest in.

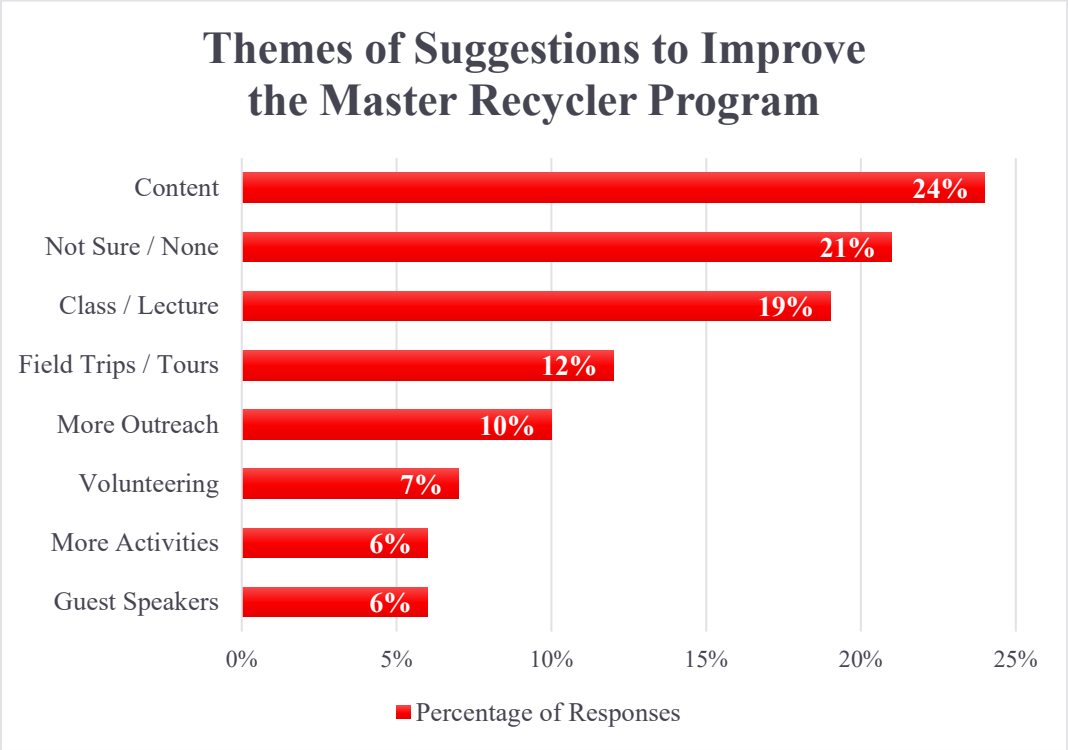


Figure 16: Themes of Suggestions to Improve the Master Recycler Program Indicated by Respondents.

Approximately 21% of responses expressed **no suggestions** for improving the Master Recycler Program and approximately 48% of respondents did not respond to the question.

### *1.) The Program's Content*

The program's content was the most prominent theme, appearing in approximately 24% of responses. These responses suggest that some respondents perceived gaps related to content relevance, organization, and clarity, highlighting opportunities to strengthen foundational knowledge acquisition. The suggestions identified participants within this theme are listed below and reflect important considerations when modifying content, sequencing, and instructional resources.

- Keep information, materials, and application relevant and up to date;
- Evaluate lesson materials through the lens of diverse demographics (e.g. socioeconomic status, renters versus homeowners, and food-desert communities);
- Incorporate videos addressing international and global aspects of waste;
- Provide opportunities to revisit course content, such as access to recorded lectures or compilation videos highlighting key points from each lecture;
- Offer weekly take-home materials summarizing key concepts from the week, and provide more written materials/resources in general; Return to an end-of-class binder or compiled reference approach;
- Improve integration between Recycling 101 and in-person lectures, including alignment of weekly topics and opportunities for participants to discuss the online content;
- Redesign the course syllabus to begin with foundational waste-related concepts/information and progressively build toward more advanced topics;

- Emphasize the waste management hierarchy, particularly the priority of reducing and reusing, and clarify what materials can and cannot be recycled.

***2.) The In-Class Lecture Portion of the Program***

The program's lecture component was also a prominent theme, appearing in approximately 19% of responses. These findings suggest that some respondents experienced participation barriers related to the in-person lecture format, scheduling and duration, and limited post-program learning opportunities, as well as retention barriers associated with the volume of information presented, a lack of content review and early syllabus introduction, and assumptions about participants' entry-level knowledge. The suggestions identified by participants within this theme are listed below and reflect important considerations when adjusting the program's delivery format and addressing participation accessibility and information retention.

- Offer classes on different days of the week (weekends) and times of the day;
- Shorten the length of class (2 hours or less) and extend the timeframe of the program;
- Provide in-person and online as well as family-oriented participation options;
- Offer refresher courses and/or audit options to reinforce and provide updated information to graduates;
- Dedicate the first couple of hours of the first class to "level setting" – go over definitions, acronyms, basics of waste management practices, and provide a Canvas walkthrough for the Recycling 101 online curriculum;
- Begin classes with a brief overview of the prior week's content;

- Provide a syllabus at or before the start of the first class – focus group participants mentioned that Kelly Bell could benefit from an administrative assistant because she works so much and "doesn't have a minute."

### *3.) The Program's Experiential, Interactive, and Community-Based Components*

Findings from the next four themes suggest that some respondents value the Master Recycler Program's experiential, interactive, and community-based learning and application experiences, including tours, hands-on activities, guest speaker presentations, and volunteering, but also provide suggestions related to alternative participation options, quantity and duration of these activities, and continued involvement for graduates. The suggestions identified by participants within these themes point to important considerations when expanding, modifying, or investing in program activities and post-program opportunities.

The program's **field trips and tours** were referenced in approximately 12% of responses. Suggestions identified by respondents within this theme are listed below.

- Increase the number and variety of tours and field trips – one respondent mentioned including a tour of the "mattress breakdown plant";
- Provide more time for questions and interaction during field trips;
- Offer recorded or virtual tour options, and/or dedicate a separate day for participants who could not attend field trips on their original date;
- Provide invitations for graduates to attend field trips.

**Volunteering** appeared in approximately 7% of responses. Suggestions identified by respondents within this theme are listed below.

- Provide more volunteering opportunities and ensure that email announcements of opportunities offer adequate advance notice;
- Provide a list of organizations where participants can volunteer.

Approximately 6% of responses referenced **hands-on or community activities**. Suggestions identified by respondents within this theme are listed below.

- Provide more hands-on activities; one response specifically mentioned a reuse workshop;
- Offer more opportunities for community meet-ups, including potlucks with speakers, collaborative projects, participant sharing of tips, and opportunities to socialize alongside recycling and education efforts.

Approximately 6% of responses referenced **guest speakers**. Suggestions identified by respondents within this theme are listed below.

- Speakers should practice ahead of time and be engaging with their audience;
- Provide invitations for graduates to attend guest speaker presentations.

***4.) The Program's Educational Outreach***

The program's outreach was referenced in approximately 10% of responses. These findings suggest that some respondents desire the Master Recycler Program's content to be better known and applied throughout Lane County by engaging children, residents, businesses, and the local government. The suggestions identified by respondents within this theme are listed below and reflect important considerations when modifying or enhancing program outreach, visibility, and community engagement.

- Integrate program content into K-12 education and create a junior program for kids;

- Print pictorial guidelines and put them on garbage cans to get information out to the general population of Lane County;
- Engage businesses, restaurants, and local government through ambassador programs and pop-up education/presentations at work session meetings.

### *5.) OSU Recycling 101 Online Curriculum*

Focus group participants spent a considerable portion of the session discussing the Recycling 101 online curriculum. These findings indicate opportunities to enhance Recycling 101's introduction, completion, and information retention among participants. The suggestions indicated by focus group participants are listed below and provide important considerations for enhancing the program's required online component.

- Emphasize the Recycling 101 course as a required activity during the first class to support timely completion, reduce stress, and prevent rushing through online content;
- Put due dates on the Canvas modules and quizzes to support timely completion;
- Provide a Canvas walkthrough during the first class to reduce confusion/support easier site navigation;
- Align weekly lecture content with Recycling 101 module content to foster deeper connection, understanding, engagement, and retention of the information;
- Make Recycling 101 a prerequisite to provide participants with foundational entry-level knowledge – other participants disagreed with this suggestion;
- Improve the environmental justice page – the page was described as "lacking," "felt like an afterthought," and that people's experiences with environmental injustice were not highlighted enough;

- Adjust the quiz questions from fact memorization to questions that ensure understanding of concepts, processes, and reasoning for engaging in waste management.

**Overall Experiences / Thoughts of the Program**

The survey included one open-ended question inviting participants to share anything else about their experience with the Master Recycler Program. Approximately 55% of participants responded. Responses were thematically coded, and frequencies were calculated for each theme. *Figure 17* presents the identified themes and the percentage of responses associated with each. Findings from this section identify program elements that participants perceived as working well or could be strengthened. Many of the responses were similar to those noted in the previous two sections. Nonetheless, these findings are useful when considering program elements to protect, expand, or invest in.

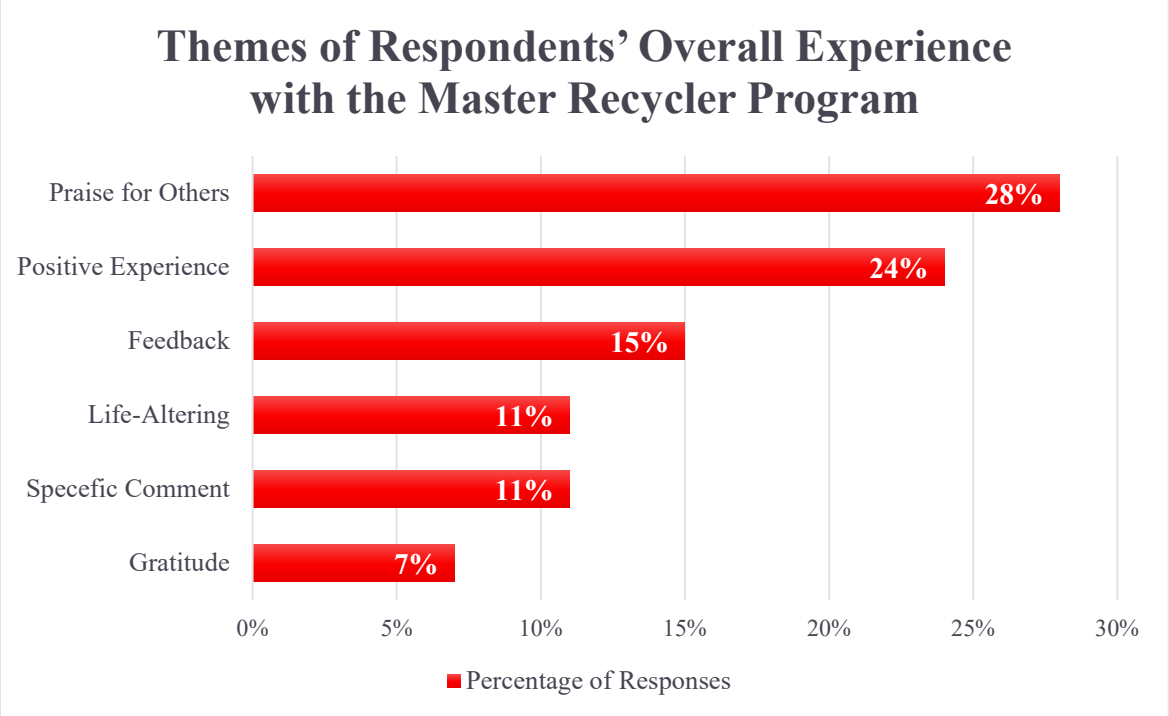


Figure 17: Themes for Overall Experiences with the Master Recycler Program Indicated by Respondents.

A small number of respondents (7%) indicated that they had **nothing to add** ("no" or "not sure"), and a few respondents (7%) expressed **gratitude** ("thank you").

**Praise for others** was the most prominent theme, appearing in approximately 28% of responses. Of these responses, 80% mentioned the program's coordinator, Kelly Bell. Responses indicate that participants appreciated Kelly's deep knowledge, dedication, patience, and passion, noting that she is a "great resource for the community," "accessible," a "good role model" for teaching waste-related materials, and a "champion for reducing waste." Many responses also highlighted her ability to provide consistent support and information, and one respondent noted that she inspired them to continue volunteering, educating, and advocating as a Master Recycler. Responses also mentioned other specific people, including Angie Marzano, Daniel Hiestand, Sarah Grimm, Lorraine Kerwood, and Terry McDonald, who were described as "wonderful" and helpful in supporting participants' learning. These findings suggest that strong leadership and supportive, knowledgeable, and accessible instructional staff and guests play an important role in respondents' positive program experiences, learning outcomes, and continued engagement in sustainable behaviors.

Descriptions of some form of **positive experience** were also a prominent theme, appearing in approximately 24% of responses. Some responses indicated overall program satisfaction, describing the program as "excellent," informative, motivating, and "valuable." Other responses indicated feeling proud to be a Master Recycler and of the program's impact on the community. Respondents also noted their desire to make the program more widely integrated, especially in schools and other counties, because the material is valuable. Finally, respondents expressed appreciation for the opportunities to continue learning, participating, and staying informed through newsletters and volunteer activities. These findings suggest that some

respondents perceived the program as highly valuable both personally and for the broader community and have a desire to continue engaging with the program after completion.

Approximately 15% of responses mentioned some form of **feedback**. These findings suggest opportunities to enhance program accessibility and reach, as well as clarify foundational concepts and support continued graduate engagement. The suggestions identified by respondents are listed below and point to important areas when considering program advertising, accessibility, graduate engagement, and content modification.

- Increase advertising of the program;
- Make the program more accessible, specifically for those with physical limitations;
- Shorten class duration to allow more time for discussion;
- Create a centralized location for recycling inclusion updates;
- Clarify what plastics can and cannot be recycled;
- Provide more opportunities for Master Recyclers in Florence to work on community projects/provide more events outside of Eugene;
- Offer a "Master Recycler II program" for past participants to keep them refreshed and current on the latest recycling practices and updates;
- Change the policy which stipulates that community members cannot take materials from recycling bins at the transfer stations to upcycle and reuse more items;
- One response simply stated "somewhat, a waste of time."

Approximately 11% of responses noted how the program was **life-altering** in some way. Responses indicate that the Master Recycler Program supported waste-related community participation, created job opportunities, and significantly changed respondents' worldview about

waste generation. These findings suggest that the program had a transformative impact on some respondents, influencing their perspectives, behaviors, and professional lives.

Finally, approximately 11% of responses were **specific comments**. Most of these responses indicated enjoyment and shock at the field trips (particularly the Short Mountain tour). One response mentioned enjoying the Recycling 101 online curriculum due to its convenience. One response expressed happiness with the Master Recycler shirt and badge, and another noted that the BRING water bottle "has [a] special meaning." Finally, one response mentioned that being a Master Recycler gives them credibility when they engage in conversations. These findings suggest that the programs' experiential activities, online component, and program affiliation contributed to some respondents' sense of enjoyment.

## Program Name

One focus group question asked participants about their perceptions of the name *Master Recycler Program* and whether they believed it should be changed. Overall, the discussion reflected tension between concerns about the implications of the term 'master' and the value of maintaining a well-recognized program name.

### *1.) Potential Negative Connotations or Implications with the Term 'Master'*

Two participants identified the word *master* as potentially problematic from a social justice perspective. One of these participants explicitly stated that "the problem with the term master is it's a social justice issue because you think of master and slave." Two participants reported never having considered this interpretation, although one of these participants acknowledged that they could understand how others might interpret the term negatively after group discussion. The other participant mentioned that, in their experience, the term had never

been interpreted in this way by people they interacted with. One participant discussed how broader societal shifts have prompted reconsideration of the term master in other contexts, such as real estate terminology, which has replaced "master bedroom" with "primary bedroom."

### *2.) Participants' Understanding of the Term 'Master' in this Context*

Most participants associated the word *master* with concepts of mastery, education, or credentials, rather than power or hierarchy. Participants described interpreting 'master' as mastering a subject or as similar to a "master's degree." However, some participants expressed discomfort with the term's implied level of expertise. One participant noted that becoming a "master" suggests extensive experience over a "long period of time" and questioned whether the title accurately reflected their level of knowledge about waste-related topics compared to others in their cohort. Another participant shared that community members sometimes assume that the participant "knows absolutely everything."

### *3.) Potential Confusion About Program Content/Scope from the Term 'Recycler'*

Confusion about the 'recycler' portion of the program name was mentioned by one participant, who noted that the name may mislead prospective participants about the program's content, as the program focuses on other waste-related topics besides recycling, such as reducing, reusing, and composting. This concern was also briefly implied in the survey, as one response stated that the program's "focus on things besides recycling (despite the program name)" was the most valuable aspect of the program, and another response stated "changing [the] name from Master Recycler program may emphasize that recycling is not the only waste element discussed" when prompted with how to improve the communication of program objectives.

### *4.) The Program Name is Well-Recognized and Respected in the Community*

Four participants emphasized that '*Master Recycler Program'* is a recognized and respected name within the community and aligns with other well-known program names, including the Master Gardener, Master Food Preserver, and Master Woodland Manager programs. These participants described the shared "master" term as a key identifier of similarly structured programs, which fosters a sense of community, legitimacy, and expectation. These participants also expressed concern that changing the name could result in reduced program recognition, require time-consuming and costly updates to materials and merchandise, and potentially require renaming all "master" programs.

### *5.) Lack of Alternative Name Suggestions and Consensus*

Participants had difficulty thinking about alternative names. Suggestions included using the word 'certified,' which prompted the suggestion "certified recycling expert." One participant stated, "green machines." No other alternative name suggestions were provided. Moreover, participants expressed mixed feelings about the program's name, and there was no clear consensus on whether it should be changed or what an alternative might be.

## Results Summary: Key Findings for Program Management

This section summarizes the survey and focus group results to highlight program elements demonstrating strong effectiveness, those constraining effectiveness, opportunities for refinement, and recommendations for future program evaluation efforts.

### Program Elements Demonstrating Strong Effectiveness

Findings indicate that the following elements support learning and retention, ongoing reflection and questioning, engagement with program content, adoption of pro-environmental behaviors, or information-sharing tendencies.

- Content and visualization emphasizing the scale and impacts of waste generation;
- Education on locally specific waste systems/resources, including infrastructure, guidelines, and nonprofit organizations;
- Experiential learning opportunities, particularly the Short Mountain Landfill tour;
- Practitioner-led instruction, such as guest speaker presentations, particularly when they are thoroughly engaging or interactive;
- Volunteer and community engagement opportunities;
- Knowledgeable, accessible, and responsive leadership/staff and instructional support.

### Program Elements that Constrain Effectiveness

Findings indicate that the following elements can constrain program effectiveness, impacting information retention, the translation of knowledge into sustained behaviors, or participants' information-sharing tendencies.

- Volume of information presented, extended, fast-paced lecture instruction, and limited opportunities to review content – may contribute to cognitive overload, which constrains retention and participants' ability to apply and share knowledge;
- Lack of emphasis on foundational waste-related concepts/assumptions about participants' entry-level knowledge – may create uneven learning experiences, contribute to feelings of uncertainty, and undermine shared understanding within cohorts;
- Lack of sequencing between content from the Recycling 101 online curriculum and lectures – may cause the online curriculum to function as a separate component from the rest of the program's activities, impacting its educational capability;
- Varied receptiveness among information recipients – represents a contextual limitation that constrains information-sharing as an outreach strategy.

**Clear Opportunities for Refinement**

Results point to several areas where targeted adjustments could improve program participation, graduate engagement, knowledge acquisition, behavior change, and the programs' distributed educational reach. These opportunities reflect participants' feedback from the survey and focus group, combined with the evaluators' analysis of recurring themes.

- Strengthen program onboarding and early communication by explicitly stating program objectives, expectations, and avenues for knowledge application;
- Improve alignment between the weekly lectures and Recycling 101 online curriculum (shared weekly topics and opportunities for reflection or discussion);

- Implement content reinforcement strategies such as weekly summaries (written and/or during lecture) or compiled reference materials;
- Adjust lecture duration to shorter sessions (2 hours) with expanded program duration;
- Address accessibility and participation barriers – scheduling (weekend options), format (hybrid options), and start the program with "level setting" (no assumptions about entry-level knowledge or experience);
- Provide tools and framing strategies to support participants' sharing of information;
- Expand graduate learning and application opportunities – refresher courses and/or more frequent email communication about waste-related changes and volunteer opportunities.

**Recommendations for Future Evaluation Focus**

The results indicate several areas that would benefit from targeted assessment in future program evaluations.

- Assess participants' long-term retention of waste-related knowledge and adoption of waste management practices using a longitudinal design (Angeles et al., 2014);
- Examine how specific program elements (e.g. Recycling 101, in-class lecture, field trips) contribute differently to learning and behavioral outcomes;
- Determine the impact of the Master Recyclers' information-sharing behaviors on recipients (receptivity, recruitment, behavior change);
- If program modifications are implemented from this evaluation, assess their effects on participant outcomes.

# Discussion

This section discusses key findings from the evaluation, connecting them to existing literature, exploring their broader implications, and highlighting the Master Recycler Program's potential role, influence, and future considerations.

## Respondents' Motivations for Enrolling and the Perceived Role of the Program

### *1.) The Program is an Educational and Action-Oriented Opportunity*

Findings regarding participants' motivations for enrolling in the Master Recycler Program indicate that participants primarily perceived the program as an educational and action-oriented opportunity. Most respondents indicated that they enrolled in the program with the expectation that it would increase their knowledge, provide them with the ability to teach and help others, and reduce their personal environmental footprint. These motivations suggest that participants joined the program to gain expertise, apply knowledge to action, and share information with others, which aligns well with the program's intended outcomes of having Master Recyclers implement sustainable practices and serve as informed community educators.

### *2.) The Program is an Avenue to Fulfill Personal Values, but may Limit Broader Appeal*

Several respondents indicated that they enrolled in the program due to personal passion for waste-related topics and lifelong environmental values, suggesting that the program primarily attracts individuals who are already environmentally conscious or have pre-existing waste-related interests. This finding is consistent with prior research indicating that individuals with strong pro-environmental values are more likely to participate in environmentally conscious activities, including volunteering at community events, joining programs or clubs, and

supporting relevant organizations (Dresner et al., 2015; Bruyere & Rappe, 2007; Stern et al., 1999). Consequently, some of the outcomes observed in this evaluation may reflect participants' pre-existing orientations toward sustainability.

While the 'personal passion' motivation may strengthen program outcomes, it indicates that the program may be less appealing or accessible to individuals without pre-existing environmental or waste-related interests. Focus group findings contextualize this implication, as participants reported that the spring 2025 session appeared to assume participants had a high entry-level knowledge of waste-related topics. Participants highlighted confusion over unexplained acronyms and definitions, and some noted that content was delivered too quickly for retention. These findings indicate that the program may implicitly assume participants have a high baseline knowledge of waste-related topics, which may unintentionally create cognitive and participation barriers for those who are newer to the subject. As suggested by focus group participants, starting classes by briefly reviewing the previous session's content and dedicating the first class to "level-setting," where the program "assumes nobody knows anything" and covers the basics, could reduce this barrier, ensure everyone is "on the same level," and reduce feelings of being out of the loop with other cohort members.

### *3.) The Program Helps Build Participants' Professional Identity and Credibility*

A few participants indicated that they enrolled in the program for work, professional development, and career alignment, suggesting that the program may be perceived as a credential and workforce avenue for some. One survey respondent specifically reported that they joined the program to build their resume for future waste-related job applications. Focus group participants noted that the program gave them a sense of legitimacy when interacting with others. These

findings suggest that the program is a respected entity within professional networks and that completing it is a legitimate way to build experience, establish a professional identity, and gain credibility. Importantly, this motivation indicates that the program's impacts extend beyond intended waste-related outcomes, supporting graduates' professional opportunities and career development.

### *The Perceived Role or Value of the Program for Prospective Participants*

Moreover, the results indicate that the Master Recycler Program is perceived to serve multiple roles simultaneously for prospective participants. The program is an opportunity to:

- Gain waste-related knowledge;
- Engage in pro-environmental behaviors;
- Reduce personal environmental footprint;
- Fulfill personal values and passions;
- Gain credibility and develop professional connections;
- Connect with the community;
- Act as a community educator and influence or inspire others.

## Meeting Expectations and Encouraging Recommendations to Others

### *1.) The Program Satisfies Participants' Needs, but Variability in Expectation/Investment*

Respondents reported that the program met or exceeded expectations, suggesting that the program delivers content and experiences that satisfy participants' needs and, for many, surpass potential assumptions about the program's value. However, the response "I didn't have any expectations. Work told me to take the class" reveals variability in participants' motivations and

expectations, suggesting that some participants may enter the program with limited personal investment, which could influence behavioral outcomes.

### *2.) High Endorsement of the Program, but Contextual Variables Affect Such*

Participants' willingness to recommend the program was overwhelmingly positive, suggesting that participants found the program valuable, worthwhile, and of interest to others. The small proportion of respondents who selected 'somewhat likely' to recommend the program suggests that some participants might perceive it as more suitable for certain audiences or contexts. Considering that humans selectively make recommendations that align with the recipients' interests (Terveen & Hill, 2001), participants likely recommend the program to others who are similarly environmentally conscious or have pre-existing waste-related interests.

### *Satisfaction Leads to Program Advocacy – Highly Valuable for Program Recruitment*

Moreover, findings indicate that the Master Recycler Program was successful in meeting and exceeding participants' expectations and enticed participants to recommend the program to others. Collectively, these results suggest that participants' satisfaction with the program is likely to translate into advocacy for the program. This is particularly important for a program that relies on word-of-mouth recruitment, as participants can serve as program ambassadors and increase the program's reach.

## Knowledge Acquisition, Practice Implementation, and Information-Sharing

The three primary indicators of program effectiveness – knowledge acquisition, practice implementation, and information sharing – were all statistically significant. These findings suggest that according to participants' self-reports, the Master Recycler Program is achieving its

intended proximal outcomes and enhances participants' knowledge of waste-related topics, engagement in sustainable practices, and supports a distributed network of informal educators who extend the program's educational reach. The potential associations between each outcome and program completion have important implications and provide valuable context for the achievement of the program's outcomes.

## Knowledge Acquisition

### *1.) Environmental and Action-Oriented Waste Education is a Significant Predictor of Engagement in Pro-Environmental Behaviors (Increased Confidence and Self-Sufficiency)*

The statistically significant increases in participants' waste-related knowledge after program completion provide important context for the observed increase in participants' engagement in pro-environmental practices. Greater understanding of the environmental impacts of waste (Wu et al., 2022; Hines et al., 1987; Hungerford et al., 1990; Amoah et al., 2021) and waste management practices (Amir et al., 2025; Janmaimool et al., 2016; Noh, 2024) is a significant predictor of personal waste reduction and other pro-environmental behaviors. Integrating environmental and action-oriented waste education – as the Master Recycler Program does – is associated with correct and consistent waste-management behaviors because such knowledge increases confidence and self-efficacy, and reduces uncertainty-related barriers (Stern, 2000; Schultz, 2002; Bamberg et al., 2007).

Improved access and awareness of reliable waste management information and local resources may further reduce barriers to correct and consistent engagement in pro-environmental behaviors. Knowing where to find accurate waste management information supports informed decision-making and sustainable actions (Oke et al., 2016; Cheng et al., 2023; Ai-Rashed, 2025)

by reducing resource-related knowledge gaps and increasing self-sufficiency (Noh, 2024; Whitmarsh, 2018; Almasi, 2019; Babaei et al., 2015). Similarly, increased awareness of local waste-related programs, events, nonprofit organizations, and infrastructure encourages participation in community initiatives by reducing uncertainty and logistical barriers (Ali et al., 2025; Wang et al., 2025). Subsequently, volunteering in waste-related activities is associated with sustained pro-environmental behaviors (Seymour et al., 2018).

### *2.) Interactive/Engaging Opportunities to Apply Knowledge to the Real World are Supportive of Information Retention and Participants Continue Learning*

The focus group's knowledge-related discussions further support and expand on survey results. Participants noted that the field trips, guest speakers, and the Recycling 101 online curriculum were program activities that supported their learning, suggesting that combining self-paced online instruction with interactive and real-world opportunities supports retention of waste-related topics (however, improvements for Recycling 101 were discussed at length in the focus group). Furthermore, some participants noted that they continued learning about waste-related topics, indicating that participants were motivated and self-sufficient in staying informed and maintaining engagement in learning beyond program completion.

### *3.) The Program's Learning Outcome Extends Beyond Surface-Level Understanding to Cognitive Shifts (Important Context for Behavior Change)*

Focus group participants described a shift in how they perceive and think about waste and consumption, suggesting deeper cognitive and emotional engagement with waste-related topics. Focus group participants indicated that increased knowledge of waste shifted their perspectives,

which heightened awareness, critical reflection, and engagement with waste management behaviors. This mindset shift provides important contextual understanding for the increase in sustainable behaviors found in this evaluation and in prior research. Moreover, program impacts appear to extend beyond the program duration into participants' personal lives and consciousness, which has important implications for sustained pro-environmental behaviors.

## Practice Implementation

### *1.) The Program Facilitates More Frequent Engagement in Household-Level and Community-Facing Practices – Local Resources and Community Engagement are Supportive*

Survey respondents and focus group participants reported more frequent engagement in household-level and community-facing waste management practices, including reducing, reusing, recycling, composting, community engagement, and information-sharing. Reducing and mindful consumption were the most frequently discussed behaviors in the focus group, consistent with the most preferred practice in the waste management hierarchy. Participants also mentioned that providing local resources and interacting with the community were key contributors to sustained waste management engagement, suggesting that these opportunities are central to supporting and maintaining sustainable practices.

### *2.) Engagement in Sustainable Practices is Important for Climate Change Mitigation*

Waste generation contributes to GHG emissions that accelerate climate change, resulting in a range of environmental, economic, and human health consequences (EPA, 2021). Engagement in waste management practices and pro-environmental behaviors can mitigate the impacts of waste generation by decreasing the energy required for material extraction,

transportation, and processing, thereby reducing fossil fuel consumption and associated GHG emissions from waste (EPA, 2023; Albanna, 2012). Education can support the adoption of sustainable practices and reduce participants' personal environmental footprint. For example, participation in a one-year university climate change education course was associated with more frequent pro-environmental decisions, resulting in an estimated reduction of 2.86 metric tons of $CO_2$ per student per year (Cordero, 2020).

Moreover, the Master Recycler Program was associated with self-reported increases in participants' waste-related knowledge. An increase in waste-related knowledge is associated with more frequent engagement in personal waste minimization practices. These practices are linked to reduced demand for raw materials, lower fossil fuel use, decreased landfill disposal, fewer GHG emissions, and thus reduced environmental and health-related harms associated with waste generation (EPA, 2025; National Academies of Sciences, 2025). However, this evaluation did not assess the program's long-term downstream impacts; therefore, findings do not demonstrate community-level or population-wide outcomes.

### *3.) Societal Constraints for Practice Implementation (Barriers to Program Effectiveness)*

Participation in the Master Recycler Program alone does not guarantee engagement in pro-environmental behaviors. At the societal level, while there has been an increase in climate change awareness and concern, there has not been a similar increase in pro-environmental behaviors (Mazar et al., 2021). This suggests that knowledge or awareness alone does not always result in behavior change, as several complex factors influence whether individuals adopt sustainable behaviors. Considering that the survey also indicated that the program likely attracts

participants who are already environmentally conscious and passionate about waste-related topics, it is likely that participants were well-positioned to engage in sustainable behaviors.

### *Connections Between Knowledge Acquisition and Behavior Change*

In terms of the program's theory of change, findings from this evaluation support the linking hypothesis between knowledge and action. These findings are consistent with prior research, which similarly demonstrates that waste education programs are effective in increasing participants' waste-related knowledge and pro-environmental practices (Subria et al., 2025; Conti et al.,2024). The focus group provided important insight into how this behavior change may be occurring; knowledge acquisition appeared to extend beyond factual understanding and instead reshaped participants' thought processes, awareness, and everyday decision-making.

In terms of program design, learning *why* sustainable waste management matters – particularly through the Short Mountain Landfill tour – seems to foster a sense of responsibility and motivation to act among participants, while learning *how* and *where* to engage in waste management seems to build participants' confidence and self-sufficiency to implement sustainable behaviors. Therefore, the Master Recycler Program's emphasis on both waste-related environmental education and locally relevant, action-oriented education supports participants' translation of awareness into action.

## Information-Sharing

### *1.) Participants Expand the Programs' Distributed Outreach Capacity*

The observed increases in participants' sharing of waste-related information suggest that graduates function as informal educators and trusted community resources who extend the program's educational reach beyond individuals who directly participated. The Master Recycler

Program's content appears to extend outward into workplaces, neighborhoods, volunteer settings, and everyday social interactions.

### *2.) Potential Impact of Master Recyclers' Information-Sharing and Displays of Sustainable Practices on Recipients*

Research in education, psychology, and behavioral science suggests that individuals who feel a strong sense of social responsibility and community connectedness are more likely to share newly acquired knowledge with others (Ergün & Avcı, 2017). When Master Recyclers discuss their engagement in pro-environmental behaviors, such as reducing, reusing, recycling, or composting, it signals to the recipient that these behaviors are socially normative and valued within the community. Consistent with the Theory of Planned Behavior (Ajzen, 1991), perceived social norms are associated with increased engagement in pro-environmental behaviors (Schultz, 1999; de Groot et al., 2021) by creating a sense of environmental social responsibility (Lee et al., 2020). Master Recyclers who share practical knowledge on how or where to engage in sustainable waste management may further support adoption of pro-environmental behaviors by reducing uncertainty while increasing self-sufficiency (Stern, 2000; Schultz, 2002; Bamberg et al., 2007).

In addition, research in behavioral science indicates that individuals learn behaviors through observation and social interaction (Whiten et al., 2016; De Felice et al., 1870). When Master Recyclers model pro-environmental behaviors, it may signal to the viewer that those behaviors are achievable, increasing others' confidence and perceived control to do it themselves. 'Role models' who visibly engage in sustainable practices encourage adoption of similar behaviors among viewers (Xu et al., 2021). This association is supported by focus group

findings, as participants reported that community members frequently approached them at volunteer and community events to ask how they could implement similar sustainable practices. These findings suggest that simply observing Master Recyclers, particularly in visible, community-based settings, can spark curiosity, normalize pro-environmental behaviors, and create an avenue for deeper civic and environmentally conscious practices (Zhang et al., 2020).

### *3.) Participants May Create a Ripple Effect Which is Important for Environmental Outcomes*

As Master Recyclers share waste-related information, it may spread through social networks, creating a web of environmentally conscious community members – a web that is strongly associated with pro-environmental behaviors (Gifford & Nilsson, 2014). As discussed in the Practice Implementation section, such behaviors are linked to positive environmental outcomes, climate change mitigation, and public health benefits. Moreover, participants' information-sharing may create a ripple effect: recipients of waste-related information may be more likely to adopt pro-environmental behaviors, share that information within their own networks, and further expand the reach of the program and environmentally conscious actions, thereby amplifying environmental benefits as engagement spreads. However, this evaluation did not assess the programs long-term downstream impacts or how participants' information-sharing behaviors impacted recipients' behaviors.

### *4.) Societal Constraints of Information-Sharing (Barriers to the Program's Outreach)*

Similar to participants' practice implementation, not every recipient of waste-related information will engage in pro-environmental behaviors. Extensive research documents complex factors influencing whether individuals adopt sustainable behaviors, such as social norms,

values, convenience, habits, and structural barriers (Blankenberg et al., 2018; Kollmuss et al., 2002; Abrahamse, 2019; Newhouse, 1990; van Riper et al., 2020; van Valkengoed et al., 2022). This was reflected in the focus group, as participants noted that some recipients are receptive while others are not, highlighting the social resistance that can limit the effectiveness of Master Recycler's educational outreach and the importance of broader cultural support for sustainable behaviors.

## Program Communication, Quality, and Learning Support

The results indicate that participants generally understood the objectives and goals of the Master Recycler Program. The predominance of neutral responses may reflect implicit understanding of program goals gained through experience rather than early program communication or a lack of clarity in program purpose, suggesting an opportunity to strengthen onboarding by making objectives more emphasized from the onset.

Further findings suggest that while the program's content and learning materials were well-designed and effective for most respondents, participants have a desire for refresher classes, regularly updated content that reflects current waste-related information, and knowledge reinforcement strategies, such as briefly reviewing key takeaways at the start of each lecture. Addressing these areas may improve participants' perceptions of program content and delivery and enhance long-term retention.

### *1.) Benefits of Early and Clear Communication of Program Objectives*

Research indicates that participants are more likely to accept program decisions and participate when program objectives are clearly shared and understood because it reduces

uncertainty-related barriers (Stern & Dietz, 2008). Additionally, understanding program objectives can increase motivation and meaningful engagement, as participants understand how their actions contribute to desired outcomes, which can foster a sense of responsibility (Locke & Latham, 2015; Locke & Latham, 2002).

### *2.) Downsides of a Lack of Understanding Regarding Program Objectives*

Conversely, when participants do not fully understand program objectives, they may act in ways that are inconsistent with the program's intent, potentially undermining the effectiveness of the program's theory of change (Taplin et al., 2013; Chen, 2005). However, despite participants reporting a neutral understanding of objectives, participants still reported engaging in program-intended behaviors, indicating that while early objective communication from the program was reportedly lacking, participants were still influenced by the program's content and activities. Strengthening onboarding by clearly communicating program objectives may further increase participants' motivation and engagement in program-intended outcomes.

### *3.) Clear Communication of Objectives and Program Scope May Enhance Learning and Behavior Alignment*

While all respondents indicated neutrality or agreement that the program objectives were clearly communicated at the start of the program, participants' suggestions should be taken into consideration. Some participants explicitly suggested clearer articulation of objectives, structured syllabi in alignment with Recycling 101 content, visible mission statements, and an indicator of the scope of program content, suggesting that enhancing clarity and sequencing could reinforce participants' understanding and therefore behavior alignment with program goals. Participants

also mentioned implementing program content into schools and increasing advertising, indicating that reaching a broader audience while clearly articulating the program's purpose could expand its reach and clarify its purpose to the public.

### *1.) The Programs' Content and Learning Materials are Supportive of Learning for Most*

Findings indicate that participants perceived the program's content and learning materials positively. The absence of 'low-quality' and 'not supportive' responses suggests that the program met an acceptable standard of relevance, clarity, engagement, and instructional support for all respondents. Most respondents indicated that the program's content was of 'high quality' and learning materials were 'highly supportive,' indicating that the program's content was relevant, well-organized, and helpful for participants' understanding of waste-related topics.

### *2.) Program Content and Learning Materials Could be Enhanced (Refresher Classes/Updates)*

Nonetheless, some participants indicated that program content was of 'adequate quality' and the learning materials were 'somewhat supportive,' suggesting room to improve clarity, relevance, and depth. Qualitative comments help contextualize these ratings, particularly those noting that waste-related information changes frequently and program content can therefore become outdated. Requests for yearly refreshers to update past participants about new guidelines, laws, or hauler information highlight the challenge of presenting current information and keeping graduates in the loop. This suggests that perceived content quality is not only dependent on the program's delivery, but also on its ability to adapt over time and engage graduates.

## Effective Program Elements

### *1.) Experiential Learning Supports Knowledge Acquisition and Behavior Change*

Findings from the survey and focus group suggest that participants perceived interactive, locally framed, and real-world learning experiences – such as the field trips – as particularly effective for engagement and learning. These experiences appeared to deepen participants' understanding of the concepts covered in class and through Recycling 101 by providing them with the opportunity to directly observe waste systems, infrastructure, and impacts within the community. The strong emotional responses to the Short Mountain Landfill tour suggest that visualization of waste generation can foster deeper cognitive engagement, which is predictive of engagement in sustainable behaviors. These results are consistent with research in educational psychology, which finds that field trips are particularly impactful on learning and retention of knowledge (Falk & Balling, 1982). Of particular note, field trips in environmental education are associated with an increase in participants' waste-related knowledge, attitudes, environmental consciousness, and behaviors. (Güler & Afacan, 2013; Storksdieck, 2011).

### *2.) Practitioner-Led Instruction Reinforces Learning and Application*

Guest speakers were also frequently mentioned as a particularly effective aspect of the program, highlighting the importance of individuals with firsthand expertise for participants. Respondents' appreciation for the diversity of perspectives, practical knowledge, and opportunities for real-time interaction suggests that guest speakers enhanced participants' learning, fostered a connection between program content and real-world application, and provided participants knowledge of local resources. These findings are consistent with prior research as guest speakers provide learners with opportunities to acquire real-world insights, ask questions easily, connect abstract concepts to industry practices, and increase cognitive

engagement (Emblen-Perry, 2023; Ma, 2025; Phan et al., 2024; Kirby & Turner, 2024). Participants' particular emphasis on interactive guest speakers suggests that hands-on and engaging presentations strengthen participants' understanding and interest.

### *3.) The Program's Environmental and Action-Oriented Education is Central for Participants' Knowledge Acquisition, Practice Implementation, and Information-Sharing*

Respondents indicated that newly acquired knowledge or information was the most meaningful aspect of the program, suggesting that the program's focus on education is effective for participants and the achievement of the program's intended outcomes. Responses highlighting that learning and visualizing the scale and environmental impacts of waste generation were life-changing and supported behavior change suggest that environmental education – or education emphasizing why managing waste sustainably is important – is critical for meeting the program's intended outcomes. Responses highlighting that education on local resources that support waste management – such as the guest speaker presentations – suggest that practical information is also effective in supporting behavior change, as it bridges the gap between awareness and action. Beyond personal behavior change, participants indicated that acquiring new knowledge also supported their community education efforts and provides important context for the observed increase in participants' information-sharing behaviors.

### *4.) The Program's Breadth of Content, Organization, and Online Curriculum is Valued*

Participants' comments about the program's content, structure, and delivery suggest that the program's organization and instructional materials are effective for some participants because it reduces cognitive barriers to learning. The appreciation for the broad scope of the

program's content, including not just recycling but also reducing, reusing, and composting, indicates that the program impacts participants' knowledge of several waste-related topics, helping participants build a toolkit of sustainable practices they can engage in. The favorability of the program's online component, noted by some participants, suggests that flexible and self-paced learning options support diverse learning needs and information retention.

### *5.) The Program Fosters Community Connectedness, which is Important for Well-Being*

Participants' emphasis on interpersonal connections and community engagement suggests that the program fosters opportunities for meaningful interactions with others and highlights the importance of social relationships for participants. Participants noted that the program facilitated a sense of belonging through interactions with the community and like-minded individuals, which reinforced personal motivation, learning, confidence, behavior implementation, and community-building, suggesting that the program's value was not solely dependent upon its content and activities, but its ability to foster social networks and a shared purpose.

Importantly, social connectedness is a strong predictor of positive mental health outcomes, such as reduced feelings of depression and loneliness (Wickramaratne et al., 2022). Social connectedness is also associated with positive long-term physical health outcomes, including reduced morbidity and mortality (Holt-Lunstad, 2022). Furthermore, a sense of community is associated with increased feelings of safety, life satisfaction, identity, and civic participation (Mahmoudi Farahani, 2016). However, this evaluation did not assess participants' health outcomes.

## Participants' Recommendations for Program Improvement

Participants' feedback for the Master Recycler Program highlights opportunities to enhance content delivery, graduate engagement, and the achievement of the program's intended outcomes. Notably, approximately 21% of respondents noted no suggestions for the program, and approximately 49% of participants did not respond to the question, suggesting that many participants perceived the program as well-designed and effective when they completed it. Moreover, findings indicate that while the Master Recycler Program is well-regarded, improvements related to content clarity and sequencing, instructional design, time-related accessibility, and graduate engagement opportunities could strengthen participants' experiences, reduce confusion and stress, improve knowledge retention and thus practice implementation, support program completion, and overall enhance the program's intended outcomes.

### *1.) Aligning Recycling 101 Content with In-Person Content and Emphasizing Foundational Waste Concepts Could Enhance Retention and Confidence*

The most prominent theme across survey responses was program content, which was also the most prominent theme in the most valuable aspects of the program question, suggesting that participants value the program's content, but it could benefit from enhanced clarity, organization, and relevance. Suggestions such as aligning lecture content with Recycling 101 content, emphasizing foundational waste concepts earlier, and progressively building toward advanced topics suggest that some participants may experience cognitive overload or confusion about core concepts. Focus group participants described feeling overwhelmed by the online curriculum due to its late introduction and poor alignment with weekly lectures. Collectively, these findings

indicate that clearer sequencing between online and in-person learning settings and emphasize of core concepts from the onset could improve comprehension, engagement, and retention.

### *2.) Assumptions that Participants have High Entry-Level Knowledge of Waste and Fast-Paced Lecturing is Harmful for Retention for Some*

Participants further indicated that the first lecture should orient participants to the basics of waste-related knowledge, rather than assume participants know much of the content, to reduce confusion, enhance retention, and ensure that all participants share a common understanding of terminology and processes. A couple focus group participants mentioned that the lecture content was often delivered too quickly for their understanding. Requests for content review and concise take-home materials of lecture information further support the interpretation that some participants likely experience cognitive overload and retention difficulties with lecture-based information. Knowledge acquisition is a key predictor of pro-environmental behavior; therefore, a lack of content reinforcement strategies and information overload that inhibits retention (Luzzati et al., 2022) may subsequently reduce participants' engagement in sustainable behaviors and impact the program's effectiveness.

Similarly, some participants noted difficulty retaining, integrating, and sharing the volume of information presented, further suggesting potential cognitive overload or insufficient reinforcement of concepts. Research in cognitive and educational psychology suggests that spaced repetition and content review support knowledge retention (Lindsey et al., 2014; Lindgren, 2012; Kelley & Whatson, 2013; Kang, 2016). Similarly, Adult Learning Theory emphasizes that pacing, repetition, and opportunities for application support retention of information (Merriam, 2018).

### *3.) The Program's Long Lecture Duration and Lack of Alternative Participation Options are Barriers for Participation and Retention for Some*

Suggestions specifically highlighting the lecture portion of the program provide similar insights. Requests for shorter class sessions, flexible scheduling, and hybrid participation options suggest that time commitment and accessibility may be barriers for program completion and knowledge retention for some participants. A focus group participant specifically mentioned that having a three-hour course "so late in the evening" caused them to retain less information due to tiredness. Attention theories and research in educational psychology support these findings. Human attention span typically lasts between 10 and 15 minutes at a time (Eze & Misava, 2017). Due to short attention spans, learners often experience boredom, mind-wandering, and cognitive overload. Accordingly, research indicates that information delivered in shorter, dispersed intervals is associated with higher knowledge retention and retrieval compared to longer lectures lasting three to four hours (Raman et al., 2010; Sheridan et al., 2017).

### *4.) Participants Value and Wish for More Experiential and Volunteer Opportunities, and Graduates have a Desire for Continued Engagement with the Program*

Feedback on field trips, volunteering opportunities, hands-on activities, and guest speakers, as well as requests for refresher courses and greater communication with graduates, reflects a desire for deeper engagement and continued connection with the program. Participants' requests for more field trips, hands-on activities, and volunteer opportunities suggest that participants value and wish for more interactive experiences which may improve participants' engagement, enhance learning, and thus strengthen the practical application of program content.

Similarly, suggestions for more time during field trips and recorded or virtual options for missed tours indicate that participants value these opportunities and wish for greater access to them.

Requests for past participant invitations to field trips and guest speaker presentations, more opportunities for community meet-ups, advance notice of volunteer opportunities, and a list of organizations where participants can volunteer suggest a desire for sustained engagement with the program and waste management practices beyond program completion. Participants' requests for refresher courses further indicate a desire to stay involved, and these sessions could help reinforce knowledge and engagement long past completion. The desire for broader program outreach and integration within schools implies that participants perceive the program as valuable, useful, and even necessary for others.

### *5.) Recycling 101 Could Better Support Participants' Learning and the Program Could Better Support Completion of the Activity*

Finally, focus group critiques of Recycling 101 provide important insight into how the online curriculum could better support participants' learning. Participants emphasized a need for clearer introduction and communication of this program requirement. Comments highlighted that the program's online component could enhance learning if it were aligned with weekly lectures, discussed consistently during lectures, included mechanisms such as due dates to support timely completion, and emphasized critical thinking and real-world application of concepts. Making these improvements is important to support information retention, behavior change, and thus program effectiveness.

**Overall Experiences / Thoughts of the Program**

Results of participants' overall experiences with the Master Recycler Program suggest that participants primarily viewed the program as valuable and impactful. The responses that included feedback were essentially the same types of feedback previously discussed.

***1.) Program Leadership is Functioning Well for Participants' Learning and Engagement***

Emphasis and praise of program staff and guest presenters highlight the importance of knowledgeable, passionate, and accessible leaders for participants' learning, motivation, and engagement. The appreciation for the program coordinator, Kelly Bell, provides contextual insights into the evaluation results and program effectiveness. A facilitator who guides discussions and encourages reflection increases collective knowledge (Hmelo-Silver & Barrows, 2008), which is important for behavior change. Furthermore, strong educator-participant relationships build trust, rapport, and confidence, which can lead to heightened motivation to learn and long-term engagement with topics (McKay & Macomber, 2021). Therefore, it is likely that the program coordinator of the Master Recycler Program influences outcomes. Considering that Kelly Bell became the program coordinator in late 2007 and approximately 81% of survey and focus group participants completed the program after 2007, Kelly likely had some influence on the results of this evaluation, particularly the observed self-reported increases in waste-related knowledge and practices.

***2.) Respondents Generally Perceive the Program Positively and Supportive of Belonging***

Responses describing positive experiences and overall satisfaction with the program further support the results that the program is meeting or exceeding participants' expectations.

Participants' reported feelings of pride in being a Master Recycler and in the program's community impact suggest that the program fosters a strong sense of identity and belonging, which, as mentioned, is important for physical and mental health as well as participation in volunteer events that reinforce pro-environmental behaviors and provide opportunities to spread the program's message.

### *3.) Respondents' Perceive the Program's Content as Highly Valuable for Others and is Personally Transformative in Participants' Lives*

Participants' desire to expand the program into schools and other counties again indicates perceived value and relevance of the program's content. Appreciation for opportunities to continue learning, participating, and staying informed again indicates participants' long-term desire for engagement in program concepts. Responses indicating that the program altered their life support the focus group finding that the program enhances cognitive engagement beyond program duration, which supports intended behavior change. Reported changes in worldview, increased community involvement, and employment-related outcomes suggest that the program is transformative in participants' lives, rather than a simple educational opportunity.

## Program Name Change

Results related to the *Master Recycler Program* name highlight the complexity of balancing equity, accuracy, and brand recognition. Participants' mixed responses to the name and changing it suggest that while the name is primarily effective for participants and community recognition, it may present barriers or unintended implications for some audiences. It is also

plausible that participants raised concerns about the program name because the focus group question explicitly invited reflection on its meaning and fit.

Concerns about the word *master* were raised by a small portion of participants but were acknowledged as valid by others once discussed. This suggests that the term, within its context, may not be inherently problematic but could produce negative connotations upon critical reflection. The word *master* was widely associated with learning, expertise, and credibility, suggesting that the term is generally a good indicator of program outcomes for participants. Furthermore, alignment with other well-known "master" programs seems to enhance the program's recognition, legitimacy, and participants' expectations. Nonetheless, a participant expressed discomfort with the term's implied level of expertise, suggesting that the name may contribute to feelings of not deserving the title or experiences of imposter syndrome due to the implied expectation of 'mastery' rather than ongoing learning.

The term *recycler* could potentially discourage enrollment of prospective participants who aren't interested in recycling itself due to unawareness of the program's broad scope of waste management; however, this concern was mentioned rarely, suggesting that it may not hinder program enrollment but could cause confusion.

The lack of consensus about an alternative program name indicates that while there are potential concerns, there is not a clearly preferred or 'better' replacement. Furthermore, participants' discussion about the potential costs, rebranding, and reintegration within the community highlights the difficulties of changing the program's name. These results suggest that a full program name change may not be needed at this time. Instead, clarifying program content/scope and emphasizing "mastery" as an ongoing process on the programs' websites, materials, and during program sessions could be beneficial for reducing confusion and concerns.

# Recommendations

This section presents recommendations to enhance the effectiveness, sustainability, and long-term impact of the Master Recycler Program. Recommendations are supported by relevant literature and are broken into two categories: participant-informed recommendations, which are recommendations directly provided by survey and focus group participants and expanded upon and operationalized by the evaluator, and evaluator-informed recommendations, which are developed by the evaluator based on inquiries from the program managers and patterns of participants' comments. Each recommendation contains a table summarizing the anticipated impact, costs, associated resources, and implementation timeframe.

## Participant-Informed Recommendations

### Adjustments to Program Content, Delivery, and Lecture Structure

Survey and focus group participants reported challenges with content understanding, connections between online and in-person content, and the lecture's three-hour duration. The following participant-informed adjustments to content delivery, organization, and structure aim to support understanding, engagement, and information retention among participants to enhance program outcomes.

#### *1.) Dedicate the First Class to Level Setting, Review Content, Summarize Key Takeaways*

Focus group participants reported confusion regarding unexplained acronyms and foundational recycling concepts, such as plastic types and their meanings, and that the program assumed they had a high-baseline knowledge of waste-related topics. Participants recommended dedicating the first lecture to "level-setting." Allocating the first hour of the first-class session to

establishing foundational concepts without assuming participants have high entry-level knowledge may reduce cognitive overload, increase confidence, and support stronger information retention. Content in the first portion of the first lecture could include:

- Definitions and commonly used acronyms;
- An overview of how waste is managed locally;
- What the waste management hierarchy is and its importance;
- What can and cannot be recycled, including different types of plastics;
- Environmental, economic, and social impacts of waste;
- A clear explanation of the program's objectives, expectations, and goals.

Additionally, focus group participants recommended beginning each lecture with a brief review of the previous lecture's content. Survey respondents further suggested weekly take-home summaries with key takeaways. These brief reviews and handouts could highlight key concepts and resources participants should understand or retain from each lecture. These reviews and summaries can support personal review, future reference, and information retention among participants.

| **Impact** | **Cost** | **Duration** | **Resources** |
|---|---|---|---|
| High | Low | Short-Term | Low |
| Improves learning outcomes and participant retention | Mainly planning and potential material creation | Can be implemented in the next cohort | Staff time for preparation |

Table 11: Implementation Considerations for Level Setting During the First Class, Starting Each Lecture by Reviewing the Previous Lecture's Content, and Providing Weekly Take-Home Summaries of Key Concepts.

### *2.) Integrate Recycling 101 Content with In-Person Lecture Content, Introduce the Requirement Sooner, and Provide a Canvas Walkthrough*

Survey and focus group participants expressed a desire for or directly recommended better alignment between online and in-person content. Structuring weekly lectures so the content covered corresponds with the content in the Recycling 101 Canvas modules could help participants build a connection between the two components, which could strengthen comprehension and retention. Implementing stronger alignment may require revisions to or reorganization of content by the Master Recycler Program. Providing opportunities for participants to discuss online content during class may further deepen connections between the two program components and ensure the online curriculum does not feel disconnected from the rest of the program (Garces et al., 2024).

Focus group participants recommended a brief Canvas walkthrough and clear communication of the expectations for completing the online curriculum. During the first class, the program could provide a screen-sharing demonstration of how to access the site, navigate modules, and complete quizzes, while clearly communicating – through the walkthrough and syllabus – expected deadlines for module and quiz completion. These adjustments could help participants stay on track, reduce feelings of being overwhelmed or rushing through content during the last weeks of the program, and address barriers to completing the online requirement.

| **Impact** | **Cost** | **Duration** | **Resources** |
|---|---|---|---|
| High | Low | Short to Medium Term | Low |
| Reduces confusion and can support completion of the online component | Primary staff time | Shor: Canvas walkthrough<br>Medium: content alignment | Staff time and coordination effort |

Table 12: Implementation Considerations for Recycling 101 Introduction and Alignment with Lectures.

### *3.) Reduce Lecture Duration and Adjust Program Length*

Survey and focus group participants reported that three-hour lectures negatively affected engagement and learning. Focus group participants explicitly recommended two-hour lectures and expanding the program's duration. Research in educational psychology suggests that shorter, more focused sessions improve engagement and retention. Therefore, the program could shorten lecture duration and extend overall duration. A recommended lecture length is approximately two hours, and the program could be extended from 9 to 12 weeks to accommodate this adjustment. To accommodate shorter lectures/program duration, the program should review content and ensure it contains only key components and that presentations remain focused and on track.

| Impact | Cost | Duration | Resources |
|---|---|---|---|
| Medium | Low-Medium | Medium-Term | Medium |
| Improves retention and engagement | Staff scheduling | Requires planning | Coordination among instructors and staff |

Table 13: Implementation Considerations for Reducing Lecture Duration.

## Increase Communication and Engagement with Graduates

Survey respondents reported a desire to stay engaged with the Master Recycler Program and to continue participating in waste management activities after program completion. The following participant-informed recommendations for more frequent communication and engagement with graduates aim to address participants' expressed interest in ongoing involvement and support sustained engagement.

### *1.) Develop Short, Graduate-Only "Mini" Refresher Sessions*

While the program allows participants to retake the program, survey respondents specifically recommended graduate-specific 'mini' refresher sessions. To address this interest, the program could offer one to two refresher sessions annually or every few years, each lasting about 60-120 minutes, and offered exclusively to program graduates. To assess demand, the program could distribute a brief survey or pilot a trial session and adjust the frequency of offerings accordingly. Holding these sessions virtually could reduce coordination and accessibility barriers, while in-person offerings may enhance participant engagement and connectedness. Implementing these sessions would require the development of a concise, separate curriculum. Content could focus on targeted topics, such as updates and changes to local waste-related policies and practices, and brief refreshers on key concepts covered in the program. These sessions could reinforce knowledge retention, sustain participant motivation, and support continued waste-related behaviors beyond program completion; however, they would require extensive staff time and coordination.

| **Impact** | **Cost** | **Duration** | **Resources** |
|---|---|---|---|
| Medium | Medium | Medium | High |
| Reinforces knowledge and maintains engagement | Primarily staff time | Offered based on demand – potential 1-2 times per year | Requires curriculum, scheduling, and delivery support |

Table 14: Implementation Considerations for Offering Graduate Refresher Sessions.

### *2.) Increase the Frequency of Communication with Graduates Regarding Local Changes and Engagement Opportunities*

A less resource-intensive option to meet participants' desire to stay engaged would be to increase the frequency of communication with program graduates. Participants indicated a desire

to receive updates when waste-related guidelines or rules change and more frequent and timely information about volunteer and engagement opportunities. More frequent communication could help graduates remain informed and sustain engagement in correct waste management behaviors. Sending more email updates or newsletters to graduates could support their ongoing commitment to waste reduction. Expanding communication in this way may enhance long-term program outcomes by supporting graduates' continued knowledge, awareness, and participation.

| Impact | Cost | Duration | Resources |
|---|---|---|---|
| High | Low | Short-Term | Low |
| Sustains engagement and awareness of opportunities | Email tools | Can be implemented immediately | Primarily staff time for email creation |

Table 15: Implementation Considerations for More Frequent Email Communication with Graduates.

## Evaluator-Informed Recommendations

### Expand Program Outreach, Increase Advertising, and Diversify Participants

The Master Recycler Program managers were curious about how to attract a more diverse population, including younger generations and underrepresented groups. Some survey respondents expressed the desire for broader program reach, suggesting integrating program content into K-12 education, increasing advertising, and strengthening social media presence. It is important to note that while targeted efforts may diversify program participants, underrepresented groups often experience structural (e.g., geography and technology), cultural (e.g., language availability), and socioeconomic (e.g., time, financial, and childcare) barriers to joining voluntary programs (Rokicki et al., 2024; Kepper et al., 2023). The following recommendations are intended to expand participant diversity and increase awareness of the Master Recycler Program.

### *1.) Engage Underrepresented Communities and Build Trust*

Research suggests that relying on flyers or social media is not the most effective way to reach or attract underrepresented groups. Rather, community-based rapport and trust-building are more effective strategies (Keyzer et al., 2005; Horowitz et al., 2009). As such, the Master Recycler Program could:

- Collaborate and maintain consistent interaction with local cultural centers, nonprofits, and advocacy groups;
- Identify and maintain a relationship with community leaders – or community connectors (Ibrahim & Sidani, 2014; Ellis & Muyita, 2025) – to determine barriers to participation and needs of community members;
- Recruit diverse staff and/or represent various identities within images on the program's website or materials, which may reduce feelings of misrepresentation and increase comfort and trust for prospective participants (Johnson et al., 2023).

| Impact | Cost | Duration | Resources |
|---|---|---|---|
| High | Medium to High | Long-Term | Medium |
| Addresses equity and inclusivity, can broaden participation, and improve community relationships | Staff time, outreach coordination, potential small materials budget, potential new hire | Requires sustained relationship-building | Relies on staff capacity and long-term partnerships |

Table 16: Implementation Considerations for Building Rapport and Trust with Diverse Community Members.

### *2.) Translate Materials and/or Offer a Multilingual Program Option*

Outreach materials and communication should be culturally tailored. The program could translate all material into commonly spoken local languages, particularly Spanish and Chinese (Lane County, n.d.). The program may consider hiring an as-needed culturally sensitive

professional translator for accuracy and community appropriateness. If the resources are available and the demand is present, the program could consider offering the Master Recycler Program in an alternative language, such as Spanish. This would require a bilingual facilitator, translation of program material, and adjustments to presenters and tours, or an interpreter for these activities.

| Impact | Cost | Duration | Resources |
|---|---|---|---|
| Medium to High | Medium to High | Medium | Medium to High |
| Improves accessibility for non-English speakers | Translation services and bilingual instructors if offering the program in another language | Planning and implementation needed before program launch | Needs staff coordination and translation expertise |

Table 17: Implementation Considerations for Translating Materials and/or Offering a Multilingual Program Option.

### *3.) Advertise to Younger Generations Through Stronger Social Media Presence and Reporting Program Benefits*

A stronger social media presence and reporting the benefits of the program could attract younger generations. If the resources are available, a social media coordinator, perhaps a college intern, could reduce the stress of online advertising. The program could attract young adults by creating accounts and consistently posting on platforms such as Instagram and TikTok (1 to 2 times a week). Furthermore, coordinating with the University of Oregon Office of Sustainability to display flyers or advertise the program on screens around campus could entice younger generations to join the program. Importantly, research indicates that younger individuals are more likely to join programs when doing so provides them with benefits, supports their goals, or fosters the development of skills (McGuire et al., 2016). Advertising the benefits of program completion, such as resume building, may be a useful strategy for attracting younger generations.

| Impact | Cost | Duration | Resources |
|---|---|---|---|
| High | Low to Medium | Short-term | Low |
| Increases long-term sustainability and recruits younger participants | Social media campaigns, possible student intern | Can begin immediately with existing social media platforms | Mostly staff or intern time for content creation |

Table 18: Implementation Considerations for Advertising to Younger Generations.

**Program Name Change Consideration**

Program managers and stakeholders should consider whether the Master Recycler Program name needs to change. Although focus group participants generally viewed the existing name positively and reported no negative experiences with it, some raised concerns about social justice implications, hierarchy, and the clarity of the program's content. Any decision to change the name should consider the challenges of rebranding, such as potential costs, time requirements, and risks of confusion and loss of recognition among community members and professional networks.

Nonetheless, a name change remains feasible and may offer an opportunity to more accurately reflect the program's broader focus on waste management, sustainability, and community leadership, while also addressing concerns about social justice, hierarchy, and power. Alternative names used by similar initiatives, including the ***Zero Waste Ambassador Program*** (City of Vancouver, n.d.; Walking Mountains Science Center, n.d.), ***Eco Leaders*** (National Wildlife Federation, n.d.), and ***Environmental Leadership Program*** (Environmental Leadership Program, n.d.) could serve as reference points for future considerations.

| Impact | Cost | Duration | Resources |
|---|---|---|---|
| Low | High | Long-Term | High |
| Minimal perceived benefits among participants | Rebranding, materials, merchandise updates | Requires planning and stakeholder buy-in | Staff and budget resources |

Table 19: Implementation Considerations for Changing the Program's Name.

Per this evaluation, a name change is not recommended but clarifying program content and scope and emphasizing "mastery" as an ongoing process on the programs' websites, materials, and during program sessions could be beneficial for reducing confusion and addressing concerns. Ultimately, the decision should be made by key stakeholders and program managers following critical evaluations and an assessment of available resources.

| Impact | Cost | Duration | Resources |
|---|---|---|---|
| Medium to High | Low | Short-Term | Low |
| Addresses participants' confusion about program content and goals | Updates to materials, website, and communications | Can be implemented immediately | Mainly staff time |

Table 20: Implementation Considerations for Clarifying the Program's Scope on Websites, Materials, and Sessions.

# Appendix 1: Summary of Articles

| Author(s) | Setting | Method | Results |
|---|---|---|---|
| **Fredrick, Oonyu, & Senton, 2018** | Kampala City, Uganda | Surveys, interviews, document review, observations | Divisions engaged in more waste education had higher rates of proper waste management (70%) and thus lower waste generation compared to divisions with less education. |
| **Subria, et. al., 2025** | Malaysia | Surveys, interviews, and focus groups | Educational programs on waste resulted in significant improvements in knowledge (45.2 → 75.6), attitudes (40.3 → 80.1), and practices (35.8 → 70.4). |
| **Nurhayati & Nurhayati, 2023** | RW 08 in Kecamatan Binong, Kota Bandung | Interviews and participant observation | Community-driven waste management education programs improve waste management practices and facilitates a mind shift within participants. Success of a program depends on community involvement, hands-on learning, behavior change campaigns, collaboration with local authorities, and incentives. |
| **Torres-Pereda, et. al., 2020** | Mexico | Questionnaires, focus groups, and waste quantification | Waste education interventions caused participants to reduce their use of multilayer packaging (−15.6 pp, $p < 0.05$ & −33.3 pp, $p < 0.05$) and frequent use of non-ecological materials (−17.6 pp, $p < 0.05$ & 27.6 pp, $p < 0.01$). Those with lower educational levels increased their ecological behavior at home (12.1 pp, $p < 0.05$). Waste generation dropped by 60.1%. |
| **Velasco, K. F. D.; Visco, E. S.; & Geges, D. B., 2024** | Santa Cruz, Laguna, Philippines | Interviews and surveys | The program produced social, environmental, economic, and political impacts that positively affected the lives of respondents, their families and their respective communities – increased environmental awareness, improved quality of life, increased community engagement, improved relationship and social ties. |
| **Khatibi, et. al., 2021** | N/A | Systemic literature review | Community knowledge and engagement are key to enact climate change adaptation policies. Refer to their references for studies |
| **Conti, et. al., 2024** | N/A | Systematic literature review with a meta-analysis | Educational interventions on waste increased the mean values of knowledge (PR = 2.14), had no significant effect on attitudes, and increased the mean value of the post-intervention practices (PR = 1.71) among healthcare workers. Refer to their references for more studies. |

# Appendix 2: Survey Questions

**Question #1**

When did you complete the Master Recycler Program?

☐ Before 2002 (24 or more years ago)

☐ 2002-2007 (23-18 years ago)

☐ 2008-2013 (17-12 years ago)

☐ 2014-2019 (11-6 years ago)

☐ 2020-2025 (5 years ago or less)

☐ I don't remember

**Question #2**

To complete the Master Recycler Program's requirements, did you take Oregon State University's online curriculum titled **Recycling 101**?

☐ Yes

☐ No

☐ Unsure

**Please respond using the following scale when necessary:**

*Agree:* You support or are satisfied with the statement.
*Neutral:* You neither agree nor disagree or have no strong opinion about the statement.
*Disagree:* You do not support or are dissatisfied with the statement.
*Unsure:* You do not clearly remember or do not have enough information to form an opinion about the statement.

**Question #3 & #4**

Please indicate your level of agreement with the following statements **BEFORE** you completed the Master Recycler Program.

| | **BEFORE Program** Disagree | **BEFORE Program** Neutral | **BEFORE Program** Agree | **BEFORE Program** Unsure |
|---|---|---|---|---|
| **I was aware of the negative environmental impact of improper waste disposal.** | ☐ | ☐ | ☐ | ☐ |

| | | | | |
|---|---|---|---|---|
| **I understood the hierarchy of waste management (reduce, reuse, recycle, compost, energy recovery, landfill).** | ☐ | ☐ | ☐ | ☐ |
| **I knew where to find reliable information on waste management in Lane County.** | ☐ | ☐ | ☐ | ☐ |
| **I was aware of community programs and events related to waste education in Lane County.** | ☐ | ☐ | ☐ | ☐ |
| **I knew how to reduce my personal consumption to minimize waste.** | ☐ | ☐ | ☐ | ☐ |
| **I knew how to repurpose items to extend their life.** | ☐ | ☐ | ☐ | ☐ |
| **I was aware of local reuse organizations and donation centers in Lane County.** | ☐ | ☐ | ☐ | ☐ |
| **I understood how to properly prepare recyclables (e.g., clean, dry, separate).** | ☐ | ☐ | ☐ | ☐ |
| **I was familiar with Lane County's waste disposal and recycling facilities.** | ☐ | ☐ | ☐ | ☐ |
| **I understood how composting works.** | ☐ | ☐ | ☐ | ☐ |

**Question #5**

Please indicate your frequency of engagement with the following statements **BEFORE** you completed the Master Recycler Program to the best of your ability.

| | **BEFORE Program** Never | **BEFORE Program** Less than Once a Month | **BEFORE Program** A Few Times a Month | **BEFORE Program** A Few Times a Week | **BEFORE Program** Almost Daily or Daily | **BEFORE Program** Unsure |
|---|---|---|---|---|---|---|
| **I reduced the amount of waste I produced (e.g., avoiding single-use items, buying less packaging).** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I reused items instead of throwing them away.** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I separated and recycled appropriate materials according to local guidelines.** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I composted food scraps or yard waste at home or through a community program.** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I participated in community waste-reduction activities (e.g., cleanups, educational events, workshops).** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Please respond using the following scale when necessary:**

*Agree:* You support or are satisfied with the statement.
*Neutral:* You neither agree nor disagree or have no strong opinion about the statement.
*Disagree:* You do not support or are dissatisfied with the statement.
*Unsure:* You do not clearly remember or do not have enough information to form an opinion about the statement.

**Question #6 & #7**

Please indicate your level of agreement with the following statements **AFTER** you completed the Master Recycler Program.

| | **AFTER Program** Disagree | **AFTER Program** Neutral | **AFTER Program** Agree | **AFTER Program** Unsure |
|---|---|---|---|---|
| **I am aware of the negative environmental impact of improper waste disposal.** | ☐ | ☐ | ☐ | ☐ |
| **I understand the hierarchy of waste management (reduce, reuse, recycle, compost, energy recovery, landfill).** | ☐ | ☐ | ☐ | ☐ |
| **I know where to find reliable information on waste management in Lane County.** | ☐ | ☐ | ☐ | ☐ |
| **I am aware of community programs and events related to waste education in Lane County.** | ☐ | ☐ | ☐ | ☐ |
| **I know how to reduce my personal consumption to minimize waste.** | ☐ | ☐ | ☐ | ☐ |
| **I know how to repurpose items to extend their life.** | ☐ | ☐ | ☐ | ☐ |
| **I am aware of local reuse organizations and donation centers in Lane County.** | ☐ | ☐ | ☐ | ☐ |
| **I understand how to properly prepare recyclables (e.g., clean, dry, separate).** | ☐ | ☐ | ☐ | ☐ |
| **I am familiar with Lane County's waste disposal and recycling facilities.** | ☐ | ☐ | ☐ | ☐ |
| **I understand how composting works.** | ☐ | ☐ | ☐ | ☐ |

**Question #8**

Please indicate your frequency of engagement with the following statements **AFTER** you completed the Master Recycler Program.

| | **AFTER Program** Never | **AFTER Program** Less than Once a Month | **AFTER Program** A Few Times a Month | **AFTER Program** A Few Times a Week | **AFTER Program** Almost Daily or Daily | **AFTER Program** Unsure |
|---|---|---|---|---|---|---|
| **I reduce the amount of waste I produce (e.g., avoiding single-use items, buying less packaging).** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I reuse items instead of throwing them away.** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I separate and recycle appropriate materials according to local guidelines.** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I compost food scraps or yard waste at home or through a community program.** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **I participate in community waste-reduction activities (e.g., cleanups, educational events, workshops).** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Question #9**

Please answer the following questions to the best of your ability.

| | Never | Less than Once a Month | A Few Times a Month | A Few Times a Week | Almost Daily or Daily | Unsure |
|---|---|---|---|---|---|---|
| **In the 3 years before the program, how often did you share waste-related information?** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **In the time shortly after you completed the program, how often did you share waste-related information with others?** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **In the past year, how often have you shared waste-related information with others?** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Question #10**

Who did you share waste-related information with? Check all that apply.

☐ Family

☐ Friends

☐ Coworkers

☐ Community Members (outside your immediate circle)

☐ Other (please specify)

☐ I did not share information with others

**Question #11**

What factors influenced your decision to participate in the Master Recycler Program? (check all that apply)

☐ Personal passion

☐ To learn more

☐ To reduce my environmental impact

☐ To teach or help others

☐ Someone recommended it

☐ Work

☐ I was curious

☐ Other (please specify)

**Please respond using the following scale when necessary:**

*Agree:* You support or are satisfied with the statement.
*Neutral:* You neither agree nor disagree or have no strong opinion about the statement.
*Disagree:* You do not support or are dissatisfied with the statement.
*Unsure:* You do not clearly remember or do not have enough information to form an opinion about the statement.

**Question #12**

Please indicate your level of agreement with the following statements.

| | **Disagree** | **Neutral** | **Agree** | **Unsure** |
|---|---|---|---|---|
| **I think the program objectives were clearly communicated at the start.** | ☐ | ☐ | ☐ | ☐ |
| **I understand what the program aims to achieve.** | ☐ | ☐ | ☐ | ☐ |

**Question #13**

In what ways, if any, could the communication of the program's objectives be improved?

**Question #14**

To what extent did the program meet your expectations?

- ☐ Did not meet my expectations
- ☐ Met my expectations
- ☐ Exceeded my expectations
- ☐ Other (please specify)

**Question #15**

How would you rate the overall quality of the program content?

- ☐ High quality – The content was well-organized, engaging, and highly relevant to the program goals.
- ☐ Adequate quality – The content was generally clear and relevant, but could be improved in some areas.
- ☐ Low quality – The content lacked clarity, relevance, or organization and did not meet expectations.
- ☐ Other (please specify)

**Question #16**

How would you rate the program's learning materials in supporting your understanding of the topics?

- ☐ Highly supportive – The materials were clear, relevant, and significantly enhanced my understanding of the topics.
- ☐ Somewhat supportive – The materials were helpful in parts but lacked clarity or depth in some areas.
- ☐ Not supportive – The materials were confusing, irrelevant, or did not help me understand the topics.
- ☐ Other (please specify)

**Question #17**

How likely are you to recommend the program to someone?

- ☐ Very likely – I would actively recommend this program to others.
- ☐ Somewhat likely – I might recommend it depending on the person or situation.
- ☐ Not likely – I would not recommend this program to others.
- ☐ Other (please specify)

**Question #18**

What aspect of the program did you find the most valuable or meaningful, and why?

**Question #19**

What changes, if any, would you suggest to improve the program?

**Question #20**

Is there anything else you would like to share about your experience with the Master Recycler Program?

# Appendix 3: Focus Group Questions

**Knowledge**

1. Before the program, what would you say was your general understanding of waste or waste management?
2. After completing the program, how is your understanding or knowledge of waste and waste management?
3. What part of the program do you think helped you learn the most and get that information and knowledge?
4. After completing the program, have you continued learning about waste, recycling, or sustainability in any way?

**Practices**

1. Before the program, what were the things you were already doing, if anything, to manage your waste in your daily life?
2. After the program, what are some specific changes or practices you've implemented in your daily life?
3. Was there any part of the program or a particular moment that really impacted you to start making those changes in your life?

**Information-Sharing**

1. Before the program, how often would you say you told others about some waste-related information or practice?
2. After the program, how often would you say you told others about some waste-related information or practice?
3. Who are you sharing this information with?
4. Do you think that the program affected the way you talked with others about waste?
5. Do you feel like there was anything that you could've been more supported or equipped with to share this information with other people?

**Program Name & Completion**

1. When you hear the name “master recycler” or “master recycler program” what comes to mind? Have you ever had any trouble with the name? Do you feel like it should change? If so, to what?
2. What do you think helped you stay engaged and complete the master recycler program?
3. Were there any constraints that maybe kept you from completing the program?

**Overall Experience with the Program**

1. Is there anything else you’d like to share about your experience with the program?

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