

The Compost Learning Laboratory: A Laboratory for Experiential Learning and Informal Teaching of Solid Waste Management to Adult Learners.

Joshua Campbell, Oklahoma State University
2500 NE 63rd Street, Oklahoma City, OK 73111
(405) 713-1125
joshua.campbell@okstate.edu

The Compost Learning Laboratory: A Laboratory for Experiential Learning and Informal Teaching of Solid Waste Management to Adult Learners.

Introduction/Need for Innovation

Food and landscape waste makes up the largest material in municipal waste streams in the United States (U.S.) and this has negative environmental, social, and economic impacts (Pai et al, 2019). The U.S. Environmental Protection Agency (US EPA) says that food waste is responsible for a significant portion of the methane emissions generated by landfills and it poses a threat to ground and surface water resources (US EPA, 2018). The reduction of compostable waste entering our waste stream has been ranked as one of the top solutions for reducing the impacts of climate change (Hawken, 2017). However, there is a general lack of knowledge among the public about waste prevention and diversion, especially at the home and community levels (Thyberg & Tonjes, 2016). Across the United States, local and state governments are identifying waste reduction opportunities and educational programs to engage communities in waste reduction (Levis et al, 2010). These opportunities sometimes include composting, which is utilized as a tool for extending the life span of landfills through the reduction of food scraps, yard trimmings, and other organic materials entering the waste stream (Tedrow, 2018). Cooperative Extension professionals can play a significant role in addressing community waste management problems by targeting composting education (May, 1994). Oklahoma State University (OSU) Extension, through its Master Composter program and partnership with the Oklahoma City Parks and Recreation Department, has addressed the need for community composting.

Rooted in Experiential Learning Theory (Kolb, 2014), the Master Composter program has been offered by Extension professionals in Oklahoma City since 2019 to engage adult learners in environmental education through hands-on experiences. During this time, more than 100 participants have completed the 6-week training course which provides 24 hours of classroom and hands-on instruction. In addition, the establishment of a Compost Learning Laboratory for compost education has served as an experiential learning site for adult learners to engage with different composting methods. This program has helped create awareness of composting and solid waste management issues and equipped participants with the first-hand experiences needed to have success with solid-waste management efforts in their community.

How It Works

Extension professionals partnered with the City of Oklahoma City to develop a composting site at the park for composting park waste, and to serve as an experiential learning laboratory for the Master Composter program, and others interested in learning to compost. The OSU Extension Compost Lab serves as a community education space for composting and small-scale waste management education. Will Rogers Gardens is uniquely positioned to serve as the location for this project. Will Rogers Gardens hosts more than 300,000 annual visitors to the park and in cooperation with OSU University Extension delivers dozens of educational programs for the community each year. The OSU Compost Lab project is a collaborative effort between OSU Extension and the City of Oklahoma City Parks and Recreation Department, modeling what is possible in other community spaces and spurring interest in community composting.

Results/Implications

Pre-test and post-test data has been collected from the program since its inception. While the researchers recognize the problems of reliability associated with pre/post evaluations

(Marsden & Torgerson, 2012), over 100 evaluations have been collected over the four-year period and appear to indicate a strong impact. The most notable, are the increased confidence expressed by participants in their ability to successfully compost and to teach others about composting and waste management. 98% of participants expressed greater confidence in their ability to compost at home and 92% expressed increased confidence in their confidence to share composting knowledge with others. One participant expressed, *“I was unsure about my knowledge of composting before, but this class has given me the confidence to compost at home and to share my knowledge with others.”*

Before the establishment of the Compost Learning Laboratory, most landscape waste from the park was put into the waste stream. This project has expanded the capacity for waste reduction and composting of plant clippings at Will Rogers Gardens and allowed for an outlet for a food bank nearby the park to recycle fresh produce waste that would otherwise be sent to the landfill. The partnership between OSU Extension and the City of Oklahoma City Parks and Recreation Department has also led to increased volunteerism with approximately 20 Master Composters serving at Will Rogers Gardens and contributing 40 volunteer hours each week. In addition, Will Rogers Gardens through its partnership with OSU Extension provides, composting, and related educational programs to hundreds of Oklahoma City area residents each year. This partnership has resulted in numerous composting educational events for the public reaching an estimated 500 participants annually. This project is an example of what can be accomplished through strong partnerships. Extension systems can partner with municipal governments and community agencies in ways that are mutually beneficial. The hope is that the success of this small project leads to larger-scale waste reduction efforts in Oklahoma City, which consistently ranks among the worst major cities for composting and recycling (Moses, 2005).

Future Plans/Advice to Others

Food and landscape waste is an emerging global issue that impacts all aspects of communities and the food system (McCoy, 2019). Reducing waste is an important sustainability strategy for many communities and community composting can be an effective tool for reducing waste and educating the public (Tedrow, 2018). Extension professionals looking to provide innovative environmental education opportunities for their clientele may consider community composting education projects such as the Master Composter Program and Compost Learning Laboratory as models for their own programming.

Cost/Resources Needed

This project was made possible because of the strong partnership between OSU Extension and the City of Oklahoma City Parks and Recreation Department. The City of Oklahoma City and OSU Extension allocated staff time for the project and the City of Oklahoma City Parks and Recreation Department made space available at Will Rogers Gardens for the project. \$26,803.96 was awarded to OSU Extension from the Oklahoma Department of Environmental Quality and was utilized to purchase small-scale composting and processing equipment, including a material pulverizer to process bulk material and a sifting machine to sift finished compost for utilization around park grounds.

References

- Hawken, P. (Ed.). (2017). *Drawdown: The most comprehensive plan ever proposed to reverse global warming*. Penguin.
- Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. FT press.
- Levis, J. W., Barlaz, M. A., Themelis, N. J., & Ulloa, P. (2010). Assessment of the state of food waste treatment in the United States and Canada. *Waste Management, 30*(8–9), 1486–1494.
- Marsden, E., & Torgerson, C. J. (2012). Single group, pre-and post-test research designs: Some methodological concerns. *Oxford Review of Education, 38*(5), 583-616.
<https://doi.org/10.1080/03054985.2012.731208>
- May, J. H. (1994). Agents Contribute to Statewide Program Designs in Yardwaste Management. *Journal of Extension, 32*(4), n4.
<https://archives.joe.org/joe/1994december/a4.php>
- McCoy, L. H. (2019). Extension's Role in the United States' Campaign to Reduce Food Waste. *The Journal of Extension, 57*(2), 26.
- Moses, Wendy. "Oklahoma City and Recycling." *The Oklahoman*, 17 July 2005.
- Pai, S., Ai, N., & Zheng, J. (2019). Decentralized community composting feasibility analysis for residential food waste: A Chicago case study. *Sustainable Cities and Society, 50*, 101683.
<https://doi.org/10.1016/j.scs.2019.101683>
- Tedrow, A. M. (2018). The Georgia Master Composter Program: Increasing small-scale waste reduction and education. *The Journal of Extension, 56*(4), 16.
- Thyberg, K. L., & Tonjes, D. J. (2016) Drivers of food waste and their implications for sustainable policy development. *Resources, Conservation, and Recycling, 106*, 110–123.
- US EPA (2018). Advancing sustainable materials management: 2015 Tables and Figures. Retrieved from U.S. EPA https://www.epa.gov/sites/production/files/2018-07/documents/smm_2015_tables_and_figures_07252018_fnl_508_0.pdf.