

# Study examines how better communication can boost recycling

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A University at Buffalo-led study examines how improved communication can support efforts to increase recycling in New York State and the rest of the United States.

The study, "Predicting recycling intention in New York state: The impact of cognitive and [social factors](#)," was published in March in the journal *Environmental Development*.

It comes after China's 2018 National Sword policy essentially shut down the flow of certain scrap material intended for recycling coming from the United States and other developed countries into China.

The restrictions were in part a result of recyclable material being contaminated with unacceptable levels of non-recyclable material. As a result, recycling markets and programs were disrupted across the U.S., especially in communities where much of the recyclable material was being exported to China.

To help remedy this situation, researchers want to better understand New York State residents' recycling knowledge and improve communication about recycling.

The study centers on the theory of planned behavior (TPB), which predicts a person's intention to act on three factors: the extent to which a behavior is seen as favorable; the perceived [social pressure](#) to perform that behavior; and the perceived difficulty of the behavior.

The study, which analyzes survey data collected from 1,010 residents from across New York State, found that:

- A concern for the environment, subjective knowledge (in this case, how much they think they know about recycling), and [social capital](#) (network and relationships that can be used to gain an advantage) are key factors in someone's likelihood to recycle.
- Subjective knowledge—rather than objective knowledge (how much an individual actually knows)—influences whether someone intends to recycle.

- Social capital affects recycling intention indirectly through attitude and subjective norms.

"We see that people with more pro-[environmental attitudes](#), those who believe that they know more about recycling, as well as individuals who are more connected in their communities tend to want to recycle better because they have a more favorable attitude toward recycling and view recycling as a socially desirable thing to do," says study co-author Janet Yang, Ph.D., professor in the UB Department of Communication.

She adds: "This work highlights the importance of establishing an environmentally friendly culture within local communities, and that environmental campaigns and education should be grounded on the community level."

The study was led by Zhuling Liu, a Ph.D. candidate in Yang's lab. Additional authors include Amy Bloomfield from New York State Department of Environmental Conservation; Susan Clark, Ph.D., assistant professor in the UB Department of Environment and Sustainability; and Michael Shelly, an environmental/ecological economist at the UB RENEW Institute.

"Our results indicate that social capital, which is people's sense of connection to their communities, can instill a positive attitude toward recycling, reinforce subjective norms and moral obligations, which in turn increase recycling intention," says Liu.

The New York State Department of Environmental Conservation will use the results from the study to enhance recycling education, encourage recycling, and make recycling requirements clearer for state residents. The study will also help inform statewide recycling education campaigns such as the Recycle Right NY campaign, which is administered by the New York State Center for Sustainable Materials Management.

Among the [demographic variables](#), the study found that younger, female, people from underrepresented groups, as well as those with lower formal education levels, were more likely to indicate a stronger intention to recycle better in the future.

To gauge the direct and indirect relationships among the variables, the authors conducted both regression analysis and mediation tests. Because the [survey data](#) came from a representative sample of New York State residents, the results could have broader generalizability to the entire New York state population and the nation, authors say.

"This study expands the theory of planned behavior by incorporating additional cognitive and contextual factors in studying recycling intention. The findings show that environmental concern, subjective knowledge, and social capital are important determinants of recycling intention," says the project's director Amit Goyal, SUNY Distinguished Professor and SUNY Empire Innovation Professor in the Department of Chemical and Biological Engineering at UB.

The study is part of a multidisciplinary project directed by Goyal and sponsored by New York's Environmental Protection Fund and the New York State Department of Environmental Conservation.

"Another part of this broader multidisciplinary project focuses on plastics recycling. This includes assessing the state of the plastics recycling market; contamination in recycling streams; evaluating sorting technologies; assessing potential costs and benefits to improving [recycling](#) infrastructure; and investigating different ways to reduce [plastic use](#) by finding more sustainable substitutes," says Goyal.

**More information:** Zhuling Liu et al, Predicting recycling intention in New York state: The impact of cognitive and social factors, *Environmental Development* (2022). [DOI:](#)

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