Strong metaphorical messages can help tackle toxic e-waste

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Consumers told that not recycling their batteries "risked polluting the equivalent of 140 Olympic swimming pools every year" were more likely to participate in an electronic waste recycling scheme, a new study

has found.

The paper from the University of Portsmouth explores how to improve our sustainable disposal of electronic waste (e-waste).

With Christmas around the corner and consumers buying the latest mobile phones, tablets, headphones and televisions, older electronic products become defunct and add to the alarming quantity of potentially toxic e-waste.

Experts at the University of Portsmouth carried out research to test what factors encourage consumers to safely dispose of e-waste, which will be useful for managers and policy-makers implementing disposal schemes.

Lead author of the study, Dr. Diletta Acuti, from the University's Faculty of Business and Law, said, "The world's electronic waste is an enormous problem which needs to be addressed urgently. E-waste often contains hazardous substances, such as mercury, lead or acid, which ends up in landfills without any treatment or special precautions, causing significant long-term damage to the environment and human health. Adequate treatment of this waste is therefore an environmental necessity."

In 2019, 205,000 tons of portable batteries were sold in Europe, but only half were collected for recycling. Dr. Acuti's research looks specifically at the disposal of batteries.

The researchers conducted a field experiment in Northern Italy, which analyzed how the proximity of bins and the language used to encourage recycling affected 100 people's efforts to dispose of their e-waste.

She said, "We're buying more and more technology causing mountains of e-waste and the problem is only going to get worse, but proper

disposal of this waste can only be achieved if consumers actively participate in recycling.

"Our research looks at what factors are effective to try and encourage people to recycle their e-waste, which we hope will be useful for implementing successful disposal schemes."

A number of bins were installed to collect old batteries and letters were sent to inform people about the new scheme.

Some of the letters included metaphorical language to see if this would encourage recycling efforts and other letters included numerical information. The researchers found that the metaphorical language had a more powerful influence on consumers' actions.

"Those who were told to consider the fact that a battery contains approximately one gram of mercury, an amount that can pollute a quantity of water equivalent to seven bathtubs and that we risk polluting the equivalent of 140 Olympic swimming pools every year, were more likely to recycle their batteries," explained Dr. Acuti.

"Metaphors elicit visual representation of an object—that is too large or too distant from the individual's lived reality, like large quantities of water—in the consumer's mind, which makes an abstract object more concrete and easier to understand.

"By strategically placing the bins and making the information about the disposal scheme easy to understand, we can actually change the behavior of consumers and use marketing for a better world."

The findings are published in the journal *Technological Forecasting and Social Change*.

More information: Diletta Acuti et al, How to enhance the sustainable disposal of harmful products, *Technological Forecasting and Social Change* (2022). DOI: 10.1016/j.techfore.2022.122151

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