

Using behavioral interventions to reduce plastics waste in an office environment

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Plastic pollution has become a major global conservation challenge (Sutherland et al., 2010). Approximately 380 million metric tonnes of plastic materials were produced every year, of which only a tiny portion was recycled or incinerated, with the rest sent to landfills or the ocean (Greyer et al., 2017). Plastic waste entering the marine environment can cause disastrous impacts on seabirds and marine animals via entanglement or ingestion of plastic debris (Andrey, 2011; Derraik, 2002; Gall & Thompson, 2015). To mitigate plastic pollution, Ocean Wise, a non-profit organization based in Vancouver, launched the Plastic Wise campaign in order to create an impactful change among the public.

To ascertain the impact of the Plastic Wise campaign on plastic waste reduction, Ocean Wise teamed up with academic researchers from UBC Psychology Department and industry professionals from KPMG Canada to conduct a randomized control trial in downtown Vancouver. In this study, we designed three behavioral interventions based on psychological insights and compared the impact of these interventions to a control group. There were thus four conditions in the study: (1) poster only where we designed an improved poster with simplified recycling signage to guide sorting behaviors, (2) poster with animals where we added images of marine animals trapped in plastic waste to the improved poster, (3) poster with pledge where we encouraged employees to sign a pledge to be plastic wise to protect ocean life in addition to the improved poster, and (4) control where we did not use any intervention. Eight floors in the office building were randomly assigned to one of the four conditions, with two floors per condition. To measure the effect of the interventions, research assistants visited each floor three times a week for eight weeks, where we measured the amount of plastic items in the bins during baseline (2 weeks), intervention (4 weeks), and post-intervention (2 weeks) periods.

We found that the three poster conditions showed an average 9% decline in plastic waste from the baseline period to the intervention period, compared to the control condition. In particular, the poster with animals condition showed the largest reduction (17.4%) in plastic waste. This effect was true for all types of bins (cans & bottles bin, recycling bin, organics bin, and garbage bin). During the post-intervention period where we removed the posters, we found a slight increase in plastic waste in the bins from the intervention period, but the percentage of plastic materials was still lower than that in the baseline period. These findings showed that the simplified recycling signage with animals had the largest impact on plastic waste reduction. One explanation is that the marine animals may have elicited an emotional response in the participants, leading to a greater effort to reduce plastic waste. In addition, the findings suggest that posters with animals should be displayed at all times to achieve a sustainable impact. The current study provides valuable recommendations to reduce plastic waste in an office environment.