

Ogilvy and Westminster City Council Behavioural Insights Trial

Ogilvy Consulting's Behavioural Science Practice are delighted to have been appointed the preferred supplier for Westminster City Council (WCC) to deliver a behavioural insights trial that will effectively re-design the council's on-street Big Black Bin (BBB) sites, as shown below:



Aims of the trial

Specifically, we will design interventions that will change the following behaviours:

- Reduce the **dumping of waste bags**
- Reduce the **dumping of bulky items**
- Improve attitudes and perceptions of waste collection and the streetscape

Methodology

We will conduct a three-month Randomised Control Trial (RCT) during August 2019 – December 2019.

We will design and test two new types of bins. These will be behaviourally informed, overcoming the behavioural barriers unearthed in our COM-B diagnosis, and using

ideation techniques such as MINDSPACE and EAST. Our optimised bin designs will each be tested at 4 BBB sites and will be referred to as 'treatment sites'. There will then be at least 4 other BBB sites to act as 'control sites' to check against.

That means in total there will be a minimum of **12 BBB sites to be measured**.

Our trial will consist of *median* and *worst* performing incident sites, for both our treatment and control groups.

This is for two reasons:

1. **Economic** - Dumping doesn't happen linearly across the region, with the worst performing sites causing a disproportionate effect. Therefore improving the biggest offenders will be the quickest and most cost effective way to record change.
2. **Social** – High waste sites will also enjoy a more immediate visual improvement by the local community, compared to sites that only have waste dumped once a week.

However, the very worst performing sites might be the product of entrenched behaviours which are hardest to change. Hence, for the trial purposes, it would be best to focus on sites with the most potential to change – which are underperforming sites, but not the very worst.

Both treatment and control sites will go through a 'before' period of measurement to establish a baseline of behaviour. The selected 'trial sites' will then embark on a trial period, while the remaining 'control' sites will be untouched. All sites will be measured using the same technique – at each bin collection (3 times per day at each BBB site) the collecting will record: Site location, time of day, number of dumped bags and the number of bulky items.

We have constructed a minimal viable test period for this trial. Working with very detailed historical data produced by WCC in 2014¹, we have defined a baseline of current waste behaviour around BBBs. From this, we have calculated the sample sizes and percentage change in behaviour necessary to enable us to achieve a detectable change in behaviour.

We have based the following baselines on:

Waste bags (general waste)

Baseline – Worst 20 performing sites = 1.76 bags per visit. Median sites = 0.94 bags. Average bags across all site visits = 0.79 bags per visit (SD 2.94).

2 or fewer bags per site (worst sites) = 76% incidence rate, (median sites) = 87%

¹ City Of Westminster 141114 BBB Review Report

Bulky items

Baseline - Worst 20 performing sites = 0.51 items per visit. Median sites = 0.21. Average across all site visits = 0.20 items per visit (SD 0.8).

1 or more bulky items (worst sites) = 14% incidence rate, (median sites) = 11%

Clean pick ups

Baseline – Worst 20 performing sites had <1% clean pick ups. Average across all site visits = 15.23%

Intervention that aims to:	Type of site	Baseline (2014 BBB Review)	Forecasted Treatment Performance (2019-2020)	% point improvement	Minimum sample size / trial length per condition required to enable Statistical Significance (@90% confidence level)
Reduce the dumping of waste bags	Bad sites	1.76 bags per visit	1.07 bags per visit	20%	898 visits per treatment = 75 days
		<2 bags .76	.91	20%	Minimum 115 visits per treatment = 10 days
	Median sites	0.94	0.75	20%	1399 visits per treatment = 117 days
		<2 bags, 87%	97%	10%	Minimum 464 visits per treatment = 8 days
Reduce the dumping of bulky items		0.51 items / per visit	0.41 items / per visit	20%	761 visits per treatment = 63 days
		1 or more bulky item 14%	11.1%	20%	1736 visits per treatment, = 115 days

Although these figures are estimations, they indicate that due to the bigger variance in the worst sites (compared to median sites), **it would be easiest to detect behaviour change in underperforming sites in the time available.**

Further, these figures suggest that although a 4-week trial may struggle to detect small changes in average dumping behaviour, it could be sufficient to detect changes in threshold behaviours (e.g. incidence of 2 or fewer bags, or clean vs non-clean sites).

Because we only have a limited number of sites (12 in total) we will account for the non-independence of the data by using mixed-effects regression models. These account for the unique characteristics of each bin site (e.g., some bin sites might just produce more bags than others for reasons not related to bin design).

Trial length

We have agreed that the maximum trial length would be 4 weeks in total (due to constraints on data collection). Due to the need to compare each bin site to a baseline, this would require a 2-week baseline data collection period, and then a 2-week post-treatment data collection period.

Design

Step 1: Select 12 medium/bad performing bin sites based on 2014 data and consultancy with Westminster Waste Collection team for the most up-to-date 2019 knowledge.

Step 2: Measure these bins for 14 days.

Step 3: Split bin sites into Control (4 sites) Condition 1 (4 sites) and Condition 2 (4 sites). Use the baseline data to stratify the sample to ensure there are a mix of performing bin sites in each sample.

Step 4: Introduce the nudges on bin sites for Condition 1 and 2. Continue measuring all sites for 14 days.

Step 5: Analyse data for the 12 bin sites across 28 days by comparing bin performance both before and after and between the Control and Condition sites.

Key Behavioural Drivers

We have compiled a key list of drivers and implications that will be the basis of some options to look at how to redesign the bins to improve behaviours.

Social norms and social status:

Our behaviour is heavily influenced by that of others, with common patterns signalling what is 'appropriate' (*Goldstein et al, 2016*). How might we overcome the negative, visual social norm that bags at the side of the bins reinforces they are ok

to be placed there? Can we amplify the transmission of good habits across the borough? Can we help bring neighbourhoods together to co-create ideas they are proud of? Can we also make being good with bin bags feel like a socially valuable behaviour? Would more aesthetically pleasing bins promote prosocial behaviours and good recycling habits?

Habit Formation and reward:

The Habit Formation Model (Duhigg, 2012) defines a simple neurological loop at the core of every habit that consists of three parts: a cue, a routine and a reward. What may be a novel area to investigate for this project are the 'rewards' that we give to residents who complete the right behaviour. Borrowing from the 'kerching!' of the case register, to a happy, audible 'thank you!', to the satisfying sound of the paper shredder, could we create memorable sounds or cues to 'reward' people for placing the right bags into the right bins?

Social Identity

People search for personal meaning, and assign more value to things that evoke their personal identity. A powerful insight we applied to optimise fly-tipping communications with DEFRA was a recent study (*Trudel et al, 2016*) that found when coffee cups had the customer's name written on the side, it doubled recycling rates (from 26% with no-name to 48% with a name on). Similarly, those with strong connections to their nationality, university or company are more likely to recycle a cup that has their national flag, university emblem or company logo on it. How might we increase perceived ownership of on street bins such as the neighbourhood or road name? Can we leverage this effect further?

Salience and Relativity:

The choices we make available will shape people's preferences because people make decision *relatively*. Can we optimize the colour, distribution and positioning? Can we disrupt bad behaviours by making the bins appear new and different? Can we discourage dumping bulky items by calling out that this is NOT the place for them?

Human Centered User Design:

Are there subtle, but powerful barriers at play that we need to address? What effect does smell, disgust and sound have on people's behaviour around bins? Initial observations on the current bin sites see that the handles and affordance cues may deter people from lifting the lids to place their bags. Can we tweak the existing design of bins to encourage good behaviours? Can handle colours, hinges and shapes be used that work with human design principles?

Costly signalling and discretionary effort:

Can we make a bold statement with bin design that signals the Council cares? Can we provide a touching feature that shows the importance of acting sustainably?

Timeline

Milestone	Time
Research	April-May 2019
Design the intervention	May- July 2019
Randomised control trial	August 2019 – December 2019
Evaluation of redesigned service (data collection)	December 2019
Final Evaluation Report	December 2019

Measurement

During the trial period, Ogilvy are available for consultation to answer questions. The 'on-the-ground' roll-out, maintenance and physical observation/measurement will be conducted by Westminster.

We will work with Westminster's Street Waste Action Team (SWAT) to ensure the monitoring process of the trial is clear and cost effective.

To attain changes in attitudes and perceptions, we will utilise current WCC templates. If possible we will also look to conduct bespoke research, with Ogilvy to supply participant questions and WCC to administer, collect and analyse.

Evaluation & Final Report

At the end of our trial stage, the Ogilvy team will take the data set and conduct statistical analysis in order to assess the extent and certainty of the experiment results. Techniques include the application of descriptive statistics and comparative statistical tests. This final stage is crucial to determine that the changes caused were a result of our interventions.

To conclude our evaluation phase we will present our findings with Westminster and LGA in a Final Report. We will explain our evaluation process, discuss the trial results and detail their impact. Finally, we will give recommendations for wider roll-out.

Contact details

Council officer:
 Claudia Hemsley
 CHemsley@westminster.gov.uk