THE
BEHAVIOURAL
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Applying behavioural insights to encourage recycling in Wales

An introductory note by the Behavioural Insights Team

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Introduction

The recycling target for Wales and for each local authority is to reach 70% by 2025. Currently, the recycling rate in Wales is 64%,[1] and the government is ambitiously aiming to reach 70% ahead of the target date, by 2020. Much of the waste that is currently not recycled is estimated to be avoidable. In particular, food waste recycling has yet to catch-up with dry recycling rates. Achieving the ambitious target of recycling 70% of all waste will rely on understanding and adequately addressing questions like why the proportion of avoidable waste is so high, why households engage with dry recycling but much less with food waste, and what keeps households from recycling consistently and continuously.

For some people, the issue may be a lack of motivation or a lack of knowledge about what can be recycled. Indeed, the focus of most conventional campaign efforts is to increase motivation (by raising awareness and concerns for the environment) and knowledge (by providing households with information). However, behavioural science shows that this is only part of the picture. Often knowledge and good intentions to recycle are not enough. For instance, small hassle factors (often referred to as 'friction cost' in the literature) can disproportionately keep us from engaging with tasks, as can procrastination, lack of willpower and forgetfulness This broadly observed phenomenon is referred to as the intention-action-gap: having a positive attitude towards recycling and an the intention to recycle does not always translate into actual recycling behaviour.

One particular challenge is that we tend to focus in on the present, with benefits we can reap immediately being amplified, and longer-term consequences discounted (known as present bias[2]). This often leads us to act against our own best interests or intentions. For instance the minor but immediate hassle of using the food waste caddy or rinsing out the yoghurt pot is often enough to disrupt our vague intentions to be better at recycling. Another particular challenge is that the environmental benefits of recycling can only be achieved collectively, and therefore often suffer a 'collective action problem': we are much less motivated to make the effort if we perceive that others are not, or if we doubt that it can make a worthwhile difference.

These two points highlight the importance of making recycling easy, and addressing the social factors at play - both emerging in the literature as important (discussed below). More broadly, behavioural insights can help to address these and other such challenges by applying a more realistic understanding of human behaviour to policy-making

Existing literature: Applying behavioural insights to recycling

The behavioural science literature on recycling can be classified as addressing three broad categories of behavioural barriers to recycling:

1. Structural/environmental barriers (e.g. limited access to recycling collection; not having space in one's kitchen for a food-waste caddy)
2. Informational barriers (e.g. lacking information about what can be recycled, or when it will be collected)
3. Motivational barriers (e.g. not believing recycling has a positive impact)

Some of the most significant gains in recycling behaviour result from reducing structural barriers, for example by increasing the range of materials targeted (making it easier to recycle more) or redesigning the characteristics of collection systems (such as introducing kerbside recycling, or limiting waste capacity for households).[3] [4] In addition, success has been had by leveraging social norms (ideally by providing feedback to help individuals reflect on their own behaviour compared to those norms).[5] [6]

However, approaches to reduce structural barriers, and thereby make recycling behaviour easier for people, tend to be relatively costly and do not allow for easy testing. For this reason, a lot of the academic research has focused on informational and motivational interventions, often taking self-reported outcomes such as attitudes and intentions as proxies for behaviour. This means that the current literature has two notable gaps:

1. Rigorous evaluation of interventions based on structural or environmental alterations; and
2. Large-scale field experiments that directly measure recycling behaviours at scale (without relying on attitude or intentions as a proxy).

Below, we present a case study of an area where BIT tried to contribute to filling this second gap (see Annex).

Solution ideas: How to encourage food waste recycling in Wales

Based on the existing literature and our broader behavioural science expertise, we present a number of high-level ideas to encourage food waste recycling. These are structured using our EAST framework, which directs policymakers seeking to encourage certain behaviours to make the behaviour *easy, attractive, social* and *timely*.[7]

Make it EASY

One of the most important elements of encouraging behaviour is to make it as easy as possible to engage with that behaviour. In light of this it is not surprising that, in the WRAP

segmentation work, the worst-performing segments report barriers clearly related to convenience (i.e. "Trip to communal bin is inconvenient" or "No kitchen space for [food waste] caddy").[8] The below solution ideas can help to address these barriers.

Idea #1: Increase range of materials collected and standardise programmes across Wales

Making recycling as easy as possible can help bridge the intention-action gap mentioned earlier by removing small hassle factors from the process. For instance, WRAP found that recycling rates were higher in councils where more materials could be placed into the recycling bin.[9] This removes the hassle of looking up and sorting more carefully what is recyclable, and reduces contamination (as fewer materials count as contaminants). Standardising this across local authorities would make it easier for those who move between authorities to understand their local recycling scheme. While this approach would require significant investment, we believe this is one of the most powerful interventions to improve recycling rates.

Idea #2: Create clear, easy, and pragmatic rules of thumb about what can and cannot be recycled

Improving comprehension of what can be recycled helps reduce the friction of recycling. Where the dry recycling containment capacity cannot be increased for instance, information about what can be recycled needs to be communicated in a very simple manner. Rather than carefully educating all individuals who might recycle about all the possible materials that can and cannot be recycled, however, a more pragmatic approach is to simplifying information into useful heuristics, or rules of thumb. Often rules of thumb can be effective at breaking down complex information and making it actionable. These rules should be developed with an eye on where the greatest possible wins can be made (i.e. what materials are currently not recycled frequently enough, and which ones are the most common contaminants) as well as where the risk of backfiring is limited (i.e. by avoiding complex information about what amount of grease does or does not constitute contamination).

Idea #3: Distribute food waste kitchen and kerbside caddies and information leaflets by default to every newly registered tenant

Making a behaviour truly easy often involves structural changes like changing defaults. For instance, after the printing default at Rutgers University was changed from 'single page' to 'double sided', number of paper sheets used for printing decreased by 47%, despite the choice still being available[10] The power of defaults has also been used to increase the uptake of green energy plans[11] or of pension schemes.[12] We have a tendency to stick with the status quo due to the hassle of proactively doing otherwise, as well as our risk-aversiveness and

dislike of the unknown.[13] While the default behaviour is less obvious for recycling, there are certain antecedents to recycling which can be defaulted, such as receiving a food waste bin and caddy automatically rather than proactively having to ask for one.

Make it ATTRACTIVE

To encourage people to take up a behaviour, it is important to provide the right incentives as well as to draw attention to right information. This could involve things like clarifying unexpected benefits to recycling. For example, people in the 'What's In It For Me' segment are likely to be more influenced by highlighting benefits to them and their community than highlighting the greater good.[14]

Idea #4: Make information more salient through rules of thumb, images and personalised guidance

Making recycling more attractive can be done by making information and educational material more salient and really easy to engage with, for example by using images and icons rather than just text. Making the information as individually relevant to the reader as possible increases the change that they engage with it, so giving households personalised feedback on how well they recycle and where they could improve could be effective at improving recycling behaviour. A great challenge for policymakers, however, is whether recycling behaviour can be observed, assessed, and fed back on at scale. The case study in Box 1 describes a BIT trial where this was done in the context of increasing set-out rates.

Idea #5: Enter all residents that recycle food waste into a lottery

Making recycling attractive can also be achieved by applying incentives (in a smart way). Lotteries are often cost-effective from a behavioural perspective, as people tend to overweigh the small chance of winning and rather focus on the size of the prize. A study conducted in Portsmouth found that a lottery (valued at roughly £25) compared to door-to-door information campaigns providing feedback, was more effective in increasing recycling rates.[15] BIT has used lotteries to increase voter registration in a London borough,[16] and they have also been applied successfully to increase tax compliance and help people sticking with diet programmes.

To apply this to recycling, residents that recycle food waste could be automatically entered into a lottery. Their chances of winning could be coupled with the frequency at which they recycle food waste, i.e. with each additional week food waste is recycled, their chances increase.

Idea # 6: Introduce a small charge per bag of landfill waste collected

Instead of encouraging behaviour through positive incentives, taxes and charges can sometimes be effective in discouraging wasteful behaviours. These may be more effective than a reward of the same amount because they leverage our tendency to attribute more value to something we need to give away than if we were to acquire it – in the literature this is referred to as loss aversion.[17]

Small charges, even if weak economic incentives, can be effective since they signal the 'correct' behaviour. For example the 5p plastic bag charge introduced in supermarkets in 2015 has reduced use by over 80%, with the most plausible explanation not being the economic cost, but the psychological message – the charge acts as a salient reminder to not use bags, and the default has switched from using bags to having to proactively ask for one. Similar effects could be applied to waste collection. For example a study in Switzerland found that charging residents a small amount per bag of rubbish led to a 40% reduction in unsorted waste.[18]

While taxes and small charges can be effective, fines have also backfired in different contexts. For example, there is a risk that paying fines will give more legitimacy to non-compliance (a fine becomes a price[19] people are willing to pay to not bother recycling). It is therefore paramount to test these approaches for their effect before rolling them out on a large scale.

Idea #7: Increasing procedural and operational transparency with leaflets/letters explaining what happens with recycled waste after it is picked up

With recycling, as with many other products and services, customers do not really know what happens once it is picked up, who processes the waste or who benefits from it. This is likely to undermine motivation to recycle and self-efficacy (the feeling that we can have an impact), particularly among the somewhat cynical 'What's In It for Me segment'.[20] Another strand of the literature argues that there can be reciprocal value to both consumers and producers in creating more transparency about operational and procedural steps in service delivery.[21] Perceptions of effort and time involved in production and service delivery have been found to evoke feelings of appreciation and gratitude[22] [23] and even enhance perception of output quality,[24] [25] which may otherwise be lost on consumers if there is lack of transparency.

Telling residents about the effort and time that goes into waste collection, sorting and recycling, as well as explaining what happens to (un)recycled waste and who benefits from it can:

1. Foster appreciation for collection services, and

2. Evoke a mental association between one's recycling efforts and how this effort plays a role in the wider societal mechanisms.

This can be powerful to make people feel their contribution has benefits and is an indispensable part of a long chain.

Idea #8: Frame food waste recycling as reducing contamination of regular waste

Instead of framing food waste recycling as an additional 'above and beyond' effort, it could be framed as 'required' so as to not contaminate regular waste. A large trial in Surrey found that stickers on refuse bins saying "No food waste please" increased food waste recycling by 20.74% in the weekly tonnage.[26] Being told not to put food waste into the regular bin was more effective than being told one ought to put it in another bin. This simple change in framing can be very powerful in shifting people's mindsets. It changes the perception from viewing food waste recycling as something for environmentalists and 'high-performing' recyclers to viewing it as a very basic effort to not contaminate regular waste. Framing effects have been found to be effective in different contexts. For instance, a study that asked people to choose between two medical treatment. Treatment A was described as having "a 33% chance of saving all 600 people, 66% possibility of saving no one" while treatment B was described as having "a 33% chance that no people will die, 66% probability that all 600 will die.". 72% of participants opted for treatment A that had a positive framing.[27]

Make it SOCIAL

Our social environments are often powerful determinants of our behaviour, as is also suggested by the fact that Segment 1 and Segment 6 are both motivated to recycle due to feeling pressured into it (and even, in the case of Segment 6, feeling a duty to do so).[28] Leveraging social cues cleverly can often help improve behaviour of those that perform below the norm.

Idea #9: Provide personalised feedback on performance in reference to the social norm, past consumption, pre-specified goals

Making a behaviour social essentially acknowledges that we are social creatures and that our behaviours are influenced by those around us, and in particular by those we can identify with. Telling households about the average energy consumption level in their neighbourhood encouraged those above or below that average to 'converge' with the norm behaviour, i.e. those above the average reduced their consumption, while those below the average increased it.[29] Another study in the US demonstrated that a social norms message in a hotel ("the majority of guest reuse their towels") significantly increased the reuse rate from 35% to

44%, performing better than conventional pro-environmental messages.[30] Other performance-based feedback with comparisons to one's own historical performance, or tracking performance against a personalised goals was also found to be effective in energy and water conservation.[31] These interventions could be applied to recycling rates, given that households could track their recycling performance on a regular basis via an app or through feedback from the local authority, for instance.

Idea #10: Evoke social stigma for non-conformity by introducing incentives for collective action

To aid with common collective action challenges in the sustainability space, local councils could introduce incentive structures that encourage collective action within streets or post-codes. For instance, they could set up competitions and challenge prizes for good recycling behaviour. If recycling performance is made really visible, such collective action incentives promote cooperation towards the common good by leveraging stigma for non-compliance and recognition for participation. Providing people information about how they are doing can encourage poor performers to improve their performers, but it can also lead to high performers doing more poorly as they find out they are actually ahead of the curve. Given regional variation in recycling rates, it might therefore be preferable to encourage collective action towards relative improvement (i.e. recycling 1% more than your area achieved before) than towards a common goals (i.e. your area should reach a 70% recycling rate).

Make it TIMELY

With behaviours such as recycling that require continuous engagement, it is generally beneficial to remind people of what they should do at the right time. The 'food missed capture' data suggests that there are specific moments across segments (namely finishing a meal, and cleaning out the fridge or pantry), at which people fail to recycle.[32] Timely prompts and reminders can be effective to reduce those of inattention.

Idea #11: Introduce timely prompts and reminders to recycle as SMS, email or radio alerts

Making it timely refers to getting the timing right at which interventions try to catch people's attention. Reminders have been found to work in a number of disciplines like reducing missed hospital appointments.[33] They operate on the assumption that we lead busy lives, make most day-to-day decisions on auto-pilot and that forgetfulness is common given that our cognitive load is typically stretched. While reminders are useful for most behavioural interventions, they are often indispensable when dealing with habitual behaviours that need continuous engagement (in contrast to a one-off purchasing decision of a less polluting vehicle, for instance). Technology provides easy and more feasible ways to set-up automatic

reminder systems for councils when food and dry recycling bins are to be put out for collection.

Other councils have tried door-to-door campaigns. Greater Manchester, for instance, achieved an increase in domestic recycling participation by 7.2%.[34] Portsmouth however, found that an informal door-to-door campaign decreased participation by 3.8%.[35] The effect of this type of intervention seems to be unclear, and is likely to work better for segments with a basic level of recycling motivation than for segments that do not at all engage with recycling.

Next steps when thinking about a behavioural project

For any future research, BIT typically recommends that interventions are tested rigorously (in the field, if possible) before rolled out on a larger scale. To set up a behavioural project in a way that makes rigorous evaluation possible, we would recommend a few initial considerations:

1. Focus interventions on specific targeted behaviours rather than broad goals (such as the 70% recycling rate).
2. Go beyond self-reported attitudes and/or intentions as an outcome measure, and rather opt for observable measures like the amount of food waste collected each week, number of (dry or food) recycling bins put out, recycling bags distributed each month, etc.
3. Combine segmentation with observable variables to make households identifiable in a way that allows us to target different segments with different interventions as well as to identify where the greatest gains can be made (i.e. which households are most likely to respond to informational interventions, and which ones need a stronger intervention such as incentives or defaults)
4. Develop an infrastructure for evaluation that allows for incremental improvements.

Annex A: Case study of BIT's recycling trial in the London Borough of Croydon

BIT worked with the London Borough of Croydon to test whether behavioural science could help improve household recycling rates.[36] To encourage Croydon residents who missed a recycling collection to put out their recycling more often, we sent residents one of two feedback letters informing them of their missed collection the week after it happened. Data on missed collections was already gathered by Veolia, on behalf of the Council, at a household level. The first letter contained social impact messaging which detailed information such as other ways that Croydon could spend the money it currently spends on landfill tax. The second letter clarified what could be recycled and when it was collected. These two interventions were chosen to test whether there would be differences between attempts to reduce motivational or informational barriers. We analysed whether people who received these letters improved their set-out rates compared to a no-letter control group. Both letters reduced the likelihood that people missed a collection the following month by about 6%. This is one of the largest randomised controlled trials run on recycling in the UK.

Endnotes

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