Recycling in real life

Ethnographic research with residents of purpose-built flats in London

Resource London

Contents

This is a Resource London project (RCY135-001) investigating the barriers to recycling in purpose-built flats in London. Resource London is a partnership between the London Waste and Recycling Board (LWARB) and WRAP.

This report was written in March-April 2018 by Revealing Reality, the research agency commissioned by Resource London to carry out the research. Fieldwork took place between January and March 2018.

Executive summary

Background

Recycling performance in purpose-built flats in London has been identified as a key target area in order to contribute to achieving London and national recycling targets. *Resource London* is working in partnership with a housing association in eight London Boroughs to design interventions to increase recycling. The purpose of this ethnographic research was to get below the surface of the barriers to recycling that are routinely reported by residents, to fully understand the possibilities for change from a resident-centred focus, and to inform the design of interventions to increase recycling.

Approach and methodology

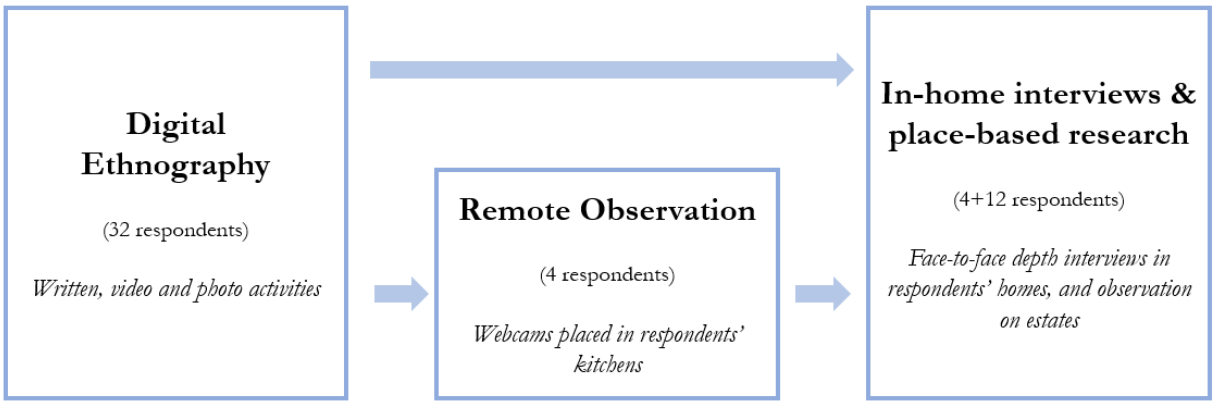
This was a qualitative, ethnographic research project. This approach is based on building a strong understanding of people's home environments, relationships and life priorities, and therefore placing what they say and do in the context of their wider lifestyle – making it more possible to uncover tensions, contradictions and insight into why they behave as they do. Qualitative research is not intended to be representative of the population – instead it is about gaining an understanding of the experience, process or sense-making of a group of people in an individual context, through drawing key themes and patterns out of the data.

The research consisted of three phases (see diagram). Respondents were not told the research was related to recycling until halfway through phase 3.

The first phase consisted of 32 respondents submitting written tasks, selfie videos and photos to the research team – giving the research team an insight into routines, household members and the physical set up of flats and estates. Four respondents then took part in the remote observation phase, which involved placing two webcams in respondents' kitchens for a duration of 1-2 weeks to observe their waste and recycling behaviours. Finally, 16 face-to-face interviews were completed, exploring people's attitudes toward their local area; relationships with different social groups; weekly routines; recycling practices and bin journeys, reflections on the communal bin area and knowledge of recycling.

The sample of 32 respondents, recruited via a free-find recruitment agency, covered a broad range of characteristics agreed with Resource London. Respondents lived in a range of household set-ups, lived within 7target inner-London boroughs, were a mix of private and social renters, had varying tenure lengths and represented a broad range of demographic characteristics including age, gender, employment status and ethnicity.

All respondent data has been anonymised and pseudonyms have been used throughout. Respondents gave informed consent for their data and images to be used.



Overarching themes

Findings from the research have been split into three key areas, with themes sitting under each, as set out below.

1. Rubbish routines

Environmental issues were on the mind of many respondents – but this didn't necessarily trickle down to practical recycling actions

- Many respondents saw recycling as a behaviour which has positive impact on the environment, but were often unable to articulate why
- Many respondents were not recycling at all, or were recycling inconsistently. People were sometimes carrying out other environmentally-friendly behaviours, which they sometimes used as justification for why they didn't recycle

Even committed recyclers show inconsistent recycling behaviour

- Some respondents were enthusiastic recyclers, and had strict routines about separating, rinsing and drying items
- Camera footage showed that even the most dedicated recyclers did not recycle all the time

Limited space leads to improvisations and innovative use of space

- Space within flats was limited and many people were using windowsills, tables and corners of rooms as overflow spaces for household items, including for food storage
- Most respondents did not have a designated recycling bin, instead using carrier bags or designated areas of their kitchens
- People commonly quoted lack of space as a reason for not having a recycling bin, although those who did find ways to recycle did not necessarily live in larger flats than those who didn't

Recycling left on display was not felt something to be proud of

- People were happier to leave certain waste items out on display than others e.g. glass bottles were seen to be cleaner and more decorative than items such as plastic trays which had food residue left on them). Recycling systems were often hidden away because they were seen as messy

The residual waste bin was seen as the 'normal' or 'default' bin

- When talking about waste, respondents used language such as "normal", "general" and "standard" to describe their residual waste
- There was also inconsistent language use on signage and communications around estates leaving residents confused, about how they should be referring to their waste and which type of waste should be placed where

Flat-dwellers saw the kitchen as the default space for recycling

- Residents were generally only associating recycling behaviour with their kitchen, and were not taking opportunities to gather recyclable items in other rooms
- Placement of bins in kitchens meant people did not have the visual prompt to recycle from other rooms
- When emptying their bins, respondents tended to amalgamate waste from other rooms with their residual waste

Respondents had differing limits of what was acceptable to touch

- People had differing disgust tolerance levels to certain food or packaging items
- Some respondents wanted to get rid of items as soon as their contents had been used, e.g. items which contained "gloopy" or "sticky" substances.
- By throwing these items in the residual bin, which often had a lid, they felt as if they had curtailed the possibility of the waste attracting flies or other pests
- Many had strategies for rinsing out packaging without touching it (e.g. washing up brushes, or holding it by the corner. And quickly rinsing)

Different tolerance levels to fullness of bins impacts frequency of taking the bins out

- Most respondents were only taking their bins out when they were full, or overfull, and it couldn't be ignored any more
- People in shared flats didn't generally feel individually responsible for emptying the bin

2. Place

People are choosing to transport recycling to the communal bin in carrier bags

- When recycling was stored loose in people's flats, they tended to use improvised or inconsistent receptacles, normally plastic bags, to transport their recycling
- Residents didn't want to return their improvised receptacle to their flat if they were leaving and so most were putting the whole plastic bag into the communal recycling bin

Proximity of the bin impacted whether people were willing to make return journeys (e.g. one-way vs two-way bin trips)

- A minority of residents made special trips to the communal recycling bins to take their waste out – mainly when the communal bins were close by and they didn't have to make any special preparations to go out
- The vast majority of residents saw special trips as a waste of time and energy

People wanted disposal of recycling to fit in with their efficient exit routes

- Respondents had preferred routes when leaving their estates, depending on their destination, which often involved back routes or cut-throughs.
- Respondents wanted to drop off their waste efficiently, with minimal interruption to their planned journey

People had no 'plan B' when their recycling plans were disrupted

- People expressed frustration that communal bins were often overflowing and there was no space for them to put their waste[1]
- They felt internal conflict about what was best to do in these situations, often resorting to using the incorrect bins or leaving rubbish on the ground

Communal bin areas were seen to be unsafe, dirty and not well looked after (on both private and social housing estates)

- Dark and uninviting communal bin areas made people feel uneasy
- Anti-social behaviour that they had observed on some estates deterred respondents from spending much time in communal areas
- People wanted to move away from the communal bin area as quickly as possible, and were therefore acting impulsively and not taking time to consider what they were doing with their waste

Frustration can weaken commitment to recycling

- Regularly feeling that their recycling efforts were wasted could significantly impact a respondent's motivation to carry on recycling
- Respondents were frustrated with collection teams who they felt did not empty the bins regularly enough and also at other residents who seemed to disregard the rules
- Many respondents' good intentions and habits dropped off

People don't feel accountable for what they put in communal bins

[1] Researchers independently observed that communal bins were often full or obstructed. This was also supported by findings from the social housing estate inventories conducted alongside this research.

- Limited activity around communal bins, coupled with the knowledge that large volumes of people used each bin, led people to feel anonymous and unaccountable
- Respondents didn't feel like their behaviour was monitored – this was exacerbated by the lack of feedback and repercussions they saw for contamination or fly-tipping

People don't see communal bins as something to look after

- There was little sense of individual responsibility to maintain the bin area.
- Respondents attributed upkeep of bins to their landlord, council or waste collection team
- They often blamed other residents for making the area unclean, whether they saw this directly or not

People didn't perceive themselves as having a role in the waste collection system

- The majority of respondents were unsure when or how their communal bins were emptied and were not using 'collection day' as a prompt to take their rubbish down
- They didn't see how their actions fitted in with the wider recycling system

Physical limitations make recycling more problematic

- People were often carrying multiple items with them when they left the estate which restricted their ability to carry waste too
- Some respondents complained of small openings on bins and felt forced to open up lids entirely, which could be a struggle

3. Communications and influencers

Some respondents had recycled more effectively in the past – or in different scenarios

- Many respondents reported having had periods where they had been encouraged by recycling 'role models' (e.g. previous flatmates, family or work colleagues)
- Many respondents had an effective recycling system at work and, sometimes, this behaviour was brought home

Most people did not have close relationships with their neighbours

- The majority of respondents were not invested in relationships with their neighbours
- There was sometimes tension between neighbouring households, due to noise complaints or conflict over communal spaces.

People did not generally perceive their neighbours to be good recyclers

- People did not talk to their neighbours about recycling and therefore had no idea what their waste management routines were
- Some people saw the indirect results of their neighbours' actions (e.g. the contents of communal bins) which made them sceptical about other people's recycling behaviour

Residents and their tenants' associations could be effective champions, however current efforts can be ineffective or even antagonistic

- Those who were engaged with their tenants' associations did not have the best of relationships with them, citing lack of proactivity and a fear of raising complaints
- Lack of responsiveness from landlords meant that residents were unlikely to listen to guidance from them

People don't regularly re-appraise their waste management strategies, although there are a few key moments where people are more reflective

- Long-term residents were less likely to reflect on their recycling behaviours
- Reflective moments included new kitchens being fitted, changes in estate cleaners and transferring between estates
- People were more open to new information or routines when they first moved in (e.g. when buying household products or exploring their estate)

In shared flats, there is a tension between undermining each other's recycling and learning from each other

- Some respondents were having conversations with their flatmates about the distribution of

chores or introducing more formal cleaning rotas (although these often fell by the wayside)
- These household systems occasionally caused tension between household members – sometimes flatmates were deliberately undermining each other's recycling efforts

Most people found information about recycling complex, hard to digest and difficult to remember

- Few respondents could recall receiving information about recycling and were unlikely to go through information if it looked complex or overwhelming
- Information from different channels was perceived to be contradictory (e.g. between bins, bags and leaflets)
- Although people were generally aware that recycling instructions on packaging existed, few people were consistently checking if they were unsure

Most people are still guessing or relying on common sense to know what is recyclable

- People feel like they 'just know' what is recyclable but are unable to explain where this knowledge comes from
- 'Rules of thumb' included stories they had heard and heuristics for categorising waste based on physical characteristics of different items (e.g. thickness and weight)
- People rarely investigate when they are unsure

People often assume it's about how much you recycle, rather than how well

- People often adopted an "if in doubt, recycle" policy, meaning they were often contaminating bins
- 'Contamination' was not a phrase they had heard of before, and people didn't see themselves as being 'contaminators'

There are many rumours about what happens to recycling (or not) which can undermine individual motivation

- No respondents could confidently articulate what happened to their recycling once it was collected from their estate
- Many residents had great faith in recycling being "sorted out further down the line" which meant they were far less stringent in their recycling behaviours
- Rumours such as collection teams 'mixing up the recycling anyway' had never been disputed, and were therefore continually lingering in people's minds

Conclusion & opportunities

There are many reasons why people do not recycle effectively.

Many of the respondents wanted to recycle but either had incorrect or insufficient knowledge about how to do so correctly and / or were undermined because it was not sufficiently easy.

What these findings suggest is that in order for people in purpose-built flats to recycle, three conditions must be satisfied:

1. They must be motivated to do so
2. They must have the correct knowledge to do so
3. It must be sufficiently easy for them to do so

These conditions are interdependent. If any one or more of them is not met, it will undermine the other two.

Tackling all three of them as a system represents a huge opportunity to improve recycling, with stakeholders potentially able to take responsibility for the conditions over which they have greatest influence.

Within each of these areas, there are numerous opportunities for interventions that will help strengthen an individual's motivation, knowledge or the ease with which they can recycle. These are set out in the conclusions section at the end of this report.

Background to the research

Context and objectives

Recycling performance in purpose-built flats in London has been identified as a key target area in order to contribute to achieving London and national recycling targets. Despite a large amount of research on recycling behaviour, there is limited research specifically focusing on residents who live in purpose-built flats with communal recycling bin facilities. Resource London is working in partnership with a housing association in eight London Boroughs (Camden, Hackney, Hammersmith and Fulham, Islington, Kensington and Chelsea, Lambeth, Tower Hamlets and Westminster) to design interventions to increase recycling.

In 2015, WRAP conducted their Dense Urban recycling research and Resource London their exploratory ethnographic research in London with 18-34 year olds. The current research builds on these findings and expands the evidence base on recycling in both social and privately rented flats.

This research is a resident-centred, highly in-depth exploration of the opportunities to improve recycling in purpose-built flats. The purpose was to get below the surface of the barriers to recycling that are routinely reported by residents (for example, in WRAP's 2015 Dense Urban research[2]), to fully understand the possibilities for change from a resident-centred focus, and to inform the design of interventions to increase recycling.

Specific objectives included:

- Understanding how waste management routines fit into everyday life and family dynamics
- Understanding how people interact with the public and private spaces they inhabit
- Understanding social norms and how these impact waste management
- Understanding the justifications people make for low engagement in recycling
- Understanding people's relationship with communications around waste

Approach

Ethnography is a form of qualitative research. A prominent characteristic of the ethnographic approach is that context is key to understanding people's behaviour. By building a strong understanding of people's home environments, relationships and life priorities, what they say and do can be placed in the context of their wider lifestyle – making it more possible to uncover tensions, contradictions and insight into why they behave as they do.

To gather this rich data, respondents are engaged for several hours split over different occasions – unlike surveys or focus groups where the interaction is relatively short.

Qualitative research is not intended to be representative of the population in the same way that a well-designed survey might be – instead it is about gaining an understanding of the experience, process or sense-making of a group of people in an individual context, through drawing key themes and patterns out of the data.

[2] WRAP (2015) RCY104-003 Barriers to recycling for residents in flats and terraced properties in dense urban areas. Literature Review.

Methodology

The research consisted of three phases (see diagram below)[3]:

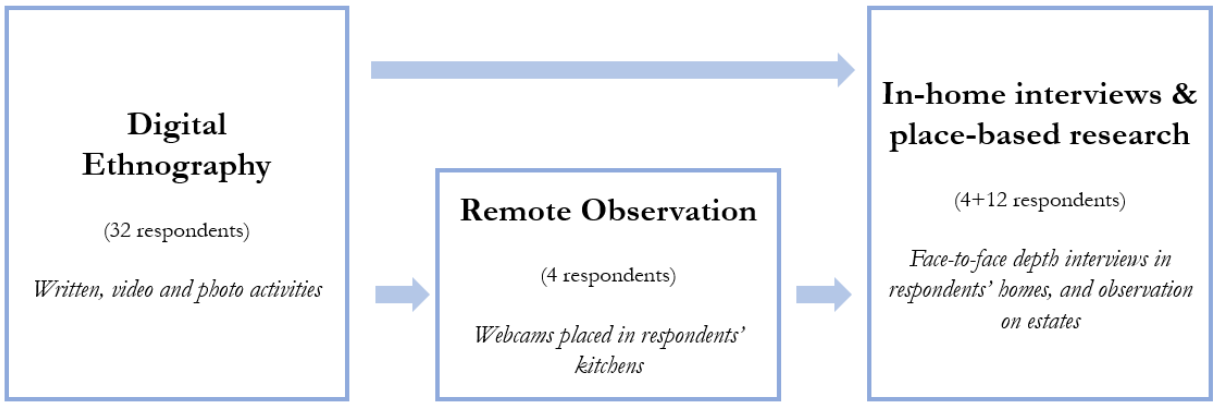
- Digital Ethnography
- Remote observation
- In-home interviews and place-based research

Respondents were not told the research was related to recycling until halfway through the in-home interview, or, for those who completed only the digital ethnography phase, until they had completed their final task. The research was introduced to participants as being about household chores.

The first phase consisted of 32 respondents submitting written tasks, selfie videos and photos to the research team – these activities involved respondents introducing themselves and their household, giving a tour around their flat, giving a tour around their estate, reflecting on their household chores and how they fit in with their daily lives. This phase allowed the research team to understand the physical context in which people live, people's attitudes towards their estate, people's routines and see how prominent or spontaneous waste-related issues were.

From this 32, 16 were chosen to continue to the following stages. Of these 16, four took part in the remote observation phase, which involved placing two webcams in respondents' kitchens for a duration of 1-2 weeks. Respondents were observed going about their daily activities, and incidents related to waste-management and recycling were monitored. This phase allowed the research team to understand respondents' routines and recycling behaviours in reality, going beyond respondents' self-reported behaviour and uncovering contradictions and inconsistencies with their testimony.

Finally, 16 interviews were completed – each lasted for between two and two-and-a-half hours and took place in the respondents' home where researchers could observe bin set-ups directly. Topics covered included: attitudes toward their local area; relationships with neighbours, landlords and other members of the household; weekly routines; recycling practices, taking the bins out, reflections on the communal bin area, knowledge of recycling, justifications for (not) recycling and perceived effectiveness of recycling.



Analysis

Throughout all phases, factors which pushed respondents towards or pulled respondents away from recycling were identified. The analysis centred on the triangulation of data between the different fieldwork stages, uncovering contradictions, confirmations and tensions.

From phase 1, submissions from respondents were reviewed and tagged according to content, and key themes were drawn out, and used to inform the questions and probes used throughout the depth interviews. When analysing the remote observation footage, researchers identified moments relating to recycling/non-recycling and coded the behaviours around these time periods according to a coding framework.

After the in-depth interviews, individual stories were discussed as a group; and themes, and similarities and differences between respondents were identified. Data from interviews was also triangulated with observations made by researchers about the estates, and data from the remote observation footage.

At the end of all fieldwork stages, the themes were expanded in conversations and workshops with the Resource London team and consolidated into final theme areas as outlined in this report

Sample

The sample covered a broad range of respondents, recruited via a free-find recruitment agency. Sample quotas were agreed with Resource London. All respondents live in purpose built flats. Key characteristics include:

- Borough: Camden, Lambeth, Hammersmith and Fulham, Hackney, Islington, Tower Hamlets and Westminster
- Type of housing: half private and half social housing
    - Private: mainly rental, some owned
    - Social: mainly Peabody housing association, with some local authority
- A range of household set-ups, including those living alone, living with friends, living with partners, living with children and living in multi-generational households
- A range of tenure lengths from under 4 months to over 20 years
- Size of estate: from 40 units to 100+
- Age: from 18 to 75 years old
- A range of employment statuses

Some specific characteristics can be found in the table below.

All respondents gave informed consent to take part in the research and for their data (including photos) to be used. All respondents have been anonymised, with pseudonyms used throughout the report.

Sample characteristic	**No. of respondents (n=32)**
Housing Type	
Private rental	14
Private owned	2
Peabody housing association	10
Local authority housing	6
Household set-up	
Living alone	6
Living with partner	7
Living with children	6
Living with friends	11
Multigenerational	2
Tenure length	
Under 4 months	1
5 months – 2 years	8
2 – 8 years	13
9+ years	10

A full breakdown of the sample is provided in the detailed methodology paper.

Overview of findings

Findings from the research have been split into three key areas:

- **Rubbish routines:** findings related to attitudes towards recycling, daily routines, internal flat space and layout, and storage and display of items for disposal or recycling.
- **Place:** findings related to transportation of waste from flats to the communal area, routes around estates, perceptions of communal bins, perceptions of other people's use of communal bins, and sense of responsibility and accountability
- **Communications and influencers:** findings related to relationships with different social groups, social norms around recycling, awareness and effectiveness of communications, and knowledge and assumptions about recycling

Themes within each area, along with respondent examples, are set out in the following sections. These themes generally related to both private and social housing residents – exceptions are highlighted where they exist. These differences were mainly around length of tenure and household composition (i.e. fewer flat shares in social housing flats).

Alongside these overarching themes, three other documents were developed:

- Push and Pull Factors – factors which 'pushed' people towards recycling and 'pulled' people away from recycling were documented throughout the research
- Opportunity Platforms – the challenges identified throughout the research were collated into opportunity areas, with starting questions to stimulate ideas as to how the challenge might be addressed
- Case Studies – including a summary profile of all 32 respondents and more detailed profiles of six respondents

These documents are available as separate appendices.

1. Rubbish routines

Environmental issues were on the mind of many respondents – but this didn't necessarily trickle down to practical recycling actions

The majority of respondents were concerned about environmental issues. When asked about what they would want to change about the world, many cited climate change and protecting wildlife as some of their key priorities.

Respondents frequently spontaneously spoke about waste management when they were asked to reflect on their household chores. This was often in relation to dislike of cleaning or emptying the bin or, in shared flats, frustrations with other household members over their waste management behaviours.

Many respondents saw recycling as a behaviour which has positive impact on the environment, but were often unable to articulate why. Some reasons included the protection of wildlife and the maintenance of a healthy food chain. Despite seeing recycling as a good thing, and being motivated in theory, this did not necessarily translate into actual recycling behaviour. Many respondents were not recycling at all, or were recycling inconsistently. People were sometimes carrying out other environmentally-friendly behaviours, such as cutting up rings that hold beer cans together so they wouldn't harm wildlife, not using aerosols or not littering. People sometimes used these other behaviours as justifications for why they didn't carry out recycling behaviour.

Even committed recyclers show inconsistent recycling behaviour

Some respondents, or their household members, were enthusiastic recyclers, and had strict routines about separating, rinsing and drying items before putting them into recycling bins. These tended to be people who had rigid daily routines which rarely changed, and so their recycling routine fitted well into their day, or people with very strong environmental drivers who often instigated recycling systems and attempted to influence their other household members. However, despite two of the respondents who participated in the remote observation saying that they recycle, camera footage showed this not to be the case all the time, indicating that people may overclaim about their recycling behaviour.

Edmund[4] *claimed that he feels strongly about protecting the environment, and does not use aerosols for this reason. He also said that he recycles, but there was little evidence of this from the observational footage.*

Limited space leads to improvisations and innovative use of space

Most respondents were living in flats with small kitchens, and restricted storage and surface space. People were having to be innovative with how they stored their possessions or food items. Many were storing food or kitchen equipment in other rooms of the house (e.g. in hallway cupboards), or alternatively, using their kitchen as space to put other furniture, like chests of drawers. People made use of any extra surface space they could, with windowsills, tables, and corners of rooms all acting as overflow areas. One

[4] Pseudonyms have been used for all respondents throughout this report and appendices

respondent, for example, was not a regular cook, and made use of her oven space as extra storage for household items, like her iron.

This squeeze on space sometimes presented challenges even for placement of residual waste bins. Some respondents had positioned their residual waste bins in front of kitchen cupboards (which prevented cupboard doors from opening freely) or "floating" in centre of rooms. Tim, for example, used a carrier bag hung over a door handle for his residual waste.

People who did not recycle commonly quoted lack of space as a reason for not having a recycling bin. Most respondents who recycled did not have a designated recycling bin, but had instead used other strategies to collect recyclable items in their flats, such as using carrier bags hung over door handles or designating specific areas of the kitchen for recycling – for example, Kourtney and her flatmates have a small 'recycling shelf' where they stack items. People who had arrangements such as these did not necessarily have any more space in their flats than those who did not attempt to recycle, implying that the 'lack of space' barrier could be overcome if people were motivated to do so.

Whilst most people used more heavy-duty plastic bags, such as a 'bag for life', this arrangement was sometimes semi-permanent, depending on whether the bag had been hung over the handle that week.

General plastic bags seemed to be more commonly used than council-provided single-use bags. Sometimes council-provided bags were used to line receptacles or otherwise were used to put loose recycling into when transporting recycling to the communal bins.

Very few respondents were recycling food waste, and were instead putting this in their residual bin. A few respondents justified this by saying that they never had food left on their plates after a meal, but did not mention food peeling etc.

Those who were recycling food tended to be enthusiastic recyclers, and have a caddy provided by the council. These respondents also used compostable bags. Camilla, for example, had received a food caddy when she moved in and has never had to ask for more bags because they had so many delivered in the first place.

These bags did pose some issues, predominantly in terms of leaking. Aaron was double-bagging his food waste to stop it leaking, and complained when his neighbours left their food waste out in the hallway where it leaked and stained the floor.

Recycling left on display was not felt something to be proud of

The way recyclable items were collected together and stored in flats posed a challenge. Due to the lack of a recycling bin, many items were left out on the side, although this often was a source of annoyance for household members. It was not seen as the social norm to have recycling on display. People were more reluctant to have some types of waste items out on display than others. Glass bottles and jars, for example, were an item that people often felt comfortable leaving out on a windowsill, or in the corner of a room.

This seemed to stem from, firstly, people's unwillingness to put heavy glass bottles into the residual waste ("it just feels wrong" [Rohan]), secondly the perception that glass bottles were "cleaner" than other types of waste, because they had generally only contained liquids, and thirdly, that they were almost seen as a decorative item. This was especially the case with beer or wine bottles, which often had attractive labels and held a certain status or association with their lifestyles. Some people also talked about liking certain jars, because of their shape and size – and some of these were often rinsed out and reused to store other food items.

Other types of items were seen as less acceptable to have out on display in kitchens. Plastic trays were always seen to have the residue of their contents left on them and were seen as "dirty" or "sticky". Respondents frequently didn't want to spend the time rinsing these out as food was often "caked on" them and they felt it would take a lot of effort to clean. As these items were seen as dirty, people were reluctant to leave them on display in the same way they would leave their glass bottle on the side, and wanted to have them out of sight as quickly as possible – hence putting them in the residual waste bin.

Even when respondents did have a carrier bag to contain their recycling, they still did not necessarily want to leave this on display. Katherine would hide her recycling bag away in the cupboard whenever she had

people coming around, showing that she felt her recycling system was not something to be proud of and instead was something that should be hidden from view. This was true for other respondents who did not recycle – Ian, for example, had spent a lot of time decorating his flat, was very house-proud and did not want his kitchen to look "messy" with recycling. This was his main justification for not recycling.

Hiding recycling away prompted another challenge in that the recycling receptacle was not acting as a behavioural cue to nudge people into recycling.

The residual waste bin was seen as the 'normal' or 'default' bin

Despite most respondents being aware of, and generally in favour of, recycling, the residual waste bin was still very much seen as the default bin. When talking about waste, respondents used language such as "normal", "general" and "standard" to describe their residual waste. All respondents had a bin for residual waste, and a few private tenants reported that residual waste bins had even been provided by landlords before they had moved in, setting this up as the acceptable minimum standard.

Not only were respondents using terms such as "normal" around residual waste, but there was also inconsistent language use on signage and communications around waste management. On estates, there were signs (including both permanent printed signage and ad-hoc handwritten notes) which used language such as "residual", "refuse" and "rubbish". Ambiguity and a lack of consistency left residents confused about how they should be referring to their waste and, when it came to communal bins, which types of waste should be placed where.

Recycling containers were predominantly referred to as "the recycling bin".

"I take the normal bin down, but leave the recycling to my housemate." ***Jason***

"That would go in the general bin." ***Jean***

Flat-dwellers saw the kitchen as the default space for recycling

Alongside the residual waste bin being seen as the default bin, the kitchen was seen as the default location in which recycling takes place. Those residents who were recycling were generally only associating recycling behaviour with their kitchen, and were not taking opportunities to gather recyclable items in other rooms. When in other rooms, waste went straight into a residual waste bin. Occasionally, respondents piled up items of recycling which they intended to take through to the recycling bin.

Most flats were not open-plan, and therefore 'sightlines' from other rooms to the recycling receptacle in the kitchen were rare – and so people did not have the visual prompt to recycle. An exception to this was Emilie, who placed her recycling bin in her hallway which was easily accessible from various rooms, and as such did tend to recycle items from rooms other than the kitchen.

If people didn't separate their waste in other rooms in the first instance, there was limited opportunity for any recyclable items to be 'rescued' and reallocated to the recycling waste when bins were taken out. When emptying their bins, respondents tended to amalgamate waste from other rooms with their residual waste, not considering whether these other bins contained recyclable items. With bathroom bins especially, despite containing cardboard toilet rolls and plastic shampoo bottles, respondents were rarely willing to dig around to take recyclable items out and reallocate them to the recycling waste, often due to perceptions of germs and dirtiness. This was especially true in private rental shared flats where household members were not living with close friends or family and perceived 'other people's' germs to be particularly avoided.

Respondents had differing limits of what was acceptable to touch

People had differing disgust tolerance levels to certain food or packaging items. Some respondents wanted to get rid of items as soon as their contents had been used – for example, items which contained "gloopy" or "sticky" substances. Some respondents were highly sensitive to thoughts of flies or other pests being attracted to these substances if left out (despite not having ever seen evidence of this). By throwing these items in the residual bin, which often had a lid, they felt as if they had curtailed this possibility.

Many had strategies for rinsing out packaging without touching it – using a washing up brush was a common example, or holding it by the corner and just running it under the tap for a few seconds. A few respondents did not rinse out packaging, not because they didn't want to touch it per se, but because they would then have to pick residue out of their sink with their hands.

Others, such as Amelia, were more tolerant of touching items, even if they had been sitting around for a while. She was happy to put her hand into the residual bin to fish out recyclable items that her lodgers had put in there by mistake.

Different tolerance levels to fullness of bins impacts frequency of taking the bins out

Most respondents were only taking their bins out when they were full, or overfull. Some residents spoke of a 'jenga-like' game, where members of the household would keep adding items to the pile until the pile eventually collapsed and it couldn't be ignored anymore. Indeed, Rohan spoke about the residual bin having a lid on it, "so you can't lie to yourself when it is full" as it would no longer close. When taking the bin out could no longer be ignored, this sometimes prompted a mass clean-up, with all bins being emptied and sometimes some general household cleaning as well.

Those who were using carrier bags to store their recycling were more likely to take their recycling out to the communal bin more frequently, due to capacity limitations.

This tendency to only take out bins when they were full also had implications for food waste. Aaron ate enough fresh food for his food waste bin to fill up quickly, and therefore for him to take it out every two days, whereas Holly and her flatmates did not produce enough food waste to warrant taking the bin out regularly, and therefore their bags started decomposing. She and her flatmates were not willing to clean out the bin and so stopped using the bin altogether.

A few respondents were more sensitive to smell, or the thought of flies being attracted to their waste, and would take out the bin even when only half full. This was especially true for food waste bins, where these existed.

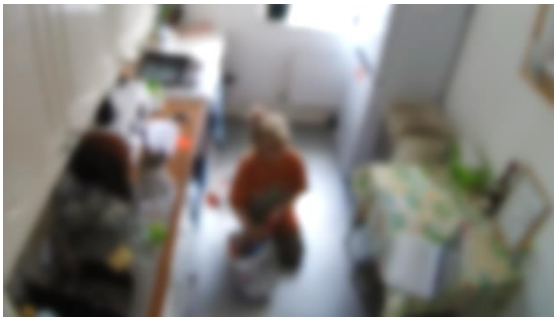
People who lived with flatmates didn't generally feel individually responsible for emptying the bin. Unlike cleaning or washing up, taking the bins out wasn't high on the list of people's priorities – sometimes residents described other household chores as every-day, essential or even "therapeutic" tasks. Those who lived alone or with their partner were more likely to have a set routine for emptying the bin, which fitted around their daily or weekly schedule.

2. Place

People are choosing to transport recycling to the communal bin in carrier bags

When recycling was stored loose, for example on shelves or windowsills, people need to find something to transport items to the communal bins in. These tended to be improvised or inconsistent receptacles, normally plastic bags. Sometimes people were using a different type of plastic bag each time, depending on what was available to them. Some supermarket bags (e.g. heavier duty bags for life) were being used as reusable recycling containers/carriers but this was less common.

As discussed above, people preferred to take the bins out on their way out, and not to make a special trip. This poses a challenge, as residents didn't want to return their improvised receptacle to their flat if they were leaving (e.g. for work). This meant that often respondents were disposing of their recycling by putting the whole plastic bag into the communal recycling bin – meaning the bin became contaminated with non-recyclable plastic bags. Most respondents saw other people doing the same, lacked knowledge of the consequences of contamination, and never received any feedback that highlighted this as a problem – the communal bins were always emptied by collection teams.



Holly decants her loose recycling into a carrier bag to take to the communal bin

Proximity of the bin impacted whether people were willing to make return journeys (e.g. one-way vs two-way bin trips)

The perceived ease of taking recycling down was a barrier. Respondents described the chore of taking the bins out as being a lot of effort, and often as something that required them to 'force' themselves to do. Respondents who didn't recycle talked about the recycling bins being too far away, despite in many cases these bins being placed next to residual waste bins.

A minority of residents made special trips to the communal recycling bins to take their waste out. This was predominantly when the communal bins were close by, and they didn't have to make any special preparations to go out (e.g. clothing, locking door, carrying down stairs). Rohan lived on the ground floor, about 20 metres from his communal bins and regularly took the bins out not as part of another journey (e.g. leaving the house), wearing only his flip flops and not closing his front door.

However, the vast majority of residents took their waste out on their way out of the estate. For those who lived on upper levels, or a long way from the communal bins, it was seen as a waste of time and energy to make a 'special trip'. Aaron, for example, took his food waste out every morning in a compostable bag when he went out to buy his morning coffee. Taking the bins out on the way out did mean that people had to organise the transportation of waste in preparation for leaving the flat.

Holly lived on the second floor and rarely took a special trip to the bin. Instead, when the recycling box was overflowing, she decanted all the items into carrier bags and left them on the floor of the kitchen in preparation for when she was leaving (in one case, 4 hours later as seen in her in-home observational footage). However sometimes she would make a special trip to the bin if all her flatmates were at home and they would make a group decision to clear up the kitchen. In this instance, they would carry the recycling box down together and then bring it back up.

People wanted disposal of recycling to fit in with their efficient exit routes

Almost all the estates had multiple exit routes. Respondents had preferred routes when leaving their estates, depending on their destination. These often involved back routes or cut-throughs. For example, Rohan would go out of one exit if he wanted to go to the shops or the gym, and a different exit if he was going to catch a train. Respondents wanted to drop off their waste in the most efficient and easy manner possible, with minimal interruption to their planned journey. This was demonstrated by the fact that communal bins placed near popular exit routes from the estate were much more likely to be full than others which were dispersed around the estate.

People had no 'plan B' when their recycling plans were disrupted

Many people had good intentions around taking out their residual and recyclable waste, and would take it to the designated area. People expressed frustration that, when they got there, communal bins were often overflowing and there was no space for them to put their waste. A few experiences could contribute to an overall perception that bins were overflowing all the time. In this situation, respondents reported feelings of internal conflict about what was best to do.

With most people taking their rubbish to the communal bins on the way out of the estate, returning their waste to their flat and waiting until space was available in the communal bin was not seen as a reasonable option. Once taken out of their flat, the priority was to get rid of their waste. Respondents admitted that, although motivated to put their waste in the correct place in theory, in these situations they had sometimes put their waste into the wrong communal bin, or had left their rubbish on the ground in front of the communal bins, especially if other people had already done the same. Respondents, although feeling uncomfortable doing this, did not see it as fly-tipping, and this feeling of discomfort often faded very quickly after dropping off their rubbish.

"I'm not sure what the silver bins are for… but if the recycling bin is full, I would put my recycling in them. Everyone does." ***Rohan***

Communal bin areas were seen to be unsafe, dirty and not well looked after

Respondents frequently identified communal bin areas as their least favourite parts of their estate, even before they knew the research was focusing on waste and recycling. This was true of both private and social housing estates. Dark and uninviting communal bin areas made people feel uneasy. These areas were generally not well-lit or decorated attractively. Anti-social behaviour, such as drug-taking, on some estates deterred respondents from spending much time in communal areas.

Respondents saw other residents abusing the area – for example, urinating near the bins – which made them unwilling to spend any more time in the area than necessary. And because of behaviour such as this, the social norm was not to treat these areas with respect.

Emilie's communal bins were often overflowing

People wanted to move away from the communal bin area as quickly as possible, and therefore threw away their rubbish instinctively as opposed to taking time to consider what they were doing with their waste (for example, reading the signage on bins, finding a bin that was emptier).

Few respondents reported that they had made complaints about the state of the communal bin area – those who did tended to live on social housing estates and had some involvement with their residents' association. Jean, for example, had lived on her social housing estate for 24 years – her husband had previously been the caretaker – and so she felt confident talking to her residents' association or estate manager.

"People urinate between the bins. It's an area you want to get through quickly." ***Ian***

Frustration can weaken commitment to recycling

Regularly feeling that their recycling efforts were wasted could significantly impact respondent's motivation to carry on recycling. Some respondents were engaged with in-flat recycling and followed all the rules, but when they arrived at the communal bins, they were frustrated to see that others did not take the same care. This included frustration at the Council or collection teams who many respondents felt did not provide enough communal bins or empty them regularly enough (forcing them to leave rubbish on the ground),and also frustration at other residents who seemed to disregard the rules.

This seemed to impact behaviour in a few ways. Many respondents had started off decanting their recycling loose into the communal bins, but had fallen back on leaving recyclable items inside plastic bags, mimicking the actions of others (adhering to the social norm), or would put their waste into the wrong bin. It seemed to prove difficult for respondents to maintain confidence in the local recycling system when they saw it broken by others – especially the council who they saw as responsible for the recycling system in the first place. Some respondents indicated that they got the impression that the council didn't care or make the effort to support residents to recycle, leaving them questioning their efforts.

People don't feel accountable for what they put in communal bins

Communal bins were often positioned in locations where there was limited activity – people spoke about bins being 'out of the way' and they rarely saw other residents in those areas. This, coupled with the knowledge that large volumes of people used each communal bin, led people to feel anonymous and unaccountable when using the bins.

Respondents didn't feel like their behaviour was in any way monitored and, thinking they could not be identified or linked with what they placed in the communal bins, took less care over their waste – for example, placing items in the wrong bin or leaving waste on the floor next to communal bins. This feeling was exacerbated by the lack of feedback and repercussions they saw for contamination or fly-tipping.

"The bins are around the back of the building. I never see anyone else there." ***Amelia***

People don't see communal bins as something to look after

Another consequence of large numbers of people using each communal bin was that there was little sense of individual responsibility to maintain the area. Residents were observed during the ethnographic fieldwork accidentally spilling rubbish so that it landed outside of the communal bins but then not picking that rubbish up. Respondents didn't see the communal bins as their responsibility – mainly attributing their upkeep to their housing association, council or waste collection team. They often blamed other residents for making the area unclean – sometimes as a result of actively seeing other residents dumping waste or urinating by bins, and sometimes from seeing the state of communal areas and making assumptions about the cause. Either way, most were unwilling to act on other people's behalf to clear it up.

"People just dump their stuff around the bins." **Emilie**

People didn't perceive themselves as having a role in the waste collection system

The majority of respondents were unsure when or how their communal bins were emptied. Some had vague notions of having heard collection teams arriving, but most, especially those who were not at home during the day, had rarely seen the bins being emptied. They were certainly not using 'collection day' as a prompt to take their rubbish down to the communal bins before they got taken away.

This was seemingly in contrast to those who live in kerb-side properties, who tend to feel more of a responsibility to put their bins out in line with the system set out by their local authority, or else their waste will not be collected until the next collection time. Those in flats appeared not to have this same motivation to engage with the recycling system as there was no personal cost to them.

Physical limitations make recycling more problematic

Transportation of recycling and waste from flats to communal bins was sometimes hampered by physical limitations. Because of the desire to take the rubbish out on their way out of the estate, people were often carrying multiple items with them which restricted their ability to carry waste too. Dora, for example lived on the eighth floor and had three children. When she went out, she often had to juggle a buggy and several bags. When the lift was out of order this was especially problematic for her. As a result, she often left taking the rubbish out to her husband.

A couple of respondents reported that other residents in their building had their children take the recycling to communal bins on their behalf. This raised issues of not only whether children understood which was the correct place to put waste, but also whether they were able to reach to put waste into them. A few respondents had seen children placing bags on the ground outside bins because they could not reach.

Putting waste into the communal bins was not just a problem for children. Some adults complained of small openings on recycling bins and, given that most were not decanting individual items into the bins but were putting in whole bags, they were forced to open up lids entirely, where this was possible. Holly spoke of having to "jump up to flick the lid open" and put her waste in before the lid closed again. Aaron spoke highly of his communal food waste bin which had a soft close lid. There was a similar problem with residual waste chutes, which were seen as mostly useless because only a few items could be put in them at one time.

3. Communications and influencers

Some respondents had recycled more effectively in the past – or in different scenarios

Many respondents reported having had periods where they had been encouraged by recycling 'role models'. These may have been when they were living with family or with previous flatmates. Rohan, for example, lived with people at university who were very engaged in recycling and used to monitor what other people put in the bin. Following on from this, his girlfriend instigated keeping a recycling bag in their kitchen when they lived together, but since she moved out, that recycling system has been lost.

Those who had grown up in countries other than the UK reported cultural differences in household chores and recycling. In Romania, Emilie's family had been incentivised to recycle and she was surprised that it wasn't the case in the UK. In contrast, the concept of recycling as known in UK was not known where Rohan grew up in India, so he reported having to teach himself to do so since he moved to the UK 8 years ago.

Work colleagues were also important influencers of recycling. Many respondents had an efficient and effective recycling system at work and, sometimes, this behaviour was brought home too. For example, Holly had learnt that grape packaging is recyclable from her work colleague, and Emilie consistently recycled paper because she worked in an art studio and her manager was very strict about it.

Most people did not have close relationships with their neighbours

Those who lived in social housing tended to know their neighbours better, having lived in their flats for longer. Some had built strong relationships over time. However, the majority of respondents did not know their neighbours, or knew them only in passing, and were not invested in these relationships.

There was sometimes tension between neighbouring households, due to noise complaints or conflict over communal spaces. Amelia, for example, felt there was animosity between social housing tenants and private owners on her estate, and she had had multiple run-ins with neighbours about the storage of her bicycle in the hallways.

"There's a bit of a difference between those who are council tenants and those who privately own…a sense of entitlement from those who privately own." ***Amelia***

People did not generally perceive their neighbours to be good recyclers

Respondents did not get the impression that they were part of a community of residents who recycled – there was no positive social norm from seeing what other residents are doing. People did not talk to their neighbours about recycling and therefore had no idea what their waste management routines were.

Some people saw the indirect results of their neighbours' actions. For example, from the contents of a particular communal bin, Aaron assumed that people from a particular block "just chuck anything" into the bin, and others expressed frustration about neighbours blocking up waste chutes with large bags of rubbish. Other respondents made assumptions about other people's lifestyles and recycling habits – for example, Rohan knew that his upstairs neighbour has three children and was sceptical that she had time to recycle.

"She has three kids - I'm sure she doesn't have time to recycle." ***Rohan***

Residents and their tenants' associations could be effective champions, however current efforts were often ineffective or even antagonistic

Many people were not aware of, or engaged with, their tenants' association. Those who were tended to have lived on their estate for longer and were more engaged with the community. Even these respondents often did not have the best of relationships with their associations, citing their association's lack of proactivity and their own fear of raising complaints or issues. Because residents found their tenants' association unapproachable or antagonistic, they were unlikely to listen to guidance from them. There was evidence of handwritten notes from tenants' associations regarding recycling but these seemed to have little impact.

Residents were also put off by the lack of responsiveness of their landlords or housing associations. Mick's perception of his housing association had been tarnished by their lack of action regarding his broken boiler, and so he didn't feel a responsibility to abide by any guidance they gave.

"The leader of the tenants' association is ok…but they're not a doer. It's frustrating that the leader isn't enthusiastic about getting things done." ***Aaron***

People didn't regularly re-appraise their waste management strategies, although there were a few key moments where people were more reflective

Many social housing residents had lived in the same flat for many years (sometimes more than 20 years) – especially in comparison with those in private rental, who were much more likely to stay for a shorter period of time. These residents were much less likely to encounter moments when they would be prompted to reflect on their recycling behaviours, as the members of the household and the set-up of the flat and estate stayed fairly constant.

People's waste management routines were ingrained, and any change was seen to require a large amount of effort. Ian, for example, complained that he was "too lazy" to make the effort to organise a recycling bin. Most were content with their current set-up and did not see it as easy to change their waste management routines.

There were a few moments when people seemed more likely to reflect, examples including new kitchens being fitted, changes in estate cleaners and switching from one estate to another. Amelia, for example, had a new kitchen fitted and switched from having a freestanding residual bin, to an under-counter bin, although she still used a carrier bag hung over her kitchen door handle for her recycling.

For those who moved more regularly (predominantly those in the private rental sector), there seemed to have been a window of opportunity when they were open to new information and therefore could add to their recycling knowledge. Many respondents were buying shared household items, for example cleaning products, were in frequent contact with their landlord and were exploring their estate when they first moved in. Holly's flatmate, for example, went out and bought a recycling box when they first moved in, as in her opinion, a recycling bag was not very "aesthetic". Few respondents however could recall receiving any communications around waste management during these periods.

In shared flats, there was often a tension between undermining each other's recycling and learning from each other

Some respondents were having regular conversations with their flatmates about the distribution of chores. Some even introduced more formal cleaning rotas – many of which were adhered to for the first few months before falling by the wayside. In the majority of shared households, there was a predominant 'lead tenant' who tended to be the driving force behind

household set-up. For example, Rohan had lived in his flat for six years, with other tenants coming and going frequently. He saw the communal areas very much as his 'domain' and was quick to instigate rules about not leaving washing up undone.

These household systems occasionally caused tension between household members. Sometimes the level of

antagonism reached the point where flatmates were deliberately undermining each other's recycling efforts.

Holly's flatmate instigated a cleaning rota when they first moved in, but this fell by the wayside after a few months

"One housemate was particularly hot on recycling and taught me how it all works, I've tried to do that with the new girl but it obviously hasn't worked" ***Camilla***

Most people found information about recycling complex, hard to digest and difficult to remember

Few respondents could recall receiving information about recycling, and sometimes blamed a lack of information for their poor recycling A few had received leaflets through the door or had been left a leaflet by previous tenants, but only occasionally was this kept and referred back to. Kourtney, as an exception, has pinned a leaflet to the wall in her flat to remind her and her flatmates what is recyclable.

People are unlikely to go through information if it looks complex or overwhelming

Information from different channels was perceived to be contradictory. Those who were more invested in recycling the correct items pointed out inconsistencies between signage on the bins, signage on packaging and signage on bin bags, leaving them confused and exasperated – and more likely to simply guess. Although people were generally aware that recycling instructions on packaging existed, few people were consistently checking if they were unsure. For those that did, they were often frustrated when packaging instructions told them to check their local recycling rules, as they were unsure where to look for this, and unwilling to spend time doing so.

Signage around bins varied significantly. Very few had permanent informational signage. Most signage was on stickers on the front of communal bins, which were often worn and dirty. Respondents mentioned having noticed the ticks and crosses that appeared here, but did not regularly refer back to these, and did not find them useful when they had queries about specific items. They made decisions about what to put in their recycling container when they were in their flat anyway, and were unlikely to remove anything at the point when they were at the communal bins.

Researchers observed that there were many ad-hoc notices put up. These seemed to be from residents' associations, caretakers or estate managers clarifying instructions or threatening punishment if instructions were not adhered to. Respondents however did not mention seeing these or taking notice of them.

I don't think this is recyclable… oh no, wait – the information on the bag says it is. That's different to what it says on the bin!" ***Aaron***

Most people were often guessing or relying on common sense to judge what was recyclable

Knowledge about what was recyclable varied, but was often quite poor. People felt like they 'just knew' what was recyclable but were usually unable to explain where this knowledge had come from. They were often relying on ingrained 'rules of thumb' about what is recyclable that they had built up over time. These consisted of stories they had heard about certain items (e.g. bottle caps aren't recyclable), but also heuristics for categorising waste based on physical characteristics of different items.

Some respondents, for example, used the thickness of plastic to determine whether an item was recyclable, or thought that the weight of items was an indicator of whether it should be put in the residual waste or not. Others compared items with other items that they knew were recyclable and made guesses based on that. People rarely investigated when they were unsure.

"I would recycle this bread wrapping because it's plastic…it says on the bin downstairs that plastic is recyclable… shopping bags, bread packaging, squash bottles – they're all plastic, all recyclable." ***Amelia***

People often assumed it's about how much you recycle, rather than how well

Many respondents were enthusiastic about recycling in theory and wanted to do a good job – however they frequently weren't recycling correctly. When asked, respondents were often tentative when reflecting on what was recyclable – rarely had they paused to think about this in any detail before.

Those who were recycling often adopted an "if in doubt, recycle" policy, meaning they were placing a large number of contaminating items into their recycling. 'Contamination' was not a phrase any of them had heard of before. Many readily admitted that they didn't know what impact putting the wrong thing in the recycling had – and they didn't see themselves as being 'contaminators'.

"If in doubt, I'll put it in anyway. Someone will sort it out further down the line." ***Camilla***

There were many rumours about what happens to recycling (or not) which seemed to undermine individual motivation

No respondents could confidently articulate what happened to their recycling once it was collected from

their estate. People had no idea where waste was taken, whether it got sorted, how it might get sorted and where it ended up.

Many residents had great faith in recycling being "sorted out further down the line" which meant they were far less stringent in firstly, what they put in their recycling bin, and secondly, the extent to which they rinsed or prepared it.

There was some talk of waste ''being taken to China' – few believed this was actually true, but it demonstrated the lack of knowledge and connection people had with the next stage beyond their own actions. Some respondents were also sceptical that collection teams were committed to recycling – many, including both those who recycled and those who did not, said they thought collection teams "just mix up the recycling and the normal waste anyway", which undermined their motivation to recycle.

Perceptions such as this had never been addressed or disputed, and were therefore continually lingering in people's minds. Individuals never received feedback on what happened to their waste, which often left people wondering if they were doing the right thing or making a difference in any way.

4. Key differences between respondent types

Social and private housing

Although the majority of findings apply to both private and social housing residents, there were some key differences between these groups. In terms of household set-up, those in social housing were more likely to be families, couples, or to live alone – in our sample, all those who shared a flat with friends were living in private rental. Social housing residents were also more likely to have lived in their flat for a longer period of time than private rental residents. This had an impact on several areas:

These respondents generally felt more settled in their flats and had fairly established routines in relation to their waste management – for example in terms of types of receptacles, positioning of receptacles in their flat, and their route to the communal bins.

These respondents had fewer prompts to reappraise their waste management system. Moving flat was found to be a time where waste management practices might change, for example through buying new bins or being introduced to different guidelines for recycling – but this was not something that was as common amongst this group. Some were transferring between different estates within the same housing association but this happened less frequently than in the private rental sector.

Respondents in social housing were more likely to know their neighbours better, and therefore were more likely to feel a sense of community on their estates. Social norms were more likely to be established on these estates and made more visible through better resident relationships. A few respondents mentioned having visited their neighbours' flats, which gave an opportunity for them to observe their waste management set-up (although no respondents explicitly mentioned this). Despite knowing more of their neighbours, respondents still reported tension between neighbours and complained about noise and anti-social behaviour.

Living on an estate for longer could contribute to greater feelings of responsibility to look after their flat or estate. Ian, for example, knew that he was never going to own his flat, but he had lived there for 20 years and wanted it to feel like home. 'I don't own it, but I want it to be nice. It's mine for life, and then it will be my sons' (Ian).

Social housing tenants were more likely to be aware of, or in contact with, their residents' association. Some respondents, such as Aaron and Amelia, went along to meetings and so were aware of what was happening on the estate, and knew who to talk to if they had any issues around the cleanliness of the communal areas. However, this didn't necessarily mean they had good relationships with the residents' association – some reported that they did not act on complaints.

There was little difference in the state of communal bins between private and social housing estates. Residents on both complained about lack of cleanliness and overflowing bins, which reduced the ease with which they could recycle and their motivation to do so.

Household set-up

There were also some differences between respondents as a result of their household set-up.

Those who lived alone naturally had greater individual responsibility for emptying their bins, and so tended to do so more frequently, in comparison with those who shared a flat and who tended to wait for one of the other members of their household to take the bins out. However, some respondents who lived alone reported that when they had people to stay they would empty their bins more frequently, which implies that they may have greater tolerance levels when they are the only ones who sees their bin, and that fear of social judgment plays a role.

Those who lived with their partner (and children), along with those who had lived in their flat for longer, tended to feel more settled. Some respondents in these categories had established routines using council-provided single-use recycling or food waste bags. They

tended to know where to buy or pick up these bags and had embedded them into their routine.

Those who shared a flat with friends were less likely to use the communal spaces regularly – for example spending more time eating in their bedrooms as opposed to the kitchen. These flats often did not have a dedicated living room, as it had been converted into an additional bedroom. This meant that respondents felt less responsibility over the set-up and maintenance of the communal areas. If they did not collectively set-up their kitchens to recycle at the beginning of their tenancy it was likely that they would not.

Respondents who lived alone, or those who were the 'lead tenant' in shared flats, tended to feel like the kitchen was "their space" and therefore felt comfortable leaving items out on the side to recycle – so they were still recycling even if they didn't have a specific recycling receptacle.

In shared flats, there was often a lead tenant (who had often been there the longest) who took responsibility for setting up cleaning rotas or for explaining the recycling set-up to new tenants – passing on knowledge and establishing a social norm.

Some respondents in shared flats seemed to be more sensitive to other people's germs – being unwilling to throw away other people's mouldy items from the fridge, or being less willing to rinse out items belonging to other people.

Less enthusiastic recyclers

Only a few people in our sample did not recycle at all, and even they thought recycling was a good thing to do. They gave a range of justifications. One of these seemed to be that they had bigger priorities at the current time – Dora, for example was a stay-at-home Mum with three young children and was busy most of the time cooking, cleaning and taking the children to school. She said she didn't have time to recycle, but would maybe start recycling when the children were older.

Others who didn't recycle, or recycled inconsistently, gave justifications related to aesthetics. Ian was very house-proud and thought recycling would look messy. This, coupled with his perception that there wasn't enough space in his kitchen for a bin, meant he did not recycle at all.

There were also differences between respondents in terms of their sensitivity to smell and touching items. Apart from a few individuals who were perfectly happy to put their hands into bins and use their fingers to rinse out food residue from packaging, most respondents disliked touching waste items. Those who didn't recycle, or who had once recycled but had now stopped, had sometimes had bad experiences with smells or flies, although this seemed to be a concern with residual waste as well as recycling and food waste.

The distance to the bin was also mentioned by respondents. Those who lived on higher floors were more likely to complain about how far it was to go to the recycling bins, although these were often no further than the residual waste bins.

None of these, however, were issues that had not been overcome by other respondents in the sample.

Conclusion

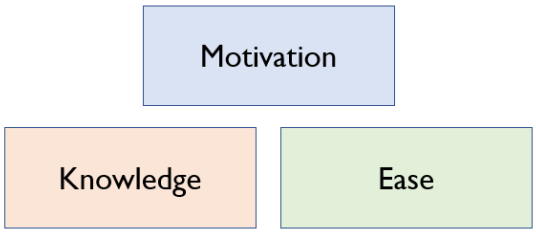
This research found there were many different reasons why people were not recycling effectively. Some were recycling inconsistently, some were recycling incorrectly and some were not recycling at all.

Many of the respondents wanted to recycle but their knowledge of how to do so correctly was misguided and / or was undermined because it was not sufficiently easy.

What these findings suggest is that in order for people in purpose-built flats to recycle, three conditions must be satisfied:

1. They must be motivated to do so
2. They must have the correct knowledge to do so
3. It must be sufficiently easy for them to do so

These conditions are interdependent. If any one or more of them is not met, it will undermine the other two.



If someone has the **motivation** and **knowledge** but it is not sufficiently easy, they will not recycle as much, or as frequently, or correctly.

If someone is **motivated** to recycle and it is **easy** enough for them to do so but their knowledge is incomplete or inaccurate, they are likely to recycle the wrong items, not recycle the right items or risk contaminating other items.

Similarly, without the motivation to recycle, neither the correct **knowledge** nor **ease** will result in recycling.

So it can be seen that the factors that affect recycling can most usefully be considered as a system requiring a co-ordinated approach.

Motivation

In general, respondents were motivated to recycle in theory and thought recycling was a positive thing to do.

However, this enthusiasm was not consistently translated into recycling behaviour. The levels of recycling varied between, but also *within*, respondents. There was no one factor that was a barrier to recycling across respondents. Motivation could be easily undermined by various factors.

There was a sense of invisibility around recycling. As they were often placed out of the way, respondents rarely saw other people using the communal bins. This lack of activity around the bins limited the opportunity for positive social norming around recycling. People were generally unaware of collection days, what happens to their waste once it has been collected, and more generally how their role fitted in. There is a challenge in people not seeing themselves as a player in the wider recycling system.

Lack of communal bins or infrequent collections sometimes contributed to respondents feeling like the council doesn't care about recycling. Some therefore thought there was little point in adhering to recycling rules, and motivation was reduced as a result.

Knowledge

Even if people were motivated to recycle, the knowledge they were basing their recycling on tended to be misguided. Respondents were generally relying on "common sense" and rules of thumb as to what could be recycled, and saw this as being sufficient. Rarely had they questioned their knowledge, and, if they did, they were unlikely to have sought out new information, preferring to go along with their gut or the mantra 'if in doubt, recycle'.

In the few instances when people did seek out information, they found the information provided on bin liners, communal bins, packaging and signage overwhelming and contradictory, leaving them confused. Myths around specific items persevered.

Many respondents did not have close relationships with their neighbours and were unaware of, or had poor relationships with, their residents' association. For those in shared flats, recycling was often a source of tension between household members. Therefore, whilst there was potential for several social groups to influence recycling behaviour, this was not currently happening.

Ease

Even if people were motivated and had the knowledge they needed to recycle correctly, they sometimes found it difficult to put recycling into practice. There were many barriers which reduced the ease of recycling, both inside and outside of residents' flats.

Most respondents had limited space within their flats for storage, and were having to be innovative in the way they stored items. Most people did not prioritise making space for recycling. Lack of space was regularly quoted as a reason why they did not have a recycling bin. This barrier was often a perception, as other respondents had frequently found ways to make recycling work within their flats by using plastic bags or allocating areas of their worktop to collect loose items. Any change to established waste management routines were generally seen to require a large amount of effort.

For others, recycling left on display was not something to be proud of, as items were not seen to be clean or decorative. Leaving items or recycling receptacles on view was not an accepted social norm.

Respondents wanted to drop off their waste in the most efficient manner possible, with minimal interruption to their planned routine. In order to take their recycling to the communal bins on their way out of their estates, many were using non-recyclable plastic bags and placing these straight into the communal bin instead of decanting items. It was clear that people's recycling set-up did not fit exactly with the 'ideal' from the perspective of the waste management sector. However, some people had found ways to make these strategies work with their space and routines.

Respondents felt that communal bins were often in poor state and placed out of the way, The lack of activity around communal bins impacted the accountability that people felt for what they put in the bins. Feeling anonymous, unmonitored and not receiving any feedback on recycling behaviour could decrease the quality of recycling.

Often, people had good intentions around placing their waste in the correct communal bin, but were frustrated when bins were overflowing or obstructed in some way. The lack of cleanliness implied that it was the social norm to not look after the communal bin area or dispose of their waste correctly. In these situations, people lacked a strategy for what to do and often resorted to less than ideal solutions, such as fly-tipping or using the wrong communal bin.

Lack of space in communal bins also gave the impression that those responsible for the recycling system were not doing their jobs properly, or that the system was 'broken' on a higher level. This could impact individual enthusiasm, as it was seen as pointless to contribute to a system that was already not working.

Opportunities

There are numerous opportunities to increase and improve recycling – and no individual will be influenced by exactly the same interventions.

Considering specific improvements as parts of a whole system which removes any barriers to motivation, knowledge or ease presents the greatest opportunity for change.

Naturally, each of these three areas may require different interventions in different locations as there will be varying location-specific challenges and the relative scale of the challenges may differ.

Where several stakeholders are involved, accountability can be given for delivering specific interventions within the system as a whole.

The evidence uncovered in this research shows there are specific opportunities to influence recycling behaviour under each of the headings.

Motivation:

- Make recycling a more visible activity to provide opportunities for social norming (e.g. placing communal bins more prominently, encouraging discussion of recycling habits between neighbours)
- Communicate how residents' actions fit into the wider recycling system to increase their sense of responsibility (e.g. communicating collection days, waste sorting procedures)
- Restore people's motivation to recycle after a 'sub-optimal' waste experience
- Weaken the emotional impact of other people not abiding by the recycling rules (e.g. prompting people to feel pride in their own behaviour instead of frustration in others')
- 'Reset' the attitudes of people who have become disillusioned with recycling on their estate
- Make people feel more identifiable in relation to their recycling behaviour to increase sense of individual accountability
- Encourage people to see the communal bin areas as the collective responsibility of the residents, establishing it as the social norm to look after the area
- Encourage people to see the recycling bin as primary and residual bin as secondary
- Reframe the language around 'normal bins' and 'rubbish bins' to challenge cultural norms

Knowledge:

- Strongly challenge dominant recycling myths and misplaced 'common sense'
- Ensure credible information is reaching people first (before they have to rely on word of mouth or recycling "common sense")
- Encourage people to be more investigative about what is recyclable and what is not
- Make it easier to check what is recyclable and what is not (e.g. app, QR codes on packaging)
- Provide people with better/more detailed feedback when they make mistakes
- Help people understand that quality is more important than quantity
- Raise awareness about the problem of contamination
- Make information more digestible (e.g. bite-sized and drip-fed)
- Create bold and impactful messages that really stand out in an estate environment
- Help people translate those messages into their own home
- Find ways to extend the duration and longevity of those messages for individuals
- Take advantage of teachable moments (e.g. house moves, change of estate staff, flat refurbishment) to communicate this information
- Support residents' associations and landlords to influence recycling more positively
- Develop communications that can be re-shared and re-used by local influencers (within and external to the household)
- Encourage people to bring workplace recycling behaviours back home

- Encourage people to pause and consider the best option before acting

Ease:

Inside people's homes:

- Prompt people to re-evaluate their current waste management systems
- Make changes to waste management systems seem quick and simple
- Show that recycling is possible even in small flats (e.g. case studies of successful recyclers)
- Provide people with better strategies for storing more recycling in a way they are happy with (e.g. allocating a space in their kitchen)
- Help people select the best 'receptacle' to meet their needs and preferences
- Increase associations between recycling and other rooms in flats (e.g. bedrooms, bathrooms) and make recycling bins feel like they better belong in other rooms
- Get people to locate recycling bins on major 'pathways' inside their flat
- Make it socially acceptable/desirable to have recycling left on display (e.g. communications campaign normalising having recycling on display in flats)
- Help people to feel more comfortable having recycling visible and on display (e.g. decorative packaging or receptacles, making a feature of recycling)
- Find ways to reduce the embarrassment associated with recycling (e.g. recycling specific personal items or items that are perceived to be unhygienic or smelly etc.)
- Help people set a household recycling culture (rules, systems etc)
- Make recycling systems (e.g. rotas) feel advantageous (and prevent antagonistic behaviours among household members)

Outside people's homes:

- Reduce the effort involved in transporting waste to encourage return and more frequent journeys to the flat (e.g. more recycling drop-off points)
- Better locate bins to fit in with popular exit routes
- Encourage people to take particular routes past communal bins
- Ensure provision of communal bins matches the footfall in certain areas
- Empower people with better 'one-way' strategies to transport their recycling to the communal bin, recognising that many people are using carrier bags for convenience
- Find ways of working around or enabling recycling with the current non-recyclable plastic bag behaviours
- Make communal bin areas feel more safe and secure
- Make communal areas places where people are happy to spend time so that they take more care over where they put their rubbish and recycling
- Provide 'plan B' options when the optimal waste disposal route is unavailable and communicate these options (e.g. signposts to next nearest bins)

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