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# Designing out plastic waste with citizen-consumers

## Ethnographic research report

Part of the SAP Plastics Challenge

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15 June 2018

Prepared by Design Thinkers Academy London

With research partner ..STBY...



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# Project overview

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This report provides the research findings from a collaborative innovation project on the topic of plastic waste reduction, commissioned by SAP Leonardo.

The initiative involved leading global firms working with citizen-consumers. Practical concepts were developed on a three-day Design Sprint in May 2018 and can be found in a short film and a separate project report.

The purpose of this research report is to share the methodology, themes, insights and tools that were developed from the research phase of the project in order to inform future innovation on the topic.

This challenge focused on how people interact with plastic, from purchase through to use and disposal. Existing consumer research has identified a gap between what people want to do and what they achieve when it comes to disposing of plastic.

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## **SAP Plastics Challenge project stages**

1. Ethnography with 24 citizen-consumers
2. Three-day design sprint involving global businesses and citizen-consumers
3. Incubation, development and showcasing of prototypes

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# Executive summary

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## Overview

The ethnographic research that forms the starting point for this report focuses on the gap between what citizen-consumers aspire to do, and what they actually do in their daily lives.

UK-based reports and data show that consumers are motivated to adopt better recycling practices, and to be more proactive in dealing with their use and disposal of plastic. For instance, a 2017 Populus survey found that 81% of consumers are concerned 'about the amount of plastic packaging that is thrown away in the UK'.

## Research question

How can citizen-consumer experiences of the plastic life cycle help us identify opportunities for innovation on plastic waste and pollution?

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## Research methods

The plastic life cycle is a complex system. Generally, consumers and citizens do not think about it often or in depth. Our research approach was designed to understand and interpret behaviours and aspirations, so we could create insights. These insights were used as starting points to develop opportunities for innovators. By its nature, the process is human-centred. We used ethnography as a qualitative research method to investigate people's real needs, pain points and experiences.

We recruited a diverse demographic group of citizen-consumers to participate in our research about awareness, use and disposal of plastics. Our focus was on how people interact with plastic, from purchase, through to use and disposal. Participants attended two collaborative workshops, and logged their daily experiences with plastics in a diary app over 12 days. The results were a plethora of rich data for analysis. In the follow-up collaborative workshop, participants reflected on their findings and observations from logging their plastic usage on the diary app, and discussed their deeper motivations.

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## From individual behaviours to themes and personas

Our fieldwork with participants generated more than 800 pieces of data and stories. During our analysis we looked for patterns in people's behaviour, then grouped these into themes.

We collected data from different points, cross-referenced it and broke it down. Five themes emerged from analysis. We discovered patterns in consumer attitudes and behaviours in these areas:

1. **Responsibility:** Who is accountable for reducing plastic consumption?
2. **Confusion and myths:** How confused am I by what can be recycled and where?
3. **Learning:** How do I obtain and respond to information on recycling plastic?
4. **Necessity:** How do I respond to excessive plastic packaging?
5. **Awareness and visibility:** How visible is the plastic problem to me?

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# Executive summary

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## Using insights to create personas

We used the emerging themes as criteria to group the participants by their motivations and actions. Each group became a persona type: an expression of a particular pattern of attitudes and behaviours. Personas are different from people – each individual person has nuanced behaviour that may combine patterns from several personas. Taking the perspective of a persona helps to design for particular behaviours and motives.

### The personas are:

- Environmental evangelists
- Considerate citizens
- Contested consumers
- Little-by-little learners
- Relaxed beginners

## Opportunities and tools for innovation

From our research, we combined the insights, themes and personas to create a starting point for innovation. These were tested at a three-day Design Sprint, with 30 people from global companies that have plastic in their supply chains. The research results proved to be useful for creating fresh ideas and concepts, using a human-centred design approach. This report makes the results available for public use, and presents opportunities to apply this knowledge as a tool for future innovation.

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Examples of the potential opportunities to change the current system to a more sustainable one include:

1. **Responsibility**  
Collaboration between parties in the plastic cycle can be improved. No one should feel solely responsible for the issue.
2. **Confusion and myths**  
Well-designed, uniform information – on packaging and waste management – will prevent citizen-consumer confusion, and help them to make informed decisions.
3. **Learning**  
The media has a responsibility to educate citizen-consumers on recycling and plastic use, in order to encourage behaviour change.
4. **Necessity**  
The refuse, reduce, reuse, recycle model could be used more efficiently to cut back on excessive plastic usage.
5. **Awareness and visibility**  
There is an opportunity to better explain the circular plastic system so citizen-consumers better understand their role within it.

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## Hypothesis and further research

This research did not quantify the behaviour patterns or give us the exact form of the adoption curve for sustainable plastic use. We do know that the five personas combined roughly represent the 81% of the population that is concerned about plastic pollution (Populus, 2017). We present a hypothetical adoption curve that acknowledges this 81%, as well as those who are indifferent to the problem. To quantify these personas, further research is required – typically in survey format to record the occurrence of behaviours, motives and aspirations outlined in this report.

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- Little-by-little learners
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# Plastics Challenge

## Context

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# Context

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## The issue of single-use plastics

In 2018, UK Prime Minister Theresa May described throwaway plastic culture as 'one of the great environmental scourges of our time' (GOV.UK, 2018). Since it has been used commercially, an estimated 8.3 billion tonnes of virgin plastic has been produced. Only a small proportion is recycled (9%) or incinerated (12%), so 6.3 billion tonnes have been accumulated in landfill and the environment. At current rates of production, the total amount of plastic will double over the next three decades – and this is unsustainable.

There is, however, cause for optimism. In the UK, progress is being made: one of the most visible examples is the reduction of single-use plastic shopping bags. While household recycling levels for all materials has stagnated, recycling of plastic packaging has risen; with a 64% increase between 2006-2014 (RECOUP, 2017).

There is considerable room for improvement. Existing consumer research has identified key issues, such as increasing confusion around what can be recycled, based on confusing packaging labels and unclear communication from local recycling schemes (RECOUP, 2016). Reports and data show that citizen-consumers are strongly motivated to adopt better recycling practices and to be more proactive in dealing with their consumption, use and disposal of plastic (Populus, 2017).

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## Moving towards a circular model

The linear model of make, use, dispose – which continues to determine some views of the plastic life journey – has become outdated. To make progress, we need to see the journey as a circle, by reusing or recycling packaging, and generally reducing the amount of plastic ending up in landfill. This needs cooperation from multiple stakeholders.

The waste hierarchy (refuse, reduce, reuse, recycle – see Figure 1 on next page) is a robust and widely accepted model, which proved helpful in examining and organising different observed behaviours. To understand how different plastics can be moved along the waste hierarchy and what moves and blocks behaviours, it is important to consider what is being done by stakeholders across the entire cycle (see Figure 2 on next page).

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Since it has been used commercially, an estimated 8.3 billion tonnes of virgin plastic has been produced.

# Context

Figure 1: Waste hierarchy

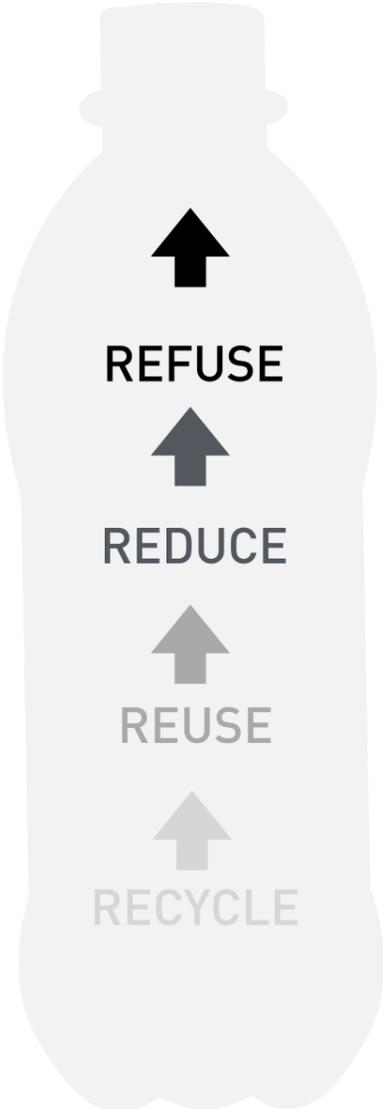
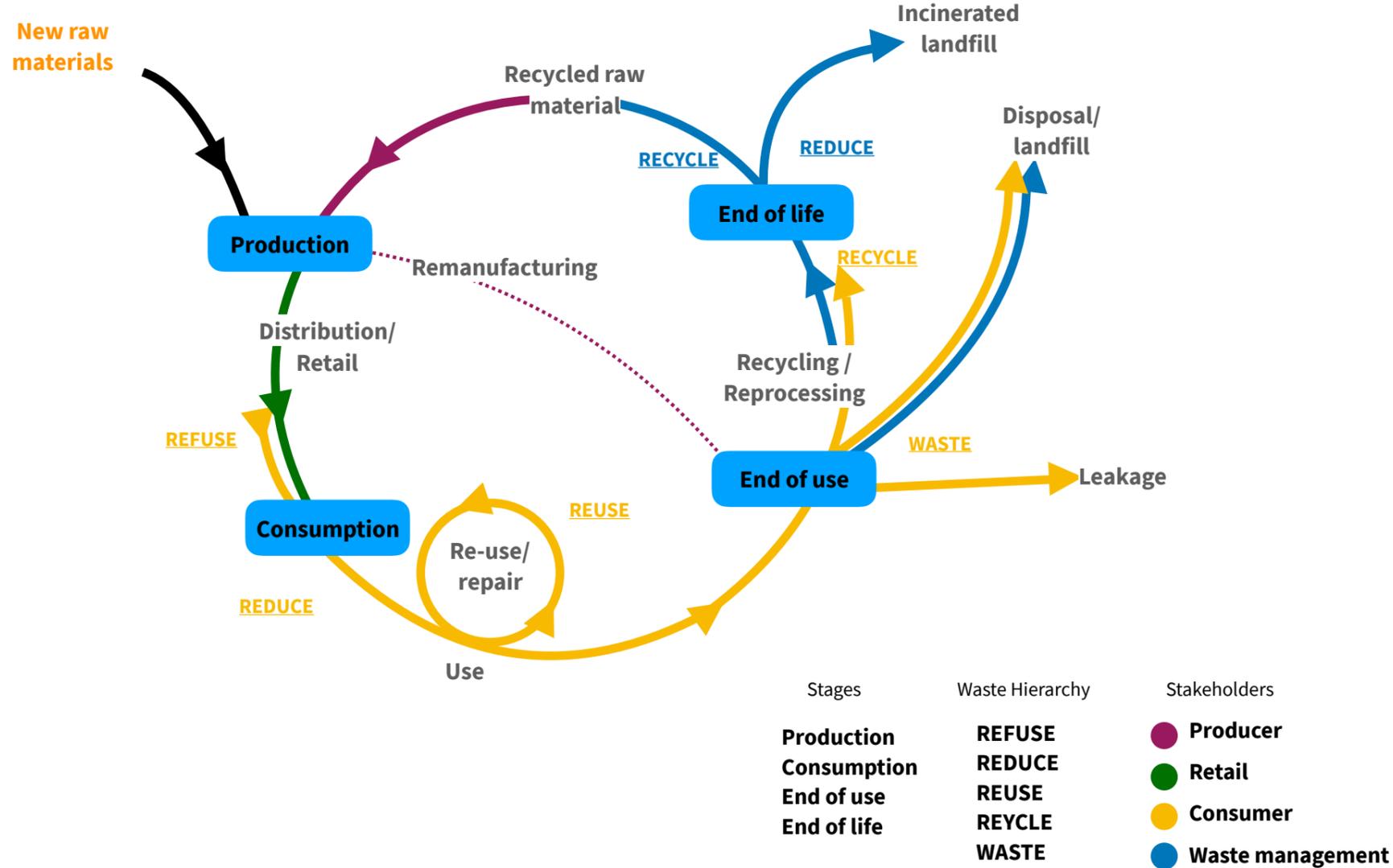


Figure 2: A circular approach to the plastics lifecycle



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# Plastics Challenge

## Research objectives

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# Research objectives

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## Research question

How can citizen-consumer experiences of the plastic life cycle help us identify opportunities for innovation on plastic waste and pollution?

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## Research focus

This research focuses on the gap between what consumers and citizens aspire to, and what they actually do in their daily lives.

UK-based reports and data show that consumers are strongly motivated to adopt better recycling practices and be more proactive in changing the way they use and dispose of plastics. There is a gap between the aspirations of 81% of citizen-consumers, who are concerned about plastic waste (Populus, 2017), and the reality in addressing that concern – the UK recycling rate of plastic packaging is just 45%, which means the remainder ends up in landfill or at energy recovery end destinations (RECOUP, 2017). This project focuses on people who are concerned about plastic waste; not the minority, who appear to be indifferent to the issue.

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# Plastics Challenge

## Methodology

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# Methodology

We used ethnography to understand people's behaviours, as well as their underlying motivations and frustrations. Ethnography is a systemic way to investigate culture; in this case, the culture of single-use plastics. We applied the ethnographic methodology to a research exercise with 24 participants:

## 1. Plastic Lab 1: sensitising

At the first workshop, we explained the topic to participants and put it into context. We had initial conversations and reflections on each person's plastic consumption, from their first contact with a plastic and their purchasing decisions, to their use of plastic and its disposal.

## 2. 12-day autoethnographic study: collecting

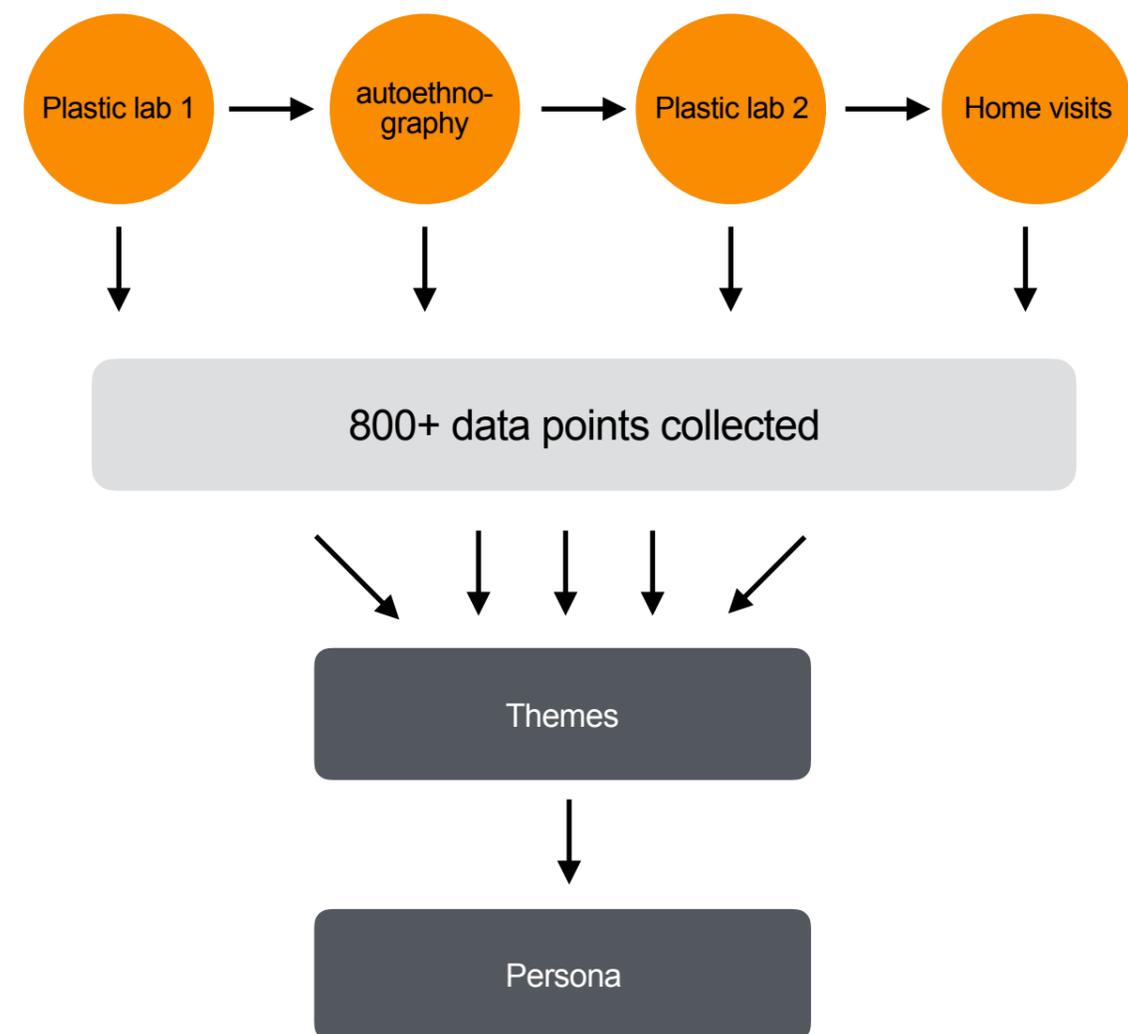
Participants used diary app Experience Fellow to observe and report their daily interactions with plastic. They logged stories, pictures, geolocations and a rating for each interaction with plastic. Researchers communicated with participants throughout to guide them through the process.

## 3. Plastic Lab 2: reflecting

All participants were invited back to a second workshop. In small groups, they reflected on the individual experiences they had recorded via the Experience Fellow app. These reflections were collectively used to generate a deeper understanding of what is right or wrong with plastics, and how things may be changed.

## 4. Home visits: illustrating

We visited a selection of participants at home to further immerse ourselves into their daily encounters with plastic. We illustrated some of the research's key understandings with personal filmed stories.



**Figure 4:** The research process, based on 800+ data points: 558 from autoethnography and more than 250 from the two combined Plastic Labs.

# Plastic Labs

In total, two Plastic Labs were hosted: the first to introduce the context to participants, and the second to reflect on the experiences collected through autoethnography.

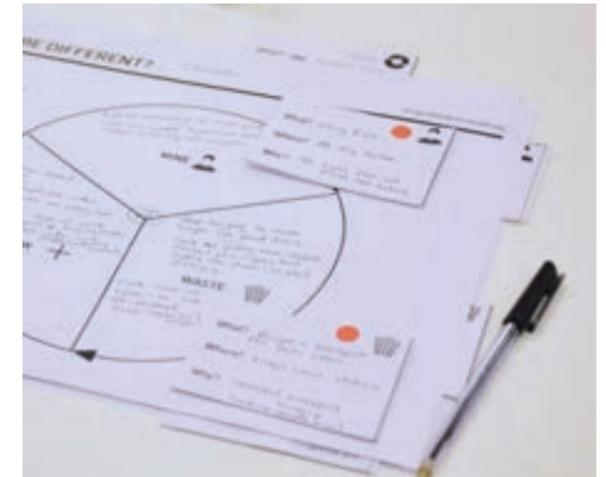
In the first lab session, the participants were introduced to the complex topic and prompted to think about their behaviours around plastic usage. We used a number of visual prompts, including common plastic objects, to trigger memories of what people do with plastics in their lives. Participants took part in activities and recorded responses on worksheets, before talking about their experiences.

The common plastic objects helped people to realise how much plastic they use. One respondent admitted that before she attended the lab, she had not considered things such as sandwich wrappings as plastic – she only thought of bottles, shopping bags and straws.

In the second lab session, participants reflected on and shared their experiences from the 12 days of autoethnography. Many of them recognised shared frustrations and discoveries, which became a focus of deeper conversation as a group.

Throughout the two labs, the process of sharing and reflecting on stories was guided by worksheets. Participants created more than 150 worksheets in total. Worksheets each contained several stories, and researchers also documented stories on sticky notes during group discussions, bringing the total to more than 250 stories. Each story is a data point, which is used in later analysis with the additional stories from the autoethnography.

Workshop materials during the first Plastic Lab, used to harvest personal stories.



Group activities during the second Plastic Lab where participants reflected on their autoethnographic findings.



# Autoethnography

Participants used specialist ethnographic diary app Experience Fellow to log any interactions with plastic, as well as their thoughts and feelings about their usage, over the 12 days between the two Plastic Lab workshops.

During this time, researchers reviewed the app's data, and prompted participants where needed. A total of 558 experiences were captured across the 24 participants, and were turned into individual data points for analysis. The researchers also reflected selected moments of the participants' experiences in the second Plastic Lab, via printed stimuli.

## How does it work?

The app allows participants to collect data. We provided an open question that prompted participants to think about their personal experiences and record them on a daily basis over a week and a half.

We asked participants to consider the different contexts in which they might encounter plastic using predetermined tags emerging from our desk research – for example, 'confusion', 'motivation' and 'reuse'. They then rated their experiences by giving it an emotional value: -2, -1, 0, +1, +2 (from -2, the most negative emotion, to +2, the most positive). We analysed participants' records by clustering the raw data in the backend of the app.

## What were we interested in finding out?

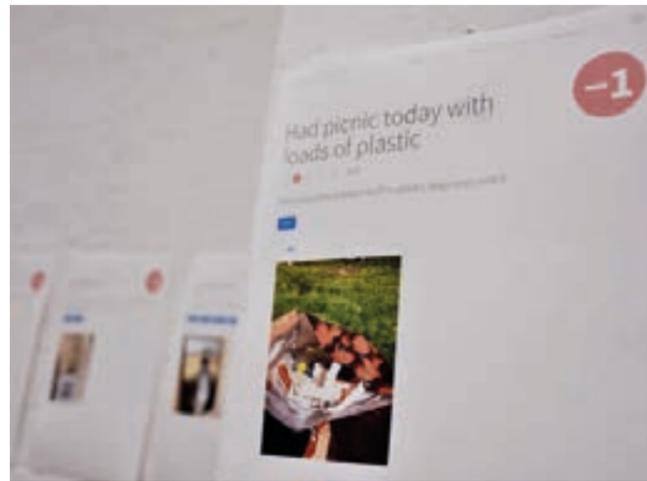
We set up the diary study as a tool to capture spontaneous and everyday experiences, and prompt participants to think about the situations in which they encounter plastic. We wanted to guide people to record these moments, but also reflect on their perceptions and behaviours.

When designing the process, we considered the diverse context in which participants may find themselves. We allowed participants to use the tool in a very open way with no strict guidelines or limitations, to avoid any bias.

The app in use, showing initial data capture and how that data is used.



Steve using autoethnography app.



Data extracted from autoethnography app, used in second workshop.

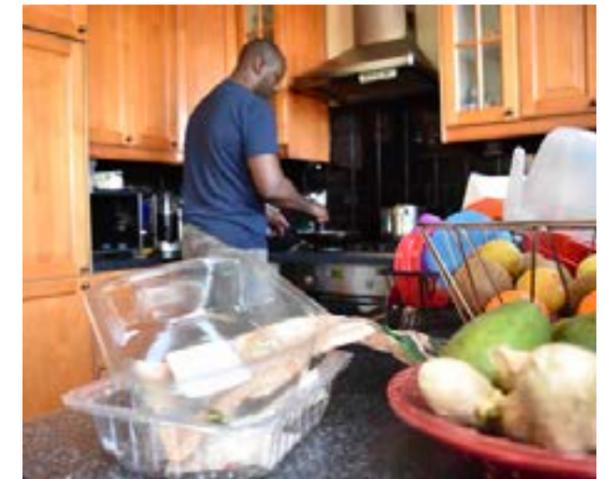


Example of data collected via the app.

# Home visits

We visited four participants at home to delve deeper and understand the context of their individual stories. These visits provided further context and illustrations to experiences from participants' autoethnographic stories.

Home visits with Guy, Amber, Steve and Pallavi.



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# Plastics Challenge

## Meet the participants

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# Meet the participants



AMBER



BRIGITA



CHRIS OT



CHRIS S



CLAUDETTE



CLAUDIO



DAWN



EVDOKIA



GRAHAM



GUY



JACKIE



JASON



KAY



KYLIE



LOLA



LYNN



PALLAVI



PARIN



RHAEZELLE



STEVE



STEWART



TAHA



TOBY



TONY

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# Plastics Challenge

## Demographics

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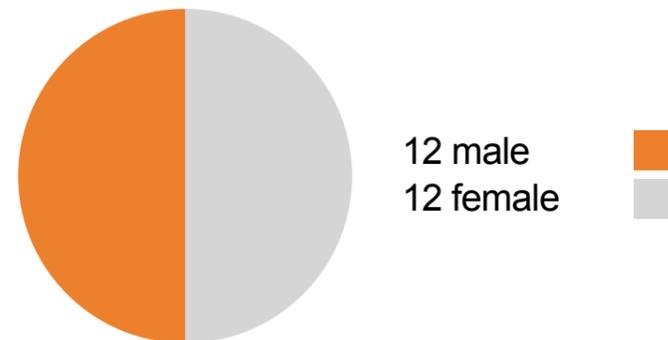
# Demographics

We recruited 24 people who feel there is a gap between their aspirations around plastic use and the realities of daily living.

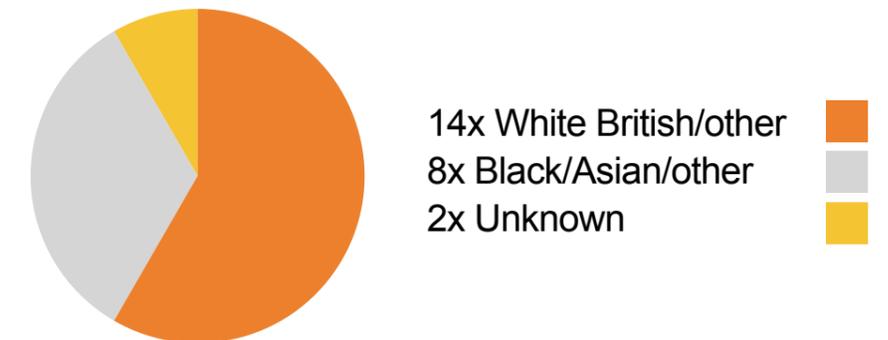
Participants already had an understanding of the plastic pollution issue, and recognised its importance. The research focused on these people due to the broad opportunities that exist in this majority section of the UK population. We selected people of different socioeconomic groups, occupations and genders, and a spread of ages; from 21 to 71. Different types of households are represented – for example, big or small families, living with parents, living with children, living alone. This great variety allowed for a large diversity of behaviours as the research consequently demonstrated.

## 24 participants

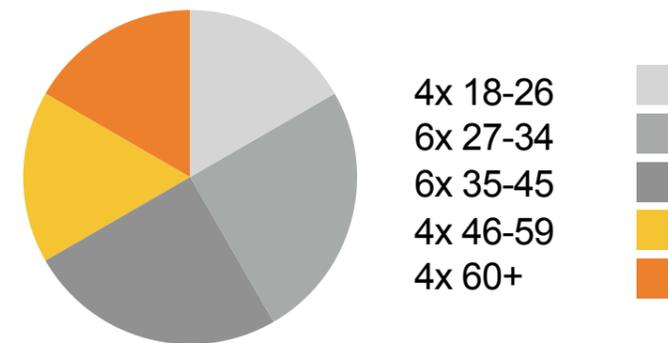
### Gender



### Ethnicity



### Age



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# Plastics Challenge

## Five emerging themes

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# Five emerging themes

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What are the patterns emerging from people's real experiences, behaviours and motives, as citizens as well as consumers?

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We engaged with our 24 participants several times to collate the research, allowing us to collect different types of stories as data. We analysed 800+ data points, and five themes emerged. The themes run across all 24 participants, and contain different aspirations and behaviours within them:

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1.

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**Responsibility**

Who is accountable for reducing plastic consumption?

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2.

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**Confusion and myths**

How confused am I by what can be recycled and where?

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3.

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**Learning**

How do I obtain and respond to information on recycling plastic?

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4.

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**Necessity**

How do I respond to excessive plastic packaging?

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5.

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**Awareness and visibility**

How visible is the plastic problem to me?

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# Theme 1: Responsibility

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When it comes to single-use plastics, people view their personal responsibility and the need for action in different ways. They may feel they should urgently make a change, but then do not translate this into actual actions.

At one extreme, people take an activist approach to creating a positive impact, changing their habits, or even being a role model. At the other, people are convinced that the responsibility should fall to corporations and government, because they believe individuals alone are unable to change things.

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Within the theme of responsibility, five sub-categories explore the reasons behind participants' behaviours and attitudes:

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**1.1**

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Location often determines what behaviour is possible

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**1.2**

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Different people perceive a different sense of control

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**1.3**

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Responsibility lies with citizens, but also with companies and governments

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**1.4**

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Stories from media and friends help build a sense of responsibility

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**1.5**

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Differing senses of responsibility to engage and encourage others

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# 1.1

## Location often determines what behaviour is possible

People feel powerless when they cannot avoid plastic, and limited product choices cause frustration. People may be forced to use more plastic when consuming food and drinks on the go, or when doing their grocery shopping. The absence of recycling bins in public spaces or at work only adds to frustration. The design, service and governance of public and work spaces often makes people more careless with plastic use than they want to be.

Pallavi's weekly shopping & wastes



Pallavi

**“When shopping, I can’t do anything about all the packaged vegetables – the closest supermarkets to me do not offer many loose vegetable options.”**



Claudette

**“It is difficult to recycle when I’m not at home as there’s a lack of facilities. I buy takeaway coffee as I travel a lot. I would love to recycle the cups but there are few or no recycling bins on my journey, on trains and at stations.”**



Pallavi



Claudette

# 1.2

## Different people perceive a different sense of control

Consumers feel unable to exert control over their plastic footprint when they are unable to purchase alternatives to plastic, or are not sure where they should look. The convenience of plastic is preferred over refusing it. In some cases, plastic is the only choice – for example, for packaging of essential medication. However, people’s sense of control differs, regardless of external factors – it ranges from actively choosing to refuse plastics to disposing of plastics if no recycling option is nearby.

Lynn

“I take a lot of medication and I get annoyed when it comes in plastic blisters rather than bottles, because they can’t be reused or returned to the chemist for refill.”

Jackie

“At the school where I work, they are not doing anything to reduce plastic. We often hold events and use lots of plastic cutlery and crockery – that is quite frustrating!”

Single-use plastic cups in Jackie’s workplace.



Lynn



Jackie

# 1.3

## Responsibility lies with citizens, but also with companies and governments

The topic of plastic pollution can be very overwhelming and it is not always clear if an individual's action alone can make a difference. Governments and bigger companies also have a responsibility and capacity to make a change on a global level – they can make a bigger difference than individuals. People differ in how they see and balance these responsibilities. The perceived sense of responsibility ranges from being an activist who changes their behaviour and continually learns about the topic, to a convenience and cost-driven individual who feels little personal responsibility and is reluctant to change their behaviour.

Brigita

“Retailers do over-package. I don't understand why they create so much waste. We consumers don't want or need that.”

Dawn

“I have a KeepCup in my drawer at work. The discount offered by coffee shops is a good incentive to carry it around.”



Dawn



Brigita

# 1.4

## Stories from media and friends help build a sense of responsibility

Human stories of other people's success in the news and on social media – for example, articles about a month without plastic – are influential and encourage behaviour change. Family and friends are also positive influences, as well as observing other consumers refusing plastic in a shop, or neighbours who always recycle.

There is also pressure from peers, work colleagues and local communities to be more active in recycling or follow similar practices. But not everyone is as sensitive to these influences.

Rhaezelle



Rhaezelle took a photo of a news story on reducing single-use plastic.

“Recycling was in the news this morning – the government is trying to reduce single plastic use. Other countries are trying to ban single plastic use altogether.”

Chris S



Chris documents a story about plastic pollution in the sea.

“I saw this in the newspaper and was shocked by how badly our seas are being polluted by microplastics. It upsets me that it's at this level. But I am happy that it's headline news. I hope it raises some awareness.”

Chris OT

“My wife decided we wouldn't buy bottled water anymore, having seen a lot of bad publicity around it.”



Rhaezelle



Chris S



Chris OT

# 1.5

## Differing senses of responsibility to engage and encourage others

Those with a strong sense of personal responsibility to avoid plastic waste may have the urge to actively reach out to family members, neighbourhoods, local retailers or local government to take action. But not everyone feels the same level of engagement.

Behaviours also directly correlate with surrounding cues and opportunities: if there is no recycling bin nearby, how can I possibly recycle?

Recycling box outside Kay's garden centre for the reuse of plastic pots after her suggestion.



Kay

“I spoke to my local garden centre after buying plants in plastic pots to see if I could return the pots to be reused. They were very helpful and put boxes at the exit so we could return the pots for reuse.”

Graham

“I have been pretty comprehensive with recycling before. I don't feel any particular responsibility towards reducing or refusing plastic, it is more about recycling and reusing for me and my family.”



Kay



Graham

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# Theme 2: Confusion and myths

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There is general confusion around the types of plastic that can or cannot be recycled. Citizen-consumers have to consider several guidelines from different sources before they can make a decision to bin or to recycle. This confusion happens in two key moments: when people try to make sense of confusing recycling symbols on packaging, and when they encounter confusing guidelines in local recycling schemes.

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Within the theme of confusion and myths, four sub-categories explore the reasons behind participants' behaviours and attitudes:

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## 2.1

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Recycling instructions on packaging are often unclear

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## 2.2

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Waste management systems differ locally and are not transparent to citizens

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## 2.3

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Speculation and myths arise from confusion about recycling

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## 2.4

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Lack of clear recycling information leads to distrust and cynicism

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# 2.1

## Recycling instructions on packaging are often unclear

Products and packaging have unclear symbols that may not explicitly refer to how something should be recycled. The material itself can be confusing as well, in particular when new materials are used (for example, biodegradable plastic) or materials that are invisibly mixed (for example, plastic and metal in crisp packets and food cans, or a cardboard sandwich packet with plastic film). Mixed materials were highlighted as a big area of frustration because they can often not be recycled, and it was even questioned why these materials are allowed.



Shampoo bottles show recycling symbols for different parts of the bottle, some can be recycled and some not. Evdokia explains she is unsure how to find more information.

Evdokia

“While recycling plastic bottles, it usually has a note at the back of the bottle saying ‘not currently recycled’ or ‘check local recycling’. But I don’t know how I’m supposed to check local recycling – should I call them or email a picture?”

Chris OT

“There are a lot of confusing items that I’m not sure can be recycled. If you place fruit in a plastic bag and add a price sticker, does that invalidate it from recycling?”



Evdokia



Chris OT

# 2.2

## Waste management systems differ locally and are not transparent to citizens

The difference in policies and practices across local councils makes things difficult and confusing for residents. The availability of information about recycling and transparency of the respective systems also differs between councils. This led to questions about why things are not standardised across councils, and why best practices are not shared. Another moment of confusion arose when local councils changed their recycling practices without explaining the rationale to residents. This lack of communication can contribute to mistrust and discourages people with their recycling efforts.

Tony

“My recycling authority is pretty good, I think, because they take a lot of plastic. But where my parents live, they can’t recycle a lot of things. It really depends on where you live.”

Evdokia

“The recycling is different in every London borough – it is really confusing. Why do we not have the same rules everywhere?”



Evdokia



Tony

# 2.3

## Speculation and myths arise from confusion about recycling

The things that affect how people interpret practices, products and materials include access to knowledge around the topic and the quality of information to which they have been exposed. For instance, biodegradable products are often considered to be the best alternative to plastic, but this is not always the case. Perceptions around what is 'good' and 'bad' varied greatly. This often emerged from storytelling that was not grounded in facts, leading to myths.

Evdokia

**“I was researching about biodegradable nappies, which sound like a good idea but apparently they can only be recycled in a compost bin – if they get left in landfill they produce methane, which is really harmful to the environment.”**



Evdokia

# 2.4

## Lack of clear recycling information leads to distrust and cynicism

As well as a lack of clarity around how to recycle, often the information source is unclear, inaccessible and, consequently, not trusted. This distrust leads to a need for alternative information and education sources. This increases cynicism and frustration towards waste management systems and recycling schemes. Responses ranged from actively searching for alternative information sources, to giving up on good intentions entirely.

Brigita

“At Tesco and Waitrose, I often buy wraps for lunch. It says that it is recyclable but you can clearly see plastic there. I still put in the recycling, as I follow what is written, but I don't know how much truth is in there.”

Evdokia

“Everything gets shipped to China and burned.”



Evdokia



Brigita

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# Theme 3: Learning

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People have very different ways of encountering information about plastic and recycling. Some make an effort to actively look up information, while others wait for manufacturers and public bodies to tell them what to do.

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Within the theme of Learning, two sub-categories explore the reasons behind the participants' different behaviours and attitudes:

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## 3.1

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**Need to navigate among different sources for information**

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## 3.2

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**Understanding what to do with plastic packaging should be easier**

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# 3.1

## Need to navigate among different sources for information

Information around plastic recycling is not always accessible. Citizen-consumers often expect local councils to provide adequate information, and people also get updates on plastics from TV or newspapers. School and work education are important sources of information for those who are not proactive themselves. In situations where it is unclear, more proactive citizens turned to social media for advice, talked to relevant professionals or directly asked retailers or manufacturers.

Pallavi

“I did not have much knowledge about recycling. But last year my daughter had a recycling project at school that made me aware of what and how to recycle.”

Kay

“I spoke to Asda about biodegradable nappies – at present they don’t stock any. They provided me with a link to an online company that sells them.”

Brigita

“Our company is doing well with encouraging us to recycle and educating us. We had a recycling competition. I discovered that candy and chocolate plastic is not recyclable as it contains a layer of foil or aluminium inside.”



Pallavi



Brigita



Kay

# 3.2

## Understanding what to do with plastic packaging should be easier

Although local councils provide some guidance to residents regarding recycling, unfortunately information is not always comprehensive and easily accessible. The time and effort needed to learn about plastic and recycling is a common complaint from those who enjoy the convenience provided by plastic. People expect short, simple and actionable information that is clearly and prominently presented to them.

Kylie

“Recycling symbols definitely need to be clearer – a bit like food labelling, which I think contributes to people not bothering!”



Jackie

“I have never given plastic much thought to be honest, not until my borough made it very apparent and highlighted things. They won't even take the rubbish unless it is packed into three separate bins.”



Kylie



Jackie

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# Theme 4: Necessity

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Consumers understand that plastic packaging is sometimes necessary: for storing certain foods, for health, hygiene and cleanliness, for transportation of goods, and for safety and preserving the appearance of new products. Nevertheless, questions arose around whether plastic packaging is necessary, or if it is excessively used. Responses to plastic packaging varied, depending on issues of convenience, choice, cost and hygiene. These factors influenced routines around refusing, reducing, reusing and recycling plastic.

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Within the theme of necessity, two sub-categories explore the reasons behind participants' behaviours and attitudes:

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## 4.1

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**Frustration with excessive packaging**

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## 4.2

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**Routines and perceptions of hygiene**

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# 4.1

## Frustration with excessive packaging

The definition of 'necessary' when it comes to plastic packaging – for health and safety reasons, for example – is interpreted in different ways. Online delivery services are often criticised when goods are over-packaged. Similarly, the level of plastic in food packaging – for example, vegetables in plastic containers with plastic padding, sealed in plastic bags – is also expressed as a source of irritation. Participants who are less active in reducing their use of plastic can be more forgiving of retailers using plastic packaging. They assume there are no alternatives and do not question the use of plastic.

Kylie

**“This was in a food parcel my employer received. It has all this packaging around it, but we have no idea whether to recycle or bin it. Quite frustrating and annoying!”**



Stewart

**“[Plastic cushioning] is literally a waste of space. It causes the packaging to be oversized. I remember when paper or straw was used as cushioning.”**



Kylie



Stewart

# 4.2

## Routines and perceptions of hygiene

Participants have different beliefs, routines and behaviour across this theme. Hygiene is mentioned when it comes to reusing and refilling containers (especially relating to food and water). The reuse of takeaway containers varies – some will sterilise plastic containers to use as a lunchbox, but others will not use containers again because of a belief that it is unhygienic. People may understand the need to reuse, but they find it hard to change entrenched habits. For example, buying bottled water because they believe it's more hygienic and safer than refilling from the tap. For them, recycling is the next best thing.

Graham

**“I remember when fish and chips used to be sold wrapped in newspaper and it was fine. Now it is not hygienic enough.”**

Toby

**“I love noodle pots that you put boiling water on for a quick lunch. I watched something a while ago that said when you put boiling water on plastic it reacts with the plastic potentially releasing chemicals into the food. Not sure if this is true but since then I never buy plastic packaging if hot water goes in.”**

Rhaezelle

**“Reusing a plastic lunchbox and water bottle today for lunch. Buying less plastic today.”**



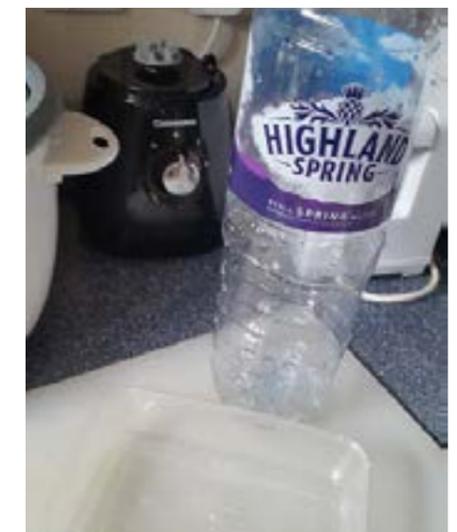
Rhaezelle



Graham



Toby



Reused containers Rhaezelle regularly takes to work.

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# Theme 5: Awareness and visibility

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Awareness around the need to reduce and recycle plastic differs. This is not just related to how much people know, but also to how visible the recycling scheme is – from bins on the street and icons on packaging, to information about recycling schemes.

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Within the theme of awareness and visibility, two sub-categories explore the reasons behind participants' behaviours and attitudes:

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## 5.1

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Contemplation can empower action

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## 5.2

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Opportunities to act are not always visible

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# 5.1

## Contemplation can empower action

Knowledge on the topic of plastic pollution and how to eliminate it varies from the very well-informed, to those who have a very limited understanding of the issue. As people become exposed to media sources, or hear about public engagement, they begin to assess the problem themselves. This can inspire individuals to improve their own behaviour and actually make changes. It takes some reflection for people to take what they learn and translate it into action – they have to evaluate how changing their behaviour may affect their daily life. For example, if someone aspires to use glass jars instead of plastic containers to take their lunch to work, they think about the impact it may have on their life, not just the positive impact it has on the bigger picture.



Amber



Claudio



Guy

Amber

“I think action is social-based. My generation is very aware and cheering on good things.”

Claudio

“I read an interesting article about a family that lived for a whole month with no plastic. They struggled a bit but managed to find ways to cope. It shows that it can be done!”

Guy

“It is impossible to realise how much plastic we use as lots of it is unconscious. I think we shall develop more conscious awareness of what we use and how much we use.”



Article found online about living without plastic

# 5.2

## Opportunities to act are not always visible

Not everyone has a high awareness of how recycling works around them – at home, at work and on the go. When going about their daily routine, citizens may not notice how recycling management or different schemes operate, because the systems may be invisible to them. Until prompted, citizens may not be aware of plastic alternatives, ‘see’ recycling bins near them, or think to refuse excess plastic. For instance, during this study, participants were encouraged to think about this topic in the context of their lives and often became more aware of what was available to them for reducing or recycling plastic.



Claudette



Jason

Claudette

“I thought plastic referred to water bottles, plastic bags that are banned and packaging in shops. Now my eyes have been opened to all the plastic in my life!”



Claudette dinner photo

Jason

“I realised today that I walk past a recycling bin by my house almost every day!”



Jason photo of council bin

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# Plastics Challenge

## Five personas

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# Five personas

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We used the above themes as criteria to group the participants by their motivations and actions. Each group became a persona type: an expression of a particular pattern of attitudes and behaviours. There are shared traits between personas, and each individual person has nuanced behaviour that may change over time. Taking a persona's perspective helps to design for particular behaviours and motives.

The persona types are:

1. Environmental evangelists
2. Considerate citizens
3. Contested consumers
4. Little-by-little learners
5. Relaxed beginners

# Five personas

## Themes

For each theme, researchers developed categories to define certain behaviours or attitudes seen in the collected data:

# 1.

**Responsibility:**  
Who is accountable for reducing plastic consumption?

There are two non-exclusive categories:

- a) It is my responsibility as an individual; and
- b) It is the responsibility of others – the community, council or large organisations, such as supermarkets.

Each persona scored differently on this theme: some believed 'me' and 'others' were equally important. Some believed 'others' should take more responsibility than 'me', while others may not have considered themselves ('me') to have much responsibility at all.

# 2.

**Confusion and myths:**  
How confused am I by what can be recycled and where?

The categories are:

- a) Low: not very confused
- b) Medium: confused from time to time
- c) High: often feeling confused and overwhelmed

# 3.

**Learning:**  
How do I obtain and respond to information on recycling plastic?

The categories are:

- a) I search: the citizen-consumer actively looks for information
- b) Tell me: the citizen-consumer waits to be informed by others  
One persona had a combination of both behaviours.

# 4.

**Necessity:**  
How do I respond to excessive plastic packaging?

The categories are developed based on what participants do according to the top four levels of the waste hierarchy:

- a) Refuse (the most effective way of dealing with waste)
- b) Reduce
- c) Reuse
- d) Recycle (the least effective way of dealing with waste, besides disposing it)

Some personas practised all four, but with their focus on two to three categories, while others only managed to recycle.

# 5.

**Awareness and visibility:**  
How visible is the plastic problem to me?

In terms of awareness, the categories are:

- a) Low: little awareness
- b) Medium: some awareness
- c) High: high awareness

# Five personas

This table indicates the scales by which each persona was evaluated. Patterns observed in different themes were brought together to shape the characteristics of the personas. The categories were developed following the analysis of the five emerging themes. Each persona scored differently across these categories.

	<b>Responsibility</b> Whose is accountable for reducing plastic consumption?	<b>Confusion and myths</b> How confused am I about what can be recycled and where?	<b>Learning</b> How do I respond to information on recycling plastic?	<b>Necessity</b> How do I respond to excessive plastic packaging?	<b>Awareness and visibility</b> How visible is the plastic problem to me?
<b>Environmental evangelists</b>	<b>Me and others</b>	Low	I search	<b>Refuse, reduce, reuse and recycle</b>	High
<b>Considerate citizens</b>	<b>Me and others</b>	Low	I search	Refuse, <b>reduce, reuse and recycle</b>	High
<b>Contented consumers</b>	Me and <b>others</b>	Medium	I search and tell me	Refuse, reduce, <b>reuse and recycle</b>	Medium
<b>Little-by-little learners</b>	Me and <b>others</b>	High	Tell me	Refuse, reduce, reuse and <b>recycle</b>	Medium
<b>Relaxed beginners</b>	Others only	High	Tell me	Recycle only	Low

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# Environmental evangelists

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Environmental evangelists are the best-informed people when it comes to refusing and reducing plastic consumption, and have generally been involved for longer. They have adapted their behaviour to use as little plastic as they can and make sure others will do the same.



Guy



Kay



Stewart

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This persona type feels empowered to make changes in their lives, but they know that manufacturers and waste managers can do much more. They are keen to tell them, too, through smaller individual actions as well as larger coordinated actions (for example, by removing all plastic packaging from their grocery shopping and handing it back to the supermarket).

Even though environmental evangelists may have gaps in their knowledge, they do know that everyone in the cycle must do their bit to solve the problem and they are happy to point the involved stakeholders to their

responsibilities. It is common for activists to want to spread the message by sharing advice on how to deal with plastics – from friends and colleagues to strangers in the street.

As they are relatively well-informed, and actively look for information, they are less confused than others. Still, confusion occurs because they do not see the supply chain's logistics, and they feel that government regulations could do more to improve things. They do not hesitate to contact their local council or MP with questions about plastic waste.

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# Environmental evangelists

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## Kay's story

Kay is an accountant who understands exactly how recycling and waste management works. She makes sure anything done wrongly does not go unnoticed. If she is given a plastic straw at restaurants, she will complain to the manager. She once bought a product online and found the packaging stuffed with unnecessary plastic, so she emailed the vendor and said that she would not buy from them again if they did not improve their product packaging.



# Environmental evangelists

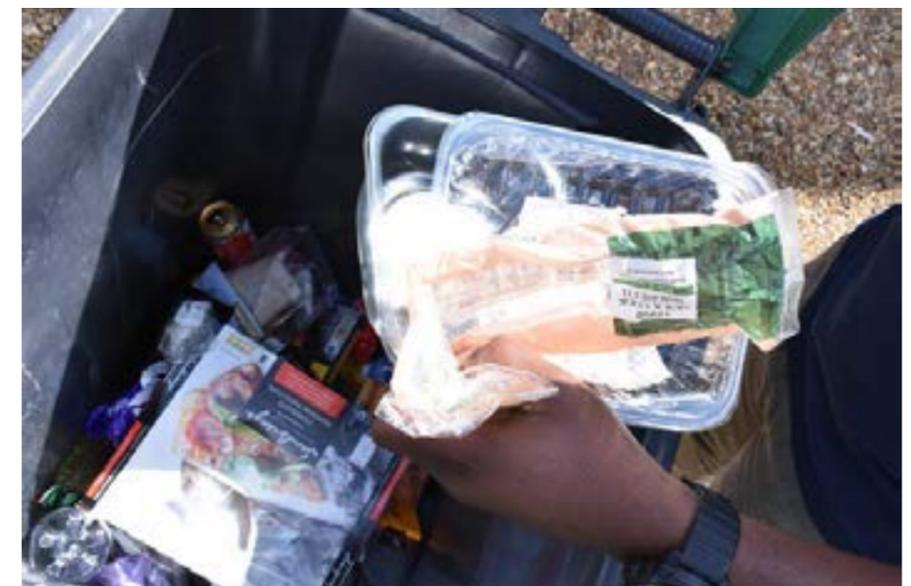
## Guy's story

Guy and his family are all actively reducing their plastic usage as much as possible. He arranged with his local dry cleaner to reuse a fabric pouch instead of plastic ones, so he gets 10% off the price of his dry cleaning. He is very keen to promote this type of practice with his children. They did a family experiment to shop plastic-free for one weekend, and they were impressed by how much less waste was in their recycling bin. Guy says: "I implement little changes one by one, so my kids learn from me. It's a legacy matter."

The recycling bin has a significantly reduced amount of plastic waste after Guy's experiment to live plastic-free.



**"I implement little changes one by one, so my kids learn from me. It's a legacy matter."**



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# Considerate citizens

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Considerate citizens put serious effort into reducing their plastic usage, and feel a clear responsibility to do their bit to save the environment from plastics.



Amber



Kylie



Tony



Evdokia



Taha

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This persona type takes measures to reduce their use of plastics as much as they can. Using a lunchbox and reusable cup instead of buying food on the go is a common practice among this group.

They know others – such as manufacturers, service providers and waste managers – need to do their bit, but they rarely actively pursue others to tell them what to do. They get annoyed if new wasteful practices occur, such as online retailers' excessive use of packaging,

including plastic. They avoid these wasteful practices by trying other retailers, rather than telling these retailers not to be so wasteful.

Considerate citizens are generally well-informed, and actively look for information themselves. Confusion may occur because they do not see the logic of how many things are arranged, but try to do their best anyway. They might contact their council for information, but are less likely to tell them what should change.

# Considerate citizens

## Amber's story

Amber believes that her generation has the power to make changes for the future. She buys loose vegetables to avoid plastic packaging. She makes an effort to find a metal spoon at work instead of plastic cutlery. Her biggest plastic issue is the frequency in which it is used for cosmetics products. She needs to use cotton buds every day, but she watched a Netflix documentary that explained that they are bad for the environment. She takes a Bag for Life with her every time she goes shopping, but she feels there is no alternative to having her dry cleaning covered in plastic, because that is what is provided.

Amber finds plastic in her bathroom hard to avoid



Cosmetic bottle



Amber using cotton buds



# Considerate citizens

## Tony's story

Tony asked for a KeepCup for Christmas. "It reduces my usage of single-use plastic cups in coffee shops," he said. "The added bonus is the discount a lot shops offer when you bring your own cup." He is a fan of Lush for their natural ingredients and for being able to return the packaging to the store to be recycled. He considers his local authority pretty good at recycling, but where his parents live, they cannot recycle many things. He once emailed their council about where recycling is going. They answered a lot of his questions, then stopped responding. He feels that, as citizens, what you can do is often subject to how the council handles plastic waste.



Tony's KeepCup for coffee on the go



Tony asked for a KeepCup for Christmas:

"It reduces my usage of single-use plastic cups in coffee shops."

Tony's Lush products containers



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# Contented consumers

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Contented consumers are happy to do their part to avoid plastic waste, but feel their role and contribution is limited as a consumer and citizen.



Chris S



Dawn



Graham



Lola



Lynn



Steve



Rhaezelle

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This persona type does not give the problem much attention, but does notice new regulations, such as the 5p bag charge, and adapts their behaviour accordingly.

They are happy to do more if manufacturers, service providers and waste managers provide easy solutions. However, contented consumers do not have much understanding of what is happening with plastics outside of their own view, and have little idea about what is possible or needed.

Contented consumers are reasonably well-informed but are dependent on information on packaging and instructions for waste management. They might look up information when confused, but they might also just leave it and give up.

# Contented consumers

## Steve's story

Steve lives with his adult kids and he considers his family very active in recycling, thanks to the comprehensive recycling informations from their council. For him, plastic packaging is inevitable in his daily shopping. As a family, they try to reuse plastic containers as much as they can – as storage boxes under the sink, in the freezer or for food to take on the go. He is frustrated with supermarkets that use so much plastic packaging in the first place.



Steve lives with his adult kids and he considers his family very active in recycling.

Steve's household recycles and reuses most of the plastic they buy



# Contented consumers

## Lynn's story

Lynn makes sure that she reuses everything at home, especially plastic boxes. "I even wash, sterilise and reuse food bags," she says. "I know a lot of people might think that's disgusting, but I don't care." She likes the idea of biodegradable products, but price is a major barrier for her. She is very keen on recycling, too. Sometimes, she takes things that can't be recycled in her area to her friend's house and because it is accepted there.



**"I even wash, sterilise and reuse food bags..."**

Lynn's plastic boxes are reused for food leftovers.



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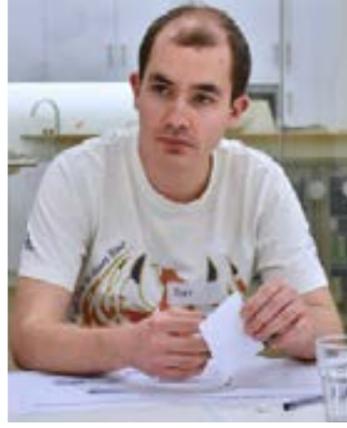
# Little-by-little learners

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Little-by-little learners feel responsible for contributing less to plastic waste, but when it comes to the means, they are less confident. Recycling responsibly is the main focus of these learners.



Chris OT



Toby



Brigita



Pallavi



Parin

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Even though they have already made some changes, they know there is more to do. They are happy to put in some effort to improve their behaviour.

Learners see others – such as manufacturers and service providers – as the organisations that should help them to improve their recycling. Making recycling easier and more convenient is key, as learners need some ‘hand-holding’. They rely on external forces – such as the 5p charge for plastic bags – to prompt

second thoughts when shopping. Waste managers are the most prominent teachers for little-by-little learners, because learners only think of recycling when they need to dispose of something.

When instructions are not clear and easy to follow, learners ignore them, and will not investigate further. They entirely depend on information that is pushed towards them. That information must be very clear, whether it is a recycling bin sticker or council leaflet.

# Little-by-little learners

## Pallavi's story

Pallavi admits that she did not think much about plastic until her daughter's school did a project on it. She thinks that supermarkets should take the responsibility of reducing plastic and introducing alternatives. As a keen gardener, she also finds the use of plastic pots inevitable. When it comes to reusing plastic for food or water, she is hesitant due to the unknown health impact of plastic toxins on her children.

Pallavi is frustrated that plastic is found in her shopping and garden



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# Little-by-little learners

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## Parin's story

Parin tries his best to recycle, but his local council does not make it an easy job. He received a pamphlet that specifically said the council does not recycle soft plastic like wrapping, but accepts other plastic containers. For him, this is strange and he would like to know why. His friends live in another part of London where the council uses a mixed recycling bin and accepts more materials, which Parin finds confusing. For him, recycling takes a lot of effort with a busy lifestyle.

**For Parin, recycling takes a lot of effort with a busy lifestyle.**

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# Relaxed beginners

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Relaxed beginners recognise the need to recycle but do not feel the urgency to actively get involved. They prioritise convenience and habit over reducing plastic consumption.



Claudette



Claudio



Jackie



Jason

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Recycling solutions need to be in front of beginners at the right moment to make them participate. They do not refuse to do more, as long as it is made easy and accessible for them. When they get confused with a recycling system, they are likely to put everything into the general waste bin. They feel the local council is responsible for making recycling more convenient, for example, by placing more clearly indicated bins.

Anything they learn about plastics and recycling has to be pushed towards them; even then, they may not take any notice of council leaflets. They may not be aware of their recycling bin at home, if they have one. Relaxed beginners are more open to personal stories from family, friends, colleagues and the media, but do not think that recycling instructions and packaging icons are for them. Once they realise how much they can do, they are willing to start with small steps towards change.

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# Relaxed beginners

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## Claudette's story

For Claudette, recycling symbols confuse her, especially when there's mixed material in the packaging. She wonders why the manufacturers can't make them all the same. She also feels that she cannot do much, apart from recycling more. "Supermarkets are technologically advanced," she says. "Why can't they come up with products and packaging that doesn't end up in landfill?"

**"Why can't they come up with products and packaging that doesn't end up in landfill?"**

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# Relaxed beginners

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## Claudio's story

Claudio only drinks a very particular brand of water. He always drinks bottled water then throws bottles away, never thinking of recycling. His local council implemented a new system – now his general waste is collected every other week, but the recycling is collected every week. This helped him to think about recycling. When he goes shopping, he sometimes refuses a 5p bag – but if it were free he would probably take it. He welcomes nudges from others, but things have to be convenient.

**When shopping, Claudio sometimes refuses a 5p bag – but if it were free, he would probably take it.**

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# Plastics Challenge

## Opportunities

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8

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# Opportunities from themes

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The themes allow for a deep understanding of what is at play for people who aspire to limit single-use plastics, but whose actions often lead to plastics ending up in incinerators, landfill and oceans.

The five themes lay out what people struggle with. Each theme points us to a range of opportunities to change the current system into a more circular and sustainable one, including opportunities to limit or eliminate plastic usage:

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## **The responsibility to change current uses of plastics is a shared one.**

Collaboration between parties involved in the plastic cycle is needed and can be improved. No stakeholder – including consumers and citizens – should feel they are solely responsible for this issue.

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## **Confusion is abundant and omnipresent, leading to easily circulated myths.**

Well-designed, uniform information – on packaging as well as in waste management– will prevent this confusion. This would help citizen-consumers to make better-informed decisions and limit single-use plastics.

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## **People learn in different ways.**

Approaches vary from actively looking for information, to having to be told what is important to do, and everything in between. There is more potential for all types of media to tell stories and give examples that encourage behaviour change.

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## **The waste hierarchy model (refuse, reduce, reuse, recycle) is easy for consumers and citizens to understand.**

It can be used more efficiently and effectively to create solutions that limit single-use plastics. This will require a shift from single-use packaging, to services that support consumers to primarily refuse and reduce, and reuse and recycle when needed.

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## **Overall awareness and visibility of the plastic cycle varies greatly.**

In general, however, citizen-consumers do not have a good overview or understanding of the system's complexity, and their own role within it. There is an opportunity to shed more light on the circular plastic system, to encourage responsible use of plastics.

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# Opportunities from personas

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Qualitative analysis of the five themes and the data behind them results in five patterns of behaviour and aspirations, presented as personas. Each persona offers certain opportunities to help people to narrow the gap between what they want and what they actually do.

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## **Environmental evangelists**

Environmental evangelists are creative in their resistance to single-use plastics, and experiment with new behaviours such as plastic-free shopping. There is a potential to collaborate with them as pioneers who are happy to try out new approaches to refusing, reducing and reusing plastics that others still find unacceptable.

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## **Considerate citizens**

Considerate citizens take the extra step to cut back on plastic altogether but acknowledge there are difficulties when it comes to eliminating plastic that seems unavoidable. There is a potential to provide them with the right tools and information to establish new routines that combat plastic pollution.

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## **Contented consumers**

Contented consumers are not always optimistic about the recycling system but are committed to recycling and reusing. They are open to receiving help to overcome barriers to reduce or recycle plastic. There is an opportunity to help them act on their good intentions and aspirations by untangling their confusion.

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## **Little-by-little learners**

Little-by-little learners recognise the urgency and consequences of plastic waste, and therefore aspire to learn more about making a contribution. The potential here is to help them take small steps that are easy to do and understand, but still affect change.

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## **Relaxed beginners**

Relaxed beginners are not actively involved in reducing or reusing plastics, but want to do more recycling. They are only starting to understand the real problems with plastic and haven't given much thought to their choices as consumers. The main opportunity to help them change is to provide clear guidance and powerful prompts.

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# Plastics Challenge

## Hypothesis and further research

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# Hypothesis and further research

The research, data collection and analysis presented in this report resulted in deep knowledge and solid understanding about some of the things that matter to people when it comes to single-use plastics. Analysis revealed patterns of behaviour, motives and aspirations that differ across people. These differences were expressed as personas, which are tools to create opportunities, ideas and eventually solutions.

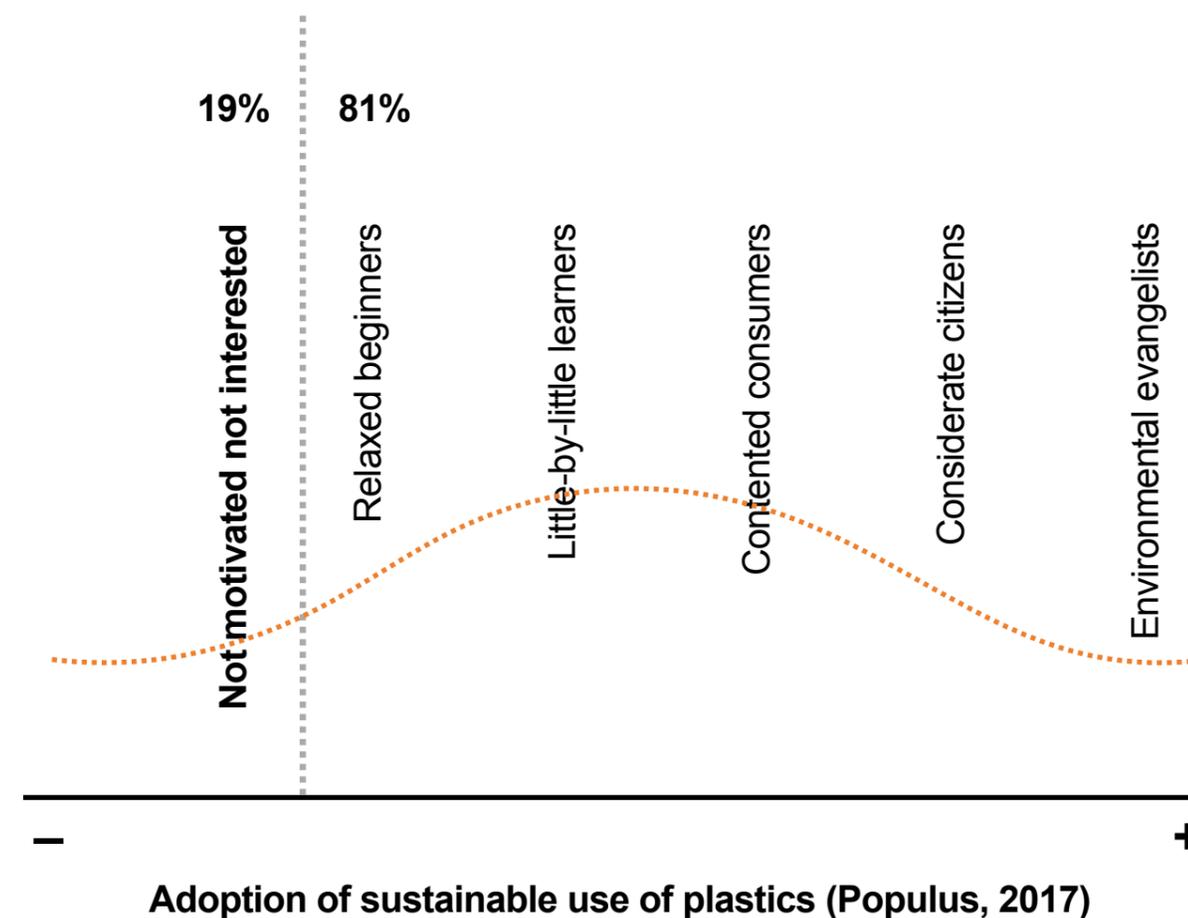
What this research did not do is quantify these behaviour patterns. The methodology followed assures that the existing patterns have been uncovered. If we look at these behaviours, they can be understood as a process of adoption. Some personas have adopted a more sustainable behaviour towards single-use plastics than others. Some personas are also more motivated to change their behaviour than others.

As a result, we can order the five personas from most to least sustainable behaviour and motives:

- Environmental evangelists
- Considerate citizens
- Contented consumers
- Little-by-little learners
- Relaxed beginners

This research does not give us the exact form of the adoption curve for sustainable plastic use. However, we know that, combined, the personas represent about 80% of the population who are concerned about plastic pollution, but does not always address the concern in their day-to-day behaviour. This leads to a hypothetical adoption curve that acknowledges this 80%, and the 20% who are not interested.

This hypothetical adoption curve indicates the distribution of each persona type's sustainable use of plastics, from those who have not yet adopted sustainable usage, to those who have. Those who are neither motivated nor interested are not included in this research.



To quantify these personas, further research is needed, typically in the form of surveys to record the occurrence of the behaviours, motives and aspirations outlined in this report.

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# Plastics Challenge

## Bibliography

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# Innovation partners

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## SAP® Leonardo

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SAP Leonardo takes a user-led approach to uncovering insights, co-creating ideas and accelerating new technological innovations to market with our clients. Chairman Hasso Plattner has been instrumental in spreading knowledge on design thinking within business and has helped build D-Schools at the universities of Stanford and Potsdam. This project is the first time SAP Leonardo has brought its global clients and design thinking expertise together for a global challenge.

For further information contact [stephen.jamieson@sap.com](mailto:stephen.jamieson@sap.com)

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## *design* thinkers academy

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The Design Thinkers Academy London (DTA) is a design business for change-makers. DTA trains teams and supports companies to innovate. DTA helps its clients to generate fresh ideas and turn them into new products and services around the needs of users. DTA believes in the practical power of design to make a positive difference and sees itself as a change agent.

For further information contact [david@designthinkersacademy.co.uk](mailto:david@designthinkersacademy.co.uk)

## ..STBY...

DTA engaged research agency STBY as its partner on the ethnographic research. STBY's creative research projects connect organisations with the lives and experiences of their customers. This helps clients to innovate their service offering, making it more valuable for both their customers and their business.



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# Designing out plastic waste with citizen-consumers

## Ethnographic research report

Part of the SAP Plastics Challenge

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Thank you

Prepared by Design Thinkers Academy London

With research partner ..STBY...

