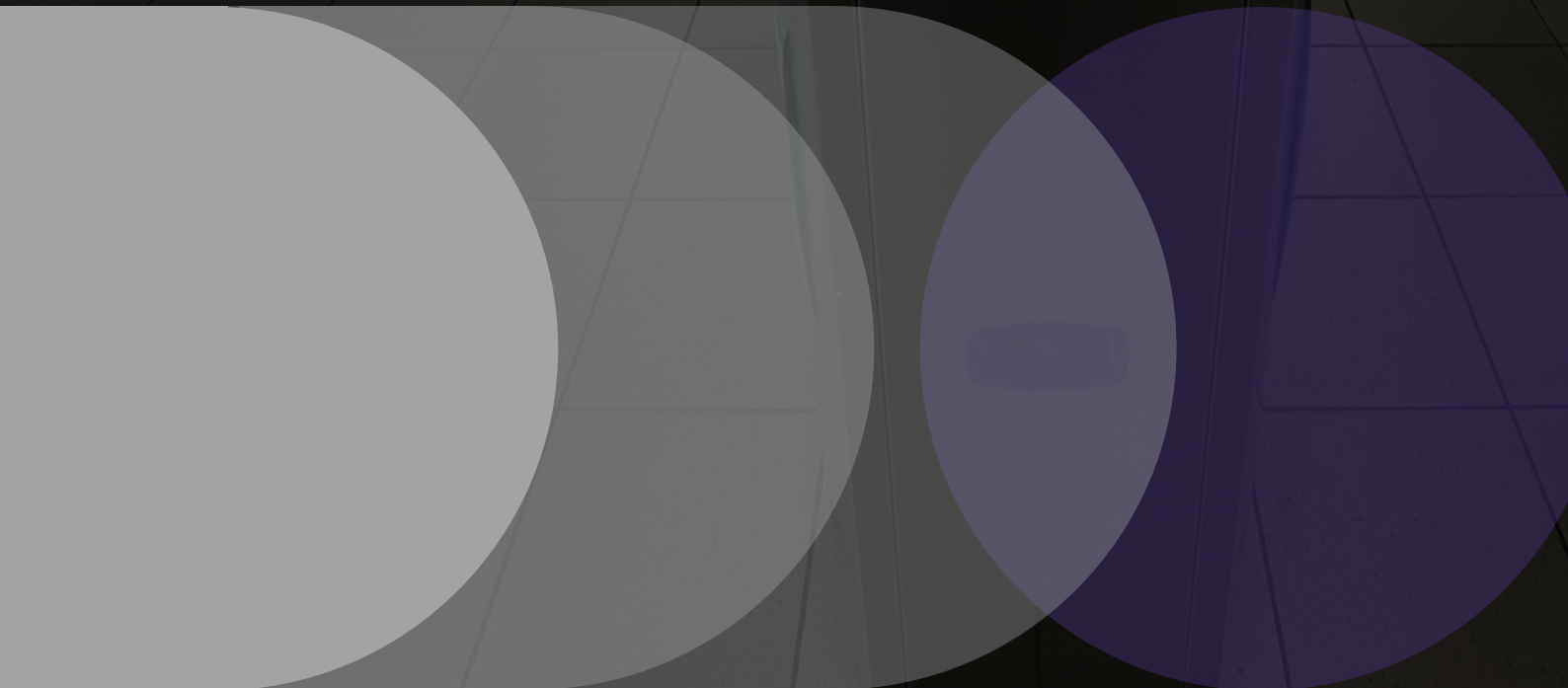


**Improving
passenger
waste
separation
behaviour
through
design
at
Schiphol
Airport**

By Nika den Ouden

APPENDIX



Appendix

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Appendix A: Original Project brief

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according to the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !



family name Den Ouden
 initials NR given name Nika
 student number 4655443
 street & no. _____
 zipcode & city _____
 country _____
 phone _____
 email _____

Your master programme (only select the options that apply to you):

IDE master(s): IPD Dfl SPD

2nd non-IDE master: _____

individual programme: _____ (give date of approval)

honours programme: Honours Programme Master

specialisation / annotation: Medisign

Tech. in Sustainable Design

Entrepreneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair Ruth Mugge dept. / section: DOS/MCR

** mentor Stefan Persaud dept. / section: SDE/DfS

2nd mentor Elisabeth Tschavgova

organisation: Schiphol

city: Amsterdam country: The Netherlands

comments
(optional)

⋮

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v.



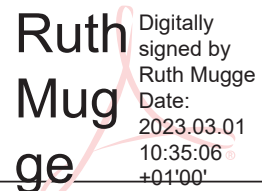
Second mentor only applies in case the assignment is hosted by an external organisation.



Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Ruth Mugge date 01 - 03 - 2023 signature 

Ruth Mugge
Digitally signed by Ruth Mugge
Date: 2023.03.01 10:35:06 +01'00'

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 27 EC

Of which, taking the conditional requirements into account, can be part of the exam programme 27 EC

List of electives obtained before the third semester without approval of the BoE

YES all 1st year master courses passed

NO missing 1st year master courses are:

name Robin den Braber date 10 - 03 - 2023 signature 

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks ?
- Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content: **APPROVED** **NOT APPROVED**

Procedure: **APPROVED** **NOT APPROVED**

comments

name Monique von Morgen date 21/3/2023 signature MvM

Improve passenger waste separation through design at Schiphol Airport project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 16 - 02 - 2023 25 - 08 - 2023 end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

Currently, Schiphol Airport only recycles 51% of its waste, whilst the airport aims to be zero-waste by 2030 [4]. The airport handled 71.7 million passengers in 2019, and with the assumption that Schiphol passengers produce between 0.3 and 0.5 kg of waste [2], Schiphol passengers produce more than 21 tons of waste per year [1]. To reduce the amount of incinerated waste, the airport provides FF3 containers for passengers to separate waste into three categories: plastic, paper, and residual waste [3]. However, waste separation can be challenging in public spaces where people from different cultures and backgrounds come together under different circumstances.

Stakeholders

- Tulips and Schiphol

Both companies aim to make the Green Deal requirements for aviation by accelerating the adoption of innovative and sustainable technologies aimed at reducing (or even eliminating) emissions at airports. Demonstrations showcasing green innovations are implemented at the lighthouse airport (Schiphol) and fellow airports to prove generalizability and scalability on a European scale. This graduation project is initiated by TULIPS and executed at Schiphol.

- Passengers of Schiphol

The people who are travelling to or from a destination. Some do know the Dutch garbage separation system whilst others do not, think about people coming from different countries where waste is separated differently or people from different cultures where waste separation is not common.

- Employees in and around Schiphol

Consisting of ground and air attendants from the different flight companies, retail employees and staff from Schiphol such as security. An interesting group of these are the waste collectors at Schiphol, working together with the waste collecting company **Waste handler B**. Their motivation for this project is to increase the amount of recycled waste. TU Delft: this graduation team and the other IDE graduation cases regarding the same goal of TULIPS.

Opportunities

- To explore many different cultures that are passing through Schiphol.
- Looking into the different types of waste that are currently being thrown away at Schiphol and also being able to indicate the source and possible use of the waste.
- The possibility to inspire passengers to see waste separation as easy and as a motivation for now and their future destinations.
- To design for Schiphol Airport and the possibility to implement the design at other Airports.

Limitations:

- The Dutch recycling system of which the main streams for Schiphol are PMD (plastic and metal), paper and residual waste. The manner of this separation is different in different areas of the Netherlands. Besides the differences in the household waste within different municipalities, there is again often differences in separating waste in public places.
- Implementing a meaningful solution in a context that is very dynamic. The amount of time different passengers have within the context to think about where they throw away their waste. Passengers are often in a hurry, trying to get their flight or transferring into their new transport.
- Taking into account all different types of passengers, from various countries and cultures. Getting to know all the differences in their perception of waste separation might be a limitation considering the time of the graduation project. Choices need to be made to find the most different perspectives within the timeframe.

space available for images / figures on next page

introduction (continued): space for images



image / figure 1: Current situation: FF3 containers at Schiphol Airport (source: TULIPS)

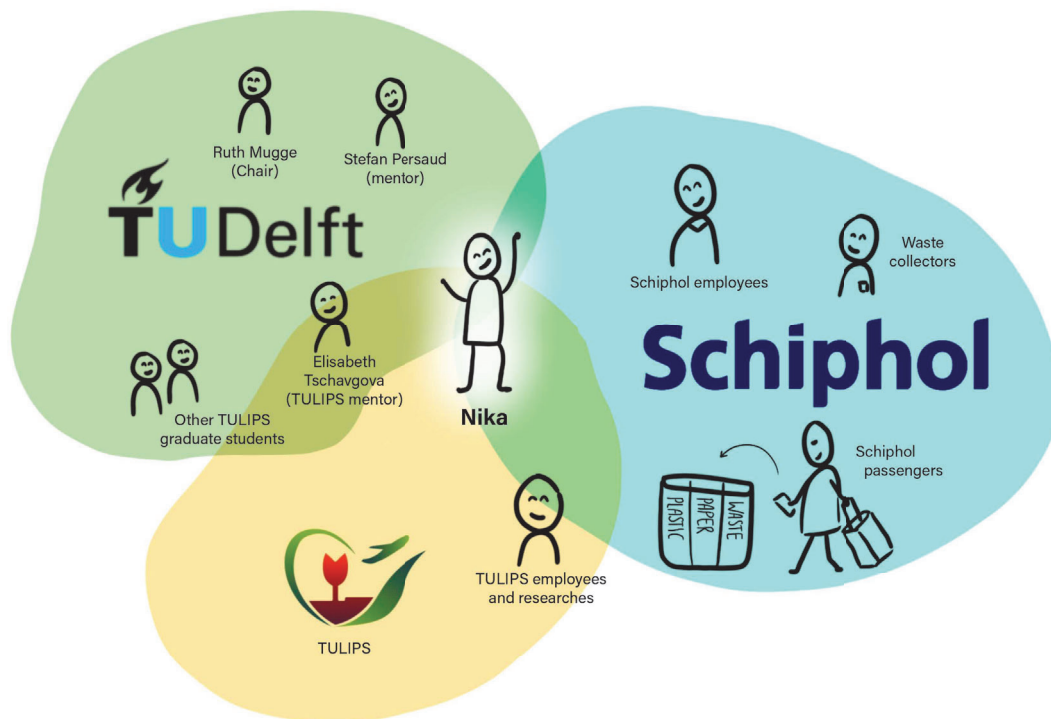


image / figure 2: Stakeholder map

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

Waste separation is an essential practice that has several benefits for Schiphol. It helps to minimize waste sent to landfills and incinerators, save costs, conserve natural resources, and comply with regulations. Currently, passenger waste at Schiphol has to be separated manually into 3 different bins (plastic, paper and rest). Although this sounds simple it can be hard to do this correctly, especially in a context that is so dynamic. When too many mistakes are made, the 'recycled' waste stream can still end up at the incinerators at **Waste handler B**, in which case the zero-waste aim is still not met.

Important sub-questions to be able to solve the problem: How to improve passenger waste separation behaviour at Schiphol Airport?

Passengers at Schiphol Airport

- What type of passengers are commuting at Schiphol Airport? > What are the differences between them?
- What are possible cultural differences that can lead to miscommunications?
- What are the possible situations that passengers at Schiphol Airport are in? (time, location, company)

Waste

- What type of waste do the passengers throw away?
- Do the different types of waste differ per passenger?
- Where does the waste come from?

Separation behaviour

- How do other public places deal with waste separation?
- What influences the mistakes made during the waste separation process by passengers?
- What type of communication can fit the different types of waste?
- How can different types of communication influence the right sustainable behaviour?

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Design several solutions to improve passenger waste separation by analysing and altering the current interactions with the bin system at Schiphol Airport. The aim is to understand the causes of incorrect waste separation and develop a bin system to resolve the current problems and difficulties. The final design should lead to improved waste separation and reduced contamination of waste at Schiphol Airport with a possibility for broader use.

The aimed solution is a new design of the recycling bin system that is understandable and motivational to most Schiphol passengers, regardless of their situation, culture and background. Moreover, the new recycling bin system increases the amount of waste that can be recycled and to reused at the end station of **Waste handler B**.

After understanding where the separation mistakes come from, a new use of the FF3 bins can be developed. This does not only include that people understand which waste to throw in which bin, but also motivates them to recycle properly, even under external distractions such as time pressure. Ideally, this new form of waste separation can allow TULIPS and Schiphol to apply to more airports in the EU and can potentially contribute to the current knowledge of waste separation in public spaces.

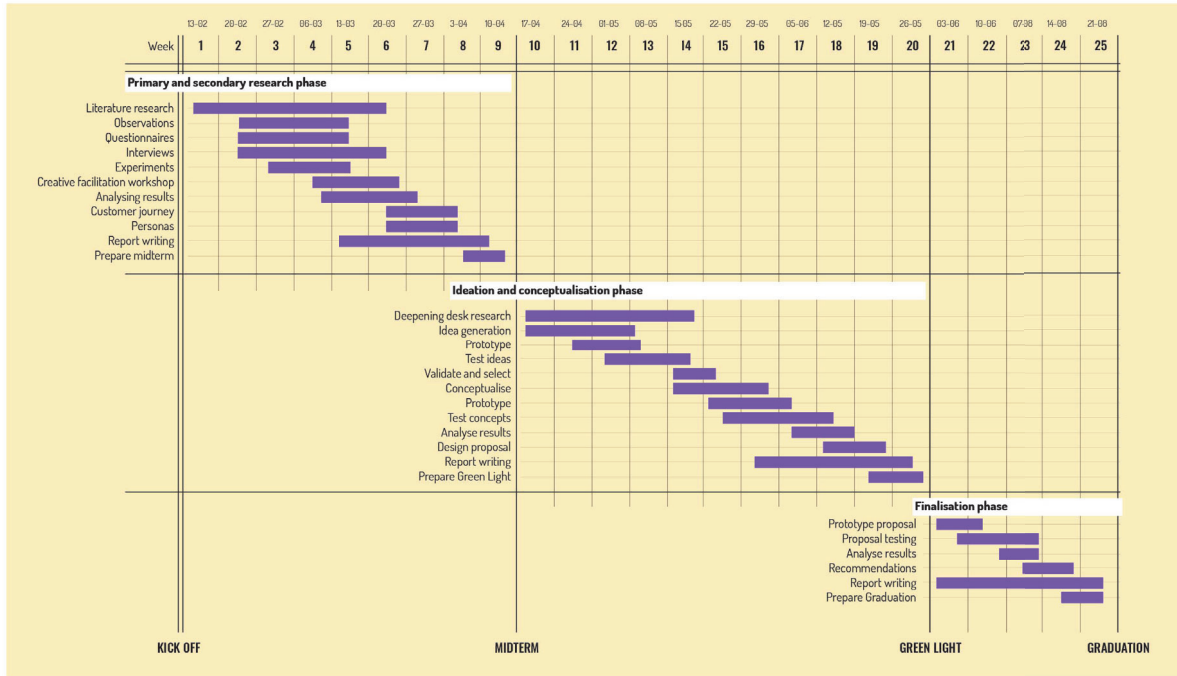
PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 16 - 2 - 2023

25 - 8 - 2023

end date



In the Gantt Chart above, the planning of this project is displayed. The planning is based on a 32-hour work week, resulting in planning of 25 weeks. Next to graduating, I will be working at Regionaal Energie Loket for 12 hours a week since I need a form of income throughout this period. The first phase (9 weeks) consists of the research phase, in which I will do desk research on the topic of waste separation and behaviour. In this phase, I will also conduct observations, questionnaires and interviews at Schiphol Airport, with passengers, Schiphol employees and employees of TULIPS. With some of the early results, I will organise a creative facilitation workshop, to go into depth about (mis) communication and waste separation. By analysing these results I will find insights from which I can define a customer journey and personas. After this phase, I will present my findings in my Midterm presentation. In the second phase (11 weeks), I will ideate from the results of the research phase. Next to this, I have time for deepening literature research. This ideation phase will be about sketching, prototyping and testing ideas. After this, I will make a selection and combine the new findings into concepts. These concepts will also be prototypes and tested (preferably at Schiphol). The results of this test will be analysed and then combined into main insights for my design proposal. This initial design proposal will be the results of this phase which I will then present in my Green Light. The third phase (5 weeks) will be about realising this proposal by prototyping and testing it in the real context. Again, the results will be analysed and concluded into recommendations.

Throughout the whole project, I will preferably meet with Elisabeth Tschavgova (client Schiphol) weekly. With my coach Stefan Persaud and chair Ruth Mugge I would like to meet every other week. We will have a full team meeting every 5 weeks.

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, Stick to no more than five ambitions.

During my Bachelor of Industrial Design Engineering, my passion for sustainable consumer behaviour arose, which developed further during my Master's in Design for Interaction. This passion has been the main focus of my projects and extra-curricular activities throughout the past years and encouraged me to follow sustainability-oriented electives such as Sustainable Consumer Behaviour.

Some specific projects from which I gained skills that are applicable and relatable to this project:

During my Erasmus Minor at Loughborough University, I did a semester-long project about consumer behaviour in the supermarket and how consumer decisions can be influenced by designing different types of climate impact labels. As a result, I gained a lot of knowledge about how design can influence sustainable consumers into more sustainable behaviour.

For the two courses in my Master's; Exploring Interactions (EI) and Integrated Technology Design (ITD), I gained knowledge about changing consumer perception of waste. EI was about changing the perception of ugly fruit and vegetables in the supermarket, initiating to make the user feel proud after picking the ugly produce that would otherwise be thrown away. ITD was about turning kitchen trash into 'trashures', by reusing kitchen waste to (re)grow vegetables and by making this a fun activity.

By being part of the GreenTU board as a Communication and Events coordinator, I gained the skill to communicate sustainability on a broad scale and to make this understandable campus-wide.

The competencies that I want to develop during this project are:

Gaining in-depth knowledge of waste separation and how this consumer process can be optimised

Designing a communication language that is understandable under variable and specific circumstances (e.g. time pressure, illiterate, cultural differences)

Carrying out an extensive individual project that allows me to use the skills I have learned over the past years into practice which then will be used by TULIPS to make a real impact on the sustainability of overall aviation.

Next to this graduation project, I will also be following the online EdX course Sustainable Packaging in a Circular Economy to learn how to apply the principles of the circular economy to sustainable packaging systems. With this extra knowledge that I will gain over the first six weeks, I will be able to recognise additional problems related to the front end of the waste process.

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

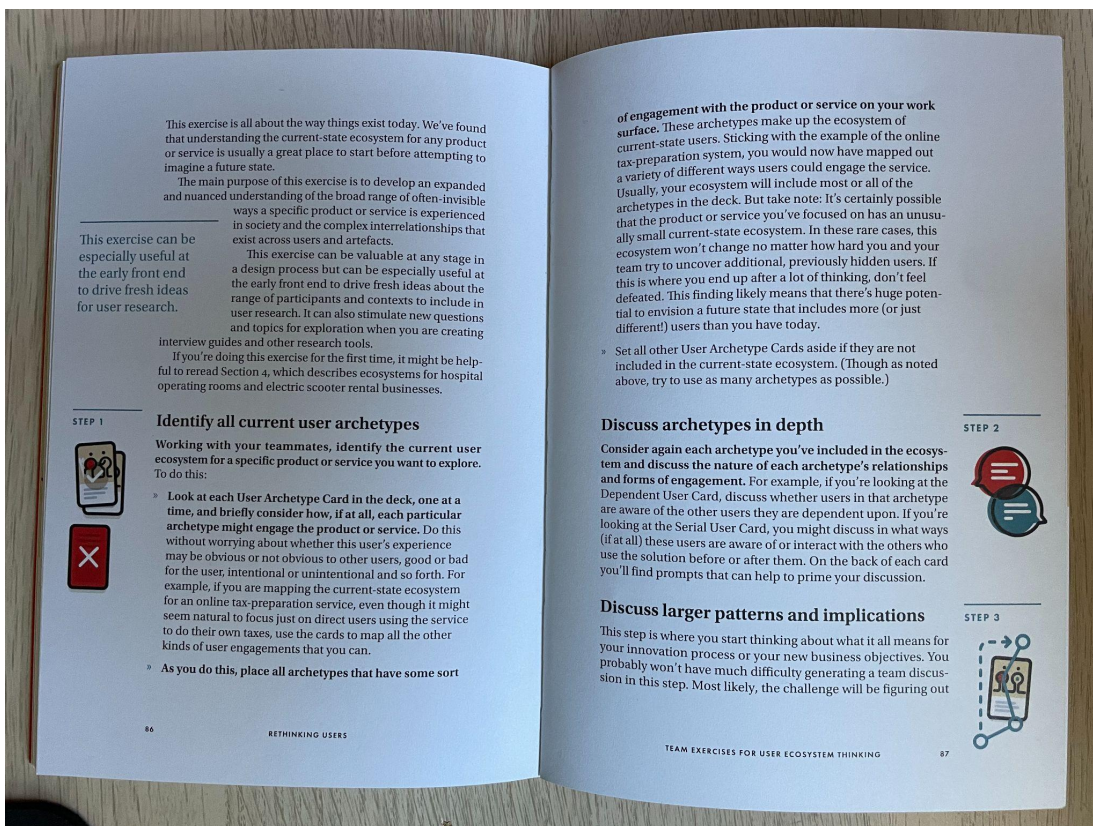
[1] Schiphol Group. (z.d.). Schiphol | Waste separation. Schiphol.

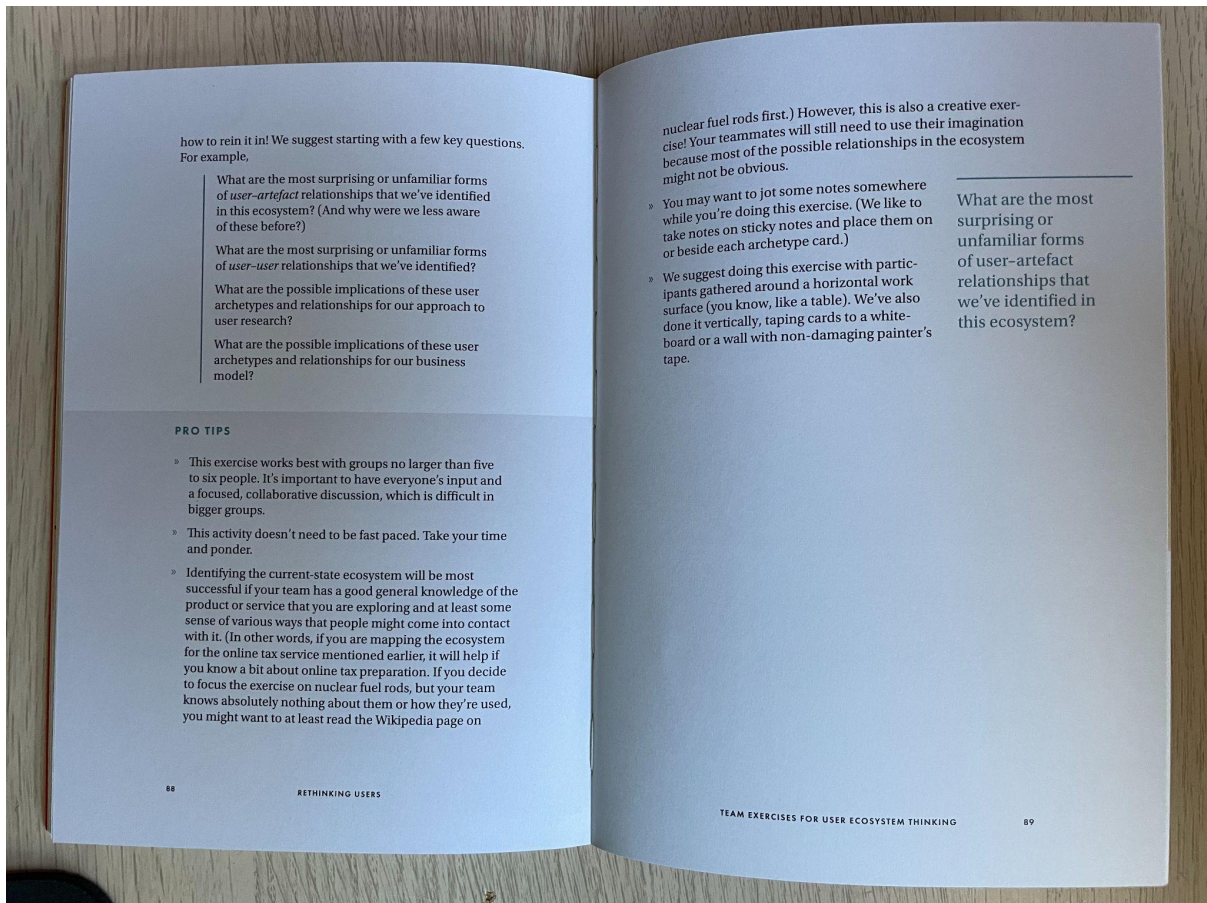
<https://www.schiphol.nl/en/schiphol-group/page/waste-separation/>

[2] Schiphol Group. (2020). Moving towards a more sustainable airport: Figures and data over 2019. In

<https://www.schiphol.nl/en/download/b2b/1595320986/1BKyULSQcE2G4qGw4wmYm8.pdf>.

Appendix E: User eco-system workshop



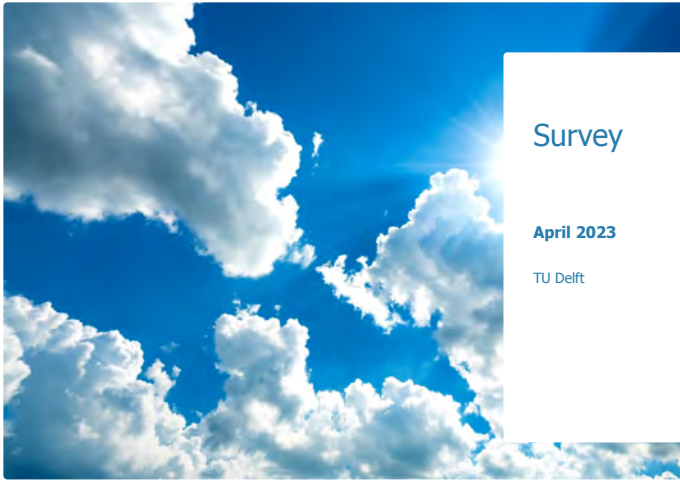


By analysing the current user ecosystem, passengers represent the primary type of user for the FF3 bins at Schiphol Airport. Passengers serve as both direct and indirect users, with the former being those who directly dispose of their waste in the bin and the latter being individuals who accompany them. When direct users dispose of their waste simultaneously, they become parallel users, with the potential to influence each other's behaviour. Moreover, direct users often operate in a sequence, making them serial users who may be influenced by the last passenger(s) who disposed of their waste properly or improperly. Furthermore, direct users can also influence ambient users through their behaviour and the cleanliness of their environment. Additionally, passengers may use the bin for other purposes, such as resting against it or placing items on it for a brief respite.

In addition to passengers, cleaners constitute the second most significant group of users for the FF3 bins. Cleaners are dependent users who rely on the previous direct users' disposal of waste to clean the bin adequately. Maintaining the bin when this is needed, makes the cleaners also the governing user. Comparable to the serial passenger users, cleaners often operate in a sequence and may be influenced by the previous cleaner's work. If passengers do not dispose of their waste correctly, cleaners act as surrogate users and dispose of the waste on their behalf in the bin. Some of the bins, currently being piloted, are equipped with sensors that detect when a cleaner approaches, making them a conglomerate user that reacts to notifications.

Moreover, less common users also offer intriguing insights. For example, oblique users search for PET bottles in the bin, which can hold a deposit value. Schiphol serves as an intermediary user, providing FF3 bins to facilitate the users. With the bins provided, they impact terminal users, such as waste handlers, who must separate the waste based on how well passengers have separated it. The improper separation of PSW has particularly affected them. Finally, the generative user is the bin repairer responsible for fixing any damage.

Appendix L: Waste Separation Questionnaire



Thank you for taking part in this survey.

This survey is part of a graduation project of the Masters' Design for Interaction at the TU Delft.
This survey will take you less than 10 minutes.
If you do not know an answer, you can skip the question.
You can withdraw from the survey at any time.
All answers will be saved anonymously.

General information

First there will follow some general information that we would like to know about you

2

What is your gender?

- Female
- Male
- Non-binary
- Prefer not to say

1

Do you consent to your answers being stored and used for this Design for Interaction masters' graduation project?

- Yes
- No

3

What is your age?

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+

4

What is your profession?

5

What is your nationality?

6

What languages do you speak/read?

Where would you throw away...



In this section, we will provide you with different photos of waste, after which we ask you in which compartment you would throw away your waste. If you are unsure, please pick the one you would choose if you are walking past this bin and want to throw away your waste. If you would do something else with it, let us know.

7

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

8

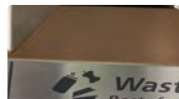
Where would you throw away.... (this biodegradable food container?)



Paper (papier)



Plastic



Waste (restafval)

Andere

9

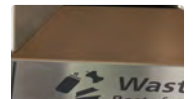
Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

10

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

11

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

12

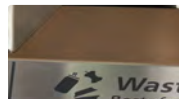
Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

13

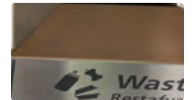
Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

14

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

15

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

16

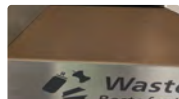
Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

17

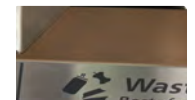
Where would you throw away....
(except the plastic bag)



Paper (papier)



Plastic



Waste (restafval)

Andere

18

Where would you throw away... (this soup container)



Paper (papier)



Plastic



Waste (restafval)

Andere

19

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

21

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

20

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

22

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

Where would you throw away....



Paper (papier)



Plastic



Waste (restafval)

Andere

Passenger questions

In this last section, we ask you more detailed questions, please answer as elaborate as possible.

How often do you visit Schiphol Airport?

- Weekly
- Monthly
- Seasonal
- Yearly
- Andere

What is your most common motivation to go to Schiphol?

To what extent do you agree on...

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I separate my waste at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I care about waste separation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste separation is difficult	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always separate my waste in public places	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find waste separation a waste of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know how to separate my waste	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't understand why we separate waste	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find extra information about disposing waste if i don't know how to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you have any comments regarding the bin?



Thank you for filling in this survey!

This survey gives insights into whether passengers at Schiphol understand where to throw away their waste without giving extra information. The insights will be used to redesign the bin so that passengers know where and how to dispose of their waste.

28

Do you have any questions or remarks regarding this survey?

29

Leave behind your email if we can contact you for further questions

Deze inhoud is niet door Microsoft gemaakt noch goedgekeurd. De gegevens die u verzendt, zal worden gestuurd naar de eigenaar van het formulier.

 Microsoft Forms

Appendix M: Results Questionnaire

Answers questionnaires, and overviews made by Microsoft Forms

Survey

98

Antwoorden

11:09

Gemiddelde tijd om te voltooien

Actief

Status

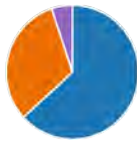
1. Do you consent to your answers being stored and used for this Design for Interaction masters' graduation project?

Yes 97
No 0



2. What is your gender?

Female 62
Male 31
Non-binary 0
Prefer not to say 0
Andere 5



5. What is your nationality?

98
Antwoorden

Meest recente antwoorden
"Netherlands"
"Nederland"
"Nederlandse"

[Bijwerken](#)

61 respondenten (66%) antwoordden Dutch op deze vraag.



6. What languages do you speak/read?

98
Antwoorden

Meest recente antwoorden
"Dutch, English"
"Nederlands,Duits, Engels,Frans en Italiaans"
"Nederlands, Engels, Duits,frans"

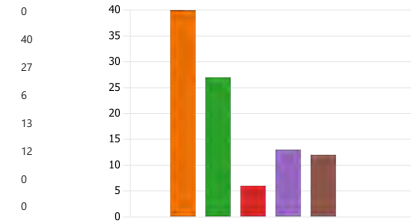
[Bijwerken](#)

14 respondenten (15%) antwoordden Dutch and english op deze vraag.



3. What is your age?

Under 18 0
18-24 40
25-34 27
35-44 6
45-54 13
55-64 12
65-74 0
75+ 0



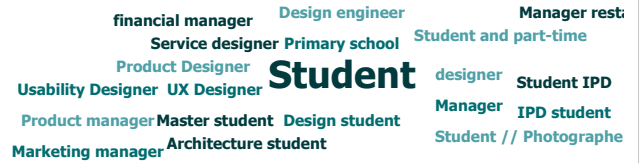
4. What is your profession?

97
Antwoorden

Meest recente antwoorden
"Software Engineer"
"Internationaal vrachtwagen chauffeur"
"Coach voorschoolse educatie in de kinderopvang"

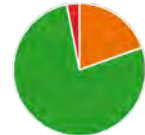
[Bijwerken](#)

31 respondenten (34%) antwoordden Student op deze vraag.



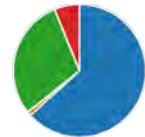
7. Where would you throw away...

Paper (papier) 0
Plastic 19
Waste (restafval) 75
Andere 3



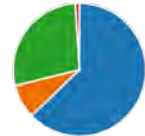
8. Where would you throw away... (this biodegradable food container?)

Paper (papier) 62
Plastic 1
Waste (restafval) 29
Andere 6



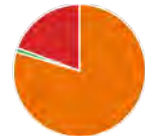
9. Where would you throw away...

Paper (papier) 61
Plastic 8
Waste (restafval) 27
Andere 1



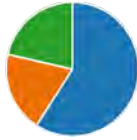
10. Where would you throw away...

Paper (papier) 0
Plastic 78
Waste (restafval) 1
Andere 19



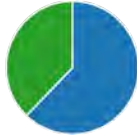
11. Where would you throw away...

Paper (papier)	58
Plastic	19
Waste (restafval)	21
Andere	0



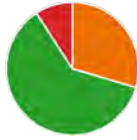
12. Where would you throw away...

Paper (papier)	61
Plastic	0
Waste (restafval)	37
Andere	0



13. Where would you throw away...

Paper (papier)	0
Plastic	29
Waste (restafval)	60
Andere	9



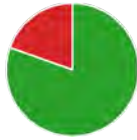
14. Where would you throw away...

Paper (papier)	22
Plastic	9
Waste (restafval)	42
Andere	23



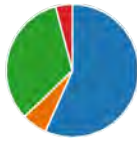
19. Where would you throw away...

Paper (papier)	0
Plastic	0
Waste (restafval)	78
Andere	19



20. Where would you throw away...

Paper (papier)	55
Plastic	6
Waste (restafval)	32
Andere	4



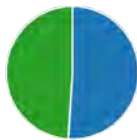
21. Where would you throw away...

Paper (papier)	2
Plastic	93
Waste (restafval)	3
Andere	0



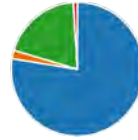
22. Where would you throw away...

Paper (papier)	50
Plastic	0
Waste (restafval)	48
Andere	0



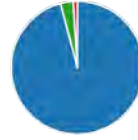
15. Where would you throw away...

Paper (papier)	76
Plastic	2
Waste (restafval)	19
Andere	1



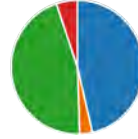
16. Where would you throw away...

Paper (papier)	93
Plastic	0
Waste (restafval)	3
Andere	1



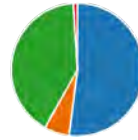
17. Where would you throw away... (except the plastic bag)

Paper (papier)	45
Plastic	3
Waste (restafval)	44
Andere	5



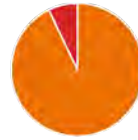
18. Where would you throw away... (this soup container)

Paper (papier)	51
Plastic	6
Waste (restafval)	40
Andere	1



23. Where would you throw away...

Paper (papier)	0
Plastic	91
Waste (restafval)	0
Andere	7



24. How often do you visit Schiphol Airport?

Weekly	2
Monthly	7
Seasonal	25
Yearly	48
Andere	14



25. What is your most common motivation to go to Schiphol?

96
Antwoorden

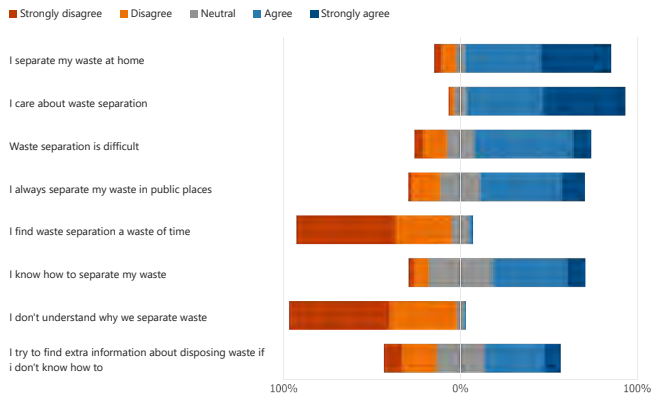
Meest recente antwoorden
"Good connections to lots of destinations"
"Holiday"

Bijwerken

20 respondenten (22%) antwoordden Holiday op deze vraag.



26. To what extent do you agree on...



27. Do you have any comments regarding the bin?

58
Antwoorden

Meest recente antwoorden
"Er is niet een aparte bak voor blikjes"
"Mis GFT"

Bijwerken

13 respondenten (24%) antwoordden **waste** op deze vraag.



28. Do you have any questions or remarks regarding this survey?

31
Antwoorden

Meest recente antwoorden
"Succes"

Bijwerken

3 respondenten (10%) antwoordden **waste separation** op deze vraag.



29. Leave behind your email if we can contact you for further questions

37
Antwoorden

Meest recente antwoorden
"floor.oskam1970@gmail.com"
"J-kavermann@hotmail.com"

Appendix N: Behaviour testing at IDE faculty

Topic: Passenger waste separation with FF3 bins
05-06-2023

Aim:

To find out if the concept, developed from the project so far, is working and understandable for the passengers.

Area:

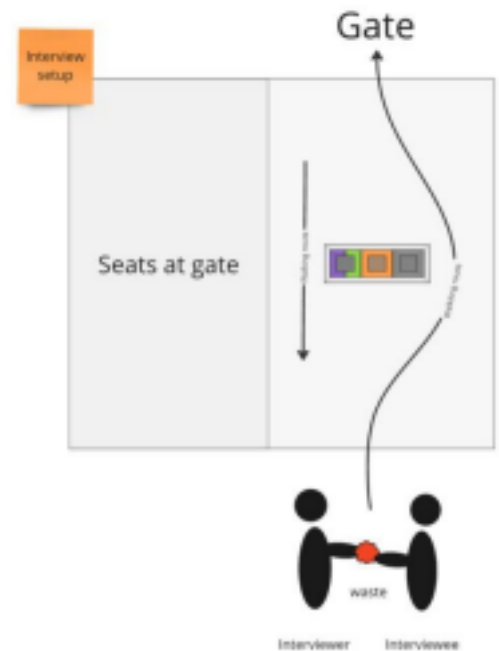
Near the gates, where people are waiting and have time to answer questions. Also, they already have had several opportunities to buy and dispose of waste.

Duration: max. 10 minutes per participant

Sample number: 5 - 10 participants

Set up, see the visual,

Start at one side of the 'hallway', where the interviewer explains the interview with the interviewee. The bin is located, with the prototype at some distance, the interviewee passes this to go to the 'gate' on the other side of the 'hallway'. The prototype consists of coloured paper with icons/text to indicate the waste streams. The prototype will be attached to the FF3 bin with a bit of tape (plakband), so that it can be removed without any traces.



1. Ask for consent to record (audio only) the conversation for a graduation project, record and then ask for consent again. Ask also if it is okay for the interviewee if photos (that will be anonymous) are made.

2. Sketch the scenario:

'Imagine yourself at Schiphol Airport, you just came through security and did some shopping at the Schiphol facilities. You are looking for your gate because your boarding time starts in half an hour, so you are in a bit of a rush. However, from your shopping, you had these pieces of waste, please go to your 'gate' and dispose of your waste in the bin you pass.'

3. Give the interviewee 2 or 3 pieces of PSW that are derived from the Waste Safari report.

List of possible waste objects:

- Coffee cups, lids, and holders
- PET bottles (with some liquid?)
- Cans
- Plastic food packaging
- 'Dirty' food container
- (dirty) Napkins
- Organic waste
- Disposable cutlery
- Drinking cartons
- Receipts
- Product packaging
- Newspapers
- Paper/plastic shopping bag
- Luggage labels or boarding passes

4. Let the interviewee pass the hallway and go to the 'gate', follow shortly after and document the choice by taking a picture of the disposed waste in the bin.

5. Ask the interviewee questions about the test

- Did you think about how you were going to dispose of your waste?
- Did you know in which bin you had to dispose of each piece of waste? (which items were certain, about which ones did they have doubts)
- Would you describe the separation of waste as easy or hard? Why?
- Do you have any comments regarding the bin?

Did the bin inform you enough about how to dispose of your waste?

Did the bin motivate you to dispose of your waste?

6. Ask the interviewee deepening questions about personal separation behaviour.
- How often do you think about separating waste in public spaces and what motivates you to do so?
 - In what ways do you believe the separation of your waste is making an impact on Schiphol and the environment? Do you feel like you contribute to the sustainability of Schiphol?
 - What types of waste do you typically separate at home and how confident do you feel about your separation practices?
 - What motivates you to separate waste at home?
 - How important is it for you to separate waste?

If the interviewee separates waste at home:

- Which specific items do you make an effort to separate the most and why are they important to separate?
- What makes certain items difficult for you to separate and have you found any solutions to overcome these difficulties?

If participants are Dutch, the questions from steps 5 onwards follow below:

- Dacht u na over waar u je afval moest weggooien?

- Wist u precies in welke bak u de stukken afval moest weggooien? (welke zeker/twijfels)
- Zou u het scheiden van afval omschrijven als makkelijk of moeilijk, waarom?
- Heeft u opmerkingen over de bak? (meer informatie/motivatie?)

Diepere vragen over gedrag tov het scheiden van afval

- Hoe vaak denkt u na over afval scheiden in de openbare ruimte en wat motiveert u om dat te doen?
- Op welke manieren denkt u dat het scheiden van uw afval impact heeft op Schiphol en het milieu? Heeft u hierbij het gevoel dat u bijdraagt aan de verduurzaming van Schiphol?
- Welke soorten afval scheidt u gewoonlijk thuis en hoeveel vertrouwen heeft u erin dat u dit goed doet?
- Wat motiveert u om thuis afval te scheiden?
- Hoe belangrijk vindt u het scheiden van afval?

Als interviewee afval scheidt:

- Welke specifieke items doe je het meest moeite om te scheiden en waarom zijn ze belangrijk om te scheiden?
- Wat maakt het voor u moeilijk om bepaalde items te scheiden en heeft u oplossingen gevonden om deze problemen op te lossen?

Appendix O: Sensitising booklets

INTRODUCTION

Hi! First of all, thank you so much for wanting to participate in this research. As far as we know, you are about to travel somewhere by plane, and we would like to know more about your coming journey. This booklet has different pages that we would like you to fill in. On the right, we will start 3 days before your departure until you are in the plane. The second part (if applicable) will start 1 day before your return flight.

We hope you have fun on your trip, please write/attach/draw as many things that you can think of in this booklet!
If you have any questions or comments you can always message Wika 311.8.4922222 or Anissa 311.8.4118444


ABOUT YOUR TRIP

Where do you come from? Siem Reap (What is your origin?)
 Who are you traveling with? For family
 Where are you traveling to? Paris, France
 What is your destination? Europe
 What is your departure date? May 11 (on arrival) May 11
 What do you like most about traveling by plane?
In short, quick, big the fastest way, beautiful, no other vehicles

PREPARATIONS FOR YOUR TRIP

What do you need to prepare before you start to travel?
 1. Passport & Visa
 2. Travel Documents
 3. Check-in
 4. Check-out
 5. Check-in
 6. Check-out
 7. Check-in
 8. Check-out
 9. Check-in
 10. Check-out

What do you think you need to do on the way?
Be well rested, eat the correct way, healthy, no other vehicles






EXPECTATIONS OF SCENARIO

What do you expect to happen during your trip?
 1. Fun, interesting
 2. Relaxation
 3. Enjoyable
 4. Relaxation
 5. Enjoyable
 6. Relaxation
 7. Enjoyable
 8. Relaxation
 9. Enjoyable
 10. Relaxation

AT THE GATE

What do you expect to happen at the gate?
 1. Line up to check in
 2. Check in
 3. Line up to board
 4. Board
 5. Line up to board
 6. Board

ON THE PLANE

What do you expect to happen on the plane?
 1. Relaxation
 2. Enjoyable
 3. Relaxation
 4. Enjoyable
 5. Relaxation
 6. Enjoyable
 7. Relaxation
 8. Enjoyable
 9. Relaxation
 10. Enjoyable






END OF 1ST SECTION // START OF 2ND SECTION!
 What do you expect to happen at the end of your trip?
 1. Relaxation
 2. Enjoyable
 3. Relaxation
 4. Enjoyable
 5. Relaxation
 6. Enjoyable
 7. Relaxation
 8. Enjoyable
 9. Relaxation
 10. Enjoyable

BEFORE GOING-BACK
 What do you expect to happen before going back?
 1. Relaxation
 2. Enjoyable
 3. Relaxation
 4. Enjoyable
 5. Relaxation
 6. Enjoyable
 7. Relaxation
 8. Enjoyable
 9. Relaxation
 10. Enjoyable







IN THE PLANE
 What do you expect to happen in the plane?
 1. Relaxation
 2. Enjoyable
 3. Relaxation
 4. Enjoyable
 5. Relaxation
 6. Enjoyable
 7. Relaxation
 8. Enjoyable
 9. Relaxation
 10. Enjoyable





IN THE PLANE
 What do you expect to happen in the plane?
 1. Relaxation
 2. Enjoyable
 3. Relaxation
 4. Enjoyable
 5. Relaxation
 6. Enjoyable
 7. Relaxation
 8. Enjoyable
 9. Relaxation
 10. Enjoyable



INTRODUCTION
 Hi! First of all, thank you so much for wanting to participate in this research. As far as we know, you are about to travel somewhere by plane, and we would like to know more about your coming journey. This booklet has different pages that we would like you to fill in. On the right, we will start 3 days before your departure until you are in the plane. The second part (if applicable) will start 1 day before your return flight.

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ABOUT YOUR TRIP
 Where do you come from? Siem Reap (What is your origin?)
 Who are you traveling with? For family
 Where are you traveling to? Paris, France
 What is your destination? Europe
 What is your departure date? May 11 (on arrival) May 11
 What do you like most about traveling by plane?
In short, quick, big the fastest way, beautiful, no other vehicles

PREPARATIONS FOR YOUR TRIP
 What do you need to prepare before you start to travel?
 1. Passport & Visa
 2. Travel Documents
 3. Check-in
 4. Check-out
 5. Check-in
 6. Check-out
 7. Check-in
 8. Check-out
 9. Check-in
 10. Check-out

What do you think you need to do on the way?
Be well rested, eat the correct way, healthy, no other vehicles



EXPECTATIONS OF SCENARIO
 What do you expect to happen during your trip?
 1. Fun, interesting
 2. Relaxation
 3. Enjoyable
 4. Relaxation
 5. Enjoyable
 6. Relaxation
 7. Enjoyable
 8. Relaxation
 9. Enjoyable
 10. Relaxation

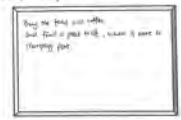
AT THE GATE Handwritten title

What are the things you need to do before you go to the airport?
 1. Check your suitcase
 2. Get your boarding pass



ON THE PLANE Handwritten title

What are the things you need to do on the plane?
 1. Put your seatbelt on
 2. Listen to the pilot
 3. Don't drink or eat



Handwritten notes and icons for 'AT THE GATE' and 'ON THE PLANE' sections, including a checklist of items and actions.

END OF 1ST SECTION // START OF 2ND SECTION!

What are the things you need to do at the end of the first section?
 1. Write your name
 2. Write your address
 3. Write your phone number

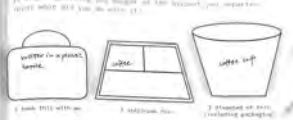
BEFORE GOING BACK

Form with fields for name, address, and phone number, and a small illustration of a person with a suitcase.

IN THE PLANE



IN THE PLANE



Handwritten notes and icons for 'IN THE PLANE' sections, including a checklist of items and actions.

INTRODUCTION

What are the things you need to do in the introduction?
 1. Write your name
 2. Write your address
 3. Write your phone number

ABOUT YOUR TRIP

Form with fields for destination, departure date, and other trip details.

PREPARATIONS FOR YOUR TRIP

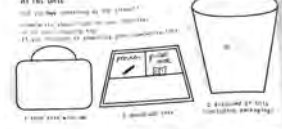
- 1. Passport
- 2. Money
- 3. Suitcase
- 4. Travel kit



EXPECTATIONS OF SCHOOL

- 1. Make a list of things to do
- 2. Write down your expectations
- 3. ...
- 4. ...

AT THE GATE



ON THE PLANE



Handwritten notes and icons for 'AT THE GATE' and 'ON THE PLANE' sections, including a checklist of items and actions.

END OF 1ST SECTION // START OF 2ND SECTION!

This was the first section of the booklet! We would like to see you fill in this section in the second part of the booklet 1 day before your return flight, so please set a reminder/alert to help you remember!

And again, when you start the next section, please write/write/scrabble as many things that you can think of in this booklet!

If you have any questions or comments you can always message me via 21.8.2022222@unimelb.edu.au or twitter [21.8.2022222](https://twitter.com/21.8.2022222)

BEFORE GOING BACK

What are you looking forward to the most during your trip?

goland trip

1. *from vander mali below*
- 2.
- 3.
- 4.
- 5.



IN THE PLANE


Use these prompts to think about the things you'll see, hear, smell, taste, feel, touch, and think about during your flight.

1. *what I like*
2. *what I don't like*
3. *what I see*
4. *what I hear*
5. *what I smell*
6. *what I taste*
7. *what I feel*
8. *what I touch*
9. *what I think about*




IN THE PLANE

Use these prompts to think about the things you'll see, hear, smell, taste, feel, touch, and think about during your flight.



AT THE GATE



INTRODUCTION

Well first of all, thank you so much for wanting to participate in this research! As far as we know, you are about to travel somewhere by plane, and we would like to know more about your coming journey!

This booklet has different pages that we would like you to fill in, in the time that you have before your departure until you are on the plane. The second part (if applicable) will start 1 day before your return flight.

We know you have fun on your trip, please write/write/scrabble as many things that you can think of in this booklet!

If you have any questions or comments you can always message me via 21.8.2022222@unimelb.edu.au or twitter [21.8.2022222](https://twitter.com/21.8.2022222)

ABOUT YOUR TRIP

What is your name? *David*

What are you travelling to? *Tokyo, Japan*

What is your destination? *China*

How long will you be away for? *10 days*

What is your departure date? *21.08.2022*

What is your return date? *31.08.2022*

How long will you be away for? *10 days*

What is your departure date? *21.08.2022*

What is your return date? *31.08.2022*

How long will you be away for? *10 days*

What is your departure date? *21.08.2022*

What is your return date? *31.08.2022*

PREPARATIONS FOR YOUR TRIP

1. *checklist*
2. *packing*
3. *check-in*
4. *boarding*
5. *takeoff*
6. *in-flight*
7. *landing*
8. *disembarkation*
9. *arrival*



EXPECTATIONS OF SCHOOL

Check in system

Security check

Boarding of the landing zone

Gate is open for the departure

Less time at the airport

AT THE GATE



ON THE PLANE



IN THE PLANE



AT THE GATE



END OF 1ST SECTION // START OF 2ND SECTION!

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BEFORE GOING BACK

What are you looking forward to the most during your trip?

goland trip

1. *from vander mali below*
- 2.
- 3.
- 4.
- 5.



IN THE PLANE



AT THE GATE



1. book bags with me

2. airplane tray

3. glass of this (including packaging)

AT THE GATE

Did you buy something at the airport?

Draw/tip/line them down on your food tray or in your notebook!

If you finished or something was delicious (YAY)!

INTRODUCTION

Hi! First of all, thank you so much for wanting to participate in this research. As far as we know, you are about to travel somewhere by plane, and we would like to know more about your coming journey!

This booklet has different pages that we would like you to fill in, the time indication when you have to fill in a page is given on the top right. We will start 2 days before your departure until you are before your return flight.

We hope you have fun on your trip, please write/sketch/draw/illustrate as many things that you can think of in this booklet!

If you have any questions or comments you can always message Wibo 231.6.4242222 or Anneli 231.6.4242122

ABOUT YOUR TRIP

What is your name? Dennis URS What is your age? 24

Why are you travelling? Traveling from China to see how it is

Where are you travelling to? Bangkok - Duff

What is your nationality? Chinese

What is your departure date? 08/12/23 and arrival? 09/12/23

What do you like most about travelling by plane? Quick, nothing from customs to customs, and you can enjoy the beautiful view over the clouds.

PREPARATIONS FOR YOUR TRIP

What are the most important things for you to take on your travels?

1. cash money
2. clothes
3. passport
4. passport
5. _____

Are you bringing any food or drinks? Not really, I prefer taking the food in the airline's position.

EXPECTATIONS OF SCHOOL

What do you like about school?

1. Have something to do
2. Meet new people
3. You need to work a lot
4. The quality check is simple
5. You don't need to talk to much people

What do you dislike about school?

1. Not using Asian textbooks

AT THE GATE

Did you buy something at the airport?

Draw/tip/line them down on your food tray or in your notebook!

If you finished or something was delicious (YAY)!

ON THE PLANE

Can you sketch your favorite moment between going through security and boarding for the plane?

1. book bags with me

2. airplane tray

3. glass of this (including packaging)

AT THE GATE

Did you buy something at the airport?

Draw/tip/line them down on your food tray or in your notebook!

If you finished or something was delicious (YAY)!

ON THE PLANE

Can you sketch your favorite moment between going through security and boarding for the plane?

END OF 1ST SECTION // START OF 2ND SECTION!

This was the first section of the booklet! We would like to ask you if you could fill in the second part of the booklet 2 days before your return flight, so please set a reminder/alert to help you remember!

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BEFORE GOING BACK

What are you looking forward to the most during your trip back?

1. Sleep on the plane
2. Just on the plane
3. The silence and comfort give us the place
4. _____
5. _____
6. _____
7. _____

IN THE PLANE

Is there something you bought at the airport you departed from? What did you do with it?

IN THE PLANE

Can you sketch your favorite moment between going through security and boarding for the plane?

1. book bags with me

2. airplane tray

3. glass of this (including packaging)

AT THE GATE

Did you buy something at the airport?

Draw/tip/line them down on your food tray or in your notebook!

If you finished or something was delicious (YAY)!

ON THE PLANE

Can you sketch your favorite moment between going through security and boarding for the plane?

INTRODUCTION

Hi! First of all, thank you so much for wanting to participate in this research. As far as we know, you are about to travel somewhere by plane, and we would like to know more about your coming journey!

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If you have any questions or comments you can always message Wibo 231.6.4242222 or Anneli 231.6.4242122

ABOUT YOUR TRIP

What is your name? Dennis URS What is your age? 24

Why are you travelling? Traveling from China to see how it is

Where are you travelling to? Bangkok - Duff

What is your nationality? Chinese


What is your departure date? 08/12/23 and arrival? 09/12/23

What do you like most about travelling by plane? Quick, nothing from customs to customs, and you can enjoy the beautiful view over the clouds.

PREPARATIONS FOR YOUR TRIP

What are the most important things for you to take on your travels?

1. PASSPORT
2. MONEY/DEBIT CARD
3. PHONE
4. PERSONAL MEDICATION
5. JAVANA (DETERGENT) TO DO HYGIENE
6. BATHING SOAP
7. SHIRT/SHIRT



EXPECTATIONS OF SCHIPHOOF

What do you like about Schiphol?

1. BEING ORGANIZED AT 3 (LEVELS)
2. BEING ORGANIZED INTO CLEAR ZONES
3. THE LARGE SPACE OF THE HALLWAY
4. CHECKING IN POINT
5. STAFF TO CHECK BAGGAGE

What do you not like about Schiphol?

1. BEING AT THE END OF THE ROAD
2. BEING ORGANIZED INTO CLEAR ZONES
3. CHECKING IN POINT
4. CHECKING BAGGAGE
5. STAFF TO CHECK BAGGAGE

AT THE GATE

Did you buy something at the airport?
Separate these items in your food tray or in your shopping bag!



ON THE PLANE

Can you sketch your favourite moment between going through security and boarding the plane?



SPACE FOR TEXT/SKETCHES/SCRIBBLES

THINK ABOUT THE BEST MOMENTS IN YOUR TRIP! AS MANY AS YOU WANT!
I CAN DRAW AND WRITE BUT I DON'T KNOW HOW TO WRITE.

EMOTIONS ALONG YOUR JOURNEY

Can you explain how you feel?

THINK ABOUT THE BEST MOMENTS IN YOUR TRIP! AS MANY AS YOU WANT!
I CAN DRAW AND WRITE BUT I DON'T KNOW HOW TO WRITE.

CUSTOMER JOURNEY EMOTIONS

How did you feel along the way?

1. ARRIVAL
2. CHECKING IN
3. SECURITY
4. BOARDING
5. TAKE OFF
6. IN FLIGHT
7. LANDING
8. DISBURSAL

How did you feel along the way?

1. ARRIVAL
2. CHECKING IN
3. SECURITY
4. BOARDING
5. TAKE OFF
6. IN FLIGHT
7. LANDING
8. DISBURSAL

END OF 1ST SECTION // START OF 2ND SECTION!

This was the first section of the booklet! We would like to ask you if you could fill in the second part of the booklet 1 day before your return flight, so please set a reminder/alarm to help you remember.

And again, when you start the next section, please write/sketch/scribble as many things that you can think of in this booklet!

If you have any questions or comments you can always message via 121-6-8220222 or 121-6-8220222

BEFORE GOING BACK

What are you looking forward to the most during your trip back?

1. TO GO HOME
2. TO VISIT MY PARENTS
3. TO VISIT MY FRIENDS
4. TO VISIT MY FRIENDS
- 5.
- 6.
- 7.

IN THE PLANE

Is there something at an airport that you always try to avoid? Please circle it!



LEAVING AIRPORT

Is there something you bought along the journey? What did you do with it?



CUSTOMER JOURNEY EMOTIONS

How did you feel along the way?

1. ARRIVAL
2. CHECKING IN
3. SECURITY
4. BOARDING
5. TAKE OFF
6. IN FLIGHT
7. LANDING
8. DISBURSAL

How did you feel along the way?

1. ARRIVAL
2. CHECKING IN
3. SECURITY
4. BOARDING
5. TAKE OFF
6. IN FLIGHT
7. LANDING
8. DISBURSAL

INTRODUCTION

Hi! First of all, thank you so much for wanting to participate in this research, so that we can learn you are about to travel smoothly. We always will be glad to hear more about your coming journey!

This booklet has different pages that we would like you to fill in. We have clear instructions when you have to fill in a page to draw on the top right. We will start 2 days before your departure until you are on the plane. The second part (if applicable) will start 1 day before your return flight.

We hope you have fun in your trip, please write/sketch/scribble as many things that you can think of in this booklet!

If you have any questions or comments you can always message via 121-6-8220222 or 121-6-8220222

ABOUT YOUR TRIP

What is your point of departure? Rotterdam What is your point of arrival? London

When are you travelling to? 12/20/2023

What is your destination? London

What is your departure date? 12/20/2023 and on what? 12/20/23

What do you like most about travelling to London?

TO GO TO THE CITY


TO GO TO THE CITY

TO GO TO THE CITY

PREPARATIONS FOR YOUR TRIP

What are the most important things for you to take on your travels?

1. PASSPORT
2. MONEY/DEBIT CARD
3. PHONE
4. PERSONAL MEDICATION
5. JAVANA (DETERGENT) TO DO HYGIENE
6. BATHING SOAP
7. SHIRT/SHIRT



EXPECTATIONS OF SCHIPHOOF

What do you like about Schiphol?

1. BEING ORGANIZED AT 3 (LEVELS)
2. BEING ORGANIZED INTO CLEAR ZONES
3. THE LARGE SPACE OF THE HALLWAY
4. CHECKING IN POINT
5. STAFF TO CHECK BAGGAGE

What do you not like about Schiphol?

1. BEING AT THE END OF THE ROAD
2. BEING ORGANIZED INTO CLEAR ZONES
3. CHECKING IN POINT
4. CHECKING BAGGAGE
5. STAFF TO CHECK BAGGAGE

END OF 1ST SECTION // START OF 2ND SECTION!

This was the first section of the booklet we would like to ask you: if you could fill in the second part of the booklet 1 day before your return flight, so please set a reminder/alert to help you remember.

And again, when you start the next section, please write/insert/attach as many things that you can think of in this booklet!

If you have any questions or comments you can always message Mike via WhatsApp or Twitter @MikeS202022

BEFORE GOING BACK

What are you thinking forward to the next spring your trip back?

1. to walk
2. to meet again
3. _____
4. _____
5. _____
6. _____
7. _____

IN THE PLANE

1. How comfortable was the flight? (1-5)

2. What something you thought of the airplane you departed from? What did you do with it?

1. change your seat

2. change the seat

3. change of seat (including packaging)

INTRODUCTION

All first of all, thank you so much for wanting to participate in this research. As far as we know, you are about to travel somewhere so please set a reminder/alert to help you remember!

This booklet has different pages that we would like you to fill in, the time indicator when you have to fill in a page is given on the left right. We will start 2 days before your departure until you are in the plane. The second part of questionnaire will start 2 days before your return flight.

So thank you have fun on your trip, please write/insert/attach as many things that you can think of in this booklet.

If you have any questions or comments you can always message Mike via WhatsApp or Twitter @MikeS202022

ABOUT YOUR TRIP

What is your name? Michael What is your age? 27

Why are you traveling? business purpose

Where are you traveling to? Edinburgh

What is your nationality? UK

What is your departure date? 12.5.22 and arrival? 12.12.22

What do you like most about traveling by plane? getting somewhere without any fuel

PREPARATIONS FOR YOUR TRIP

What are the most important things for you to take on your trip?

1. passport
2. cash
3. travel card (pin)
4. travel plan
5. travel bag

Are you bringing any food or drinks? yes, some food

EXPECTATIONS OF SCHOOL

What do you think about school? (1-5)

1. flights to my destination - parking is very expensive
2. easy to read by local - very crowded
3. nothing about
4. nothing about
5. nothing about

Are you bringing any food or drinks? yes, some food

AT THE GATE

1. How comfortable was the flight? (1-5)

2. What something you thought of the airplane you departed from? What did you do with it?

1. change your seat

2. change the seat

3. change of seat (including packaging)

ON THE PLANE

1. How comfortable was the flight? (1-5)

2. What something you thought of the airplane you departed from? What did you do with it?

1. change your seat

2. change the seat

3. change of seat (including packaging)

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And again, when you start the next section, please write/insert/attach as many things that you can think of in this booklet!

If you have any questions or comments you can always message Mike via WhatsApp or Twitter @MikeS202022

BEFORE GOING BACK

What are you thinking forward to the next spring your trip back?

1. sleeping in the plane!
2. the flight being in time (on schedule)
3. _____
4. _____
5. _____
6. _____
7. _____

Cooking and drinking to eat on the plane; flight take only 1.5 hour

IN THE PLANE

1. How comfortable was the flight? (1-5)

2. What something you thought of the airplane you departed from? What did you do with it?

1. change your seat

2. change the seat

3. change of seat (including packaging)

ON THE PLANE

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2. What something you thought of the airplane you departed from? What did you do with it?

1. change your seat

2. change the seat

3. change of seat (including packaging)

INTRODUCTION

Hi! First of all, thank you so much for wanting to participate in this research. As far as we know, you are about to travel somewhere by plane, and we would like to know more about your coming journey. This booklet has different pages that we would like you to fill in, the time indication when you have to fill in a page is given on the top right. We will start 2 days before your departure until you are in the plane. The second part (if applicable) will start 1 day before your return flight.

We hope you have fun on your trip, please write/insert/attach as many things that you can think of in this booklet!
If you have any questions or comments, feel free always!
MESSAGE WITH THE # HASHTAG IS NUMBER 123-4-5678910

ABOUT YOUR TRIP

What is your name? Michael Chen What do you do? IT
Why are you traveling? Travel
Where are you traveling to? London
What is your destination? China
When is your departure date? 21/11 and arrival 24/11
How do you (traveler) want traveling to return? Home/Booked
signature

PREPARATIONS FOR YOUR TRIP

What are the most important things for you to take on your traveling?
1. Passport
2. Money
3. Documents
4. ...
What are the things you have to remember?
...

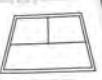


EXPECTATIONS OF SCREENPI

What do you like most about the screenpi?
1. Looks nice
2. Language switching
3. Low weight
4. Clear and large content
What do you think is most important to remember?
...

AT THE GATE

What are you planning to do on the screenpi?
1. Check-in
2. Boarding pass
3. Check baggage
4. ...



ON THE PLANE

What are you planning to do on the screenpi?
1. Check-in
2. Boarding pass
3. Check baggage
4. ...



Hand-drawn interface for a flight information system. It features a grid of icons representing different flight stages: 1. Check-in, 2. Boarding, 3. Take-off, 4. In-flight, 5. Landing, 6. De-boarding. Each icon is accompanied by a small text label and a circular progress indicator. The interface is designed to be user-friendly and easy to navigate.

END OF 1ST SECTION // START OF 2ND SECTION!
This is the first section of the booklet. We would like to see this. If you would like to fill in the second part of the booklet 1 day before your return flight, it should not be a reminder/return to help you remember.
And finally, when you start the next section, please write/insert/attach as many things that you can think of in this booklet!
If you have any questions or comments, feel free always!
MESSAGE WITH THE # HASHTAG IS NUMBER 123-4-5678910

BEFORE GOING BACK

What are you planning to do on the screenpi?
1. Check-in
2. Boarding pass
3. Check baggage
4. ...



Hand-drawn interface for a flight information system, similar to the first one. It features a grid of icons representing different flight stages: 1. Check-in, 2. Boarding, 3. Take-off, 4. In-flight, 5. Landing, 6. De-boarding. Each icon is accompanied by a small text label and a circular progress indicator.

ON THE PLANE

What are you planning to do on the screenpi?
1. Check-in
2. Boarding pass
3. Check baggage
4. ...

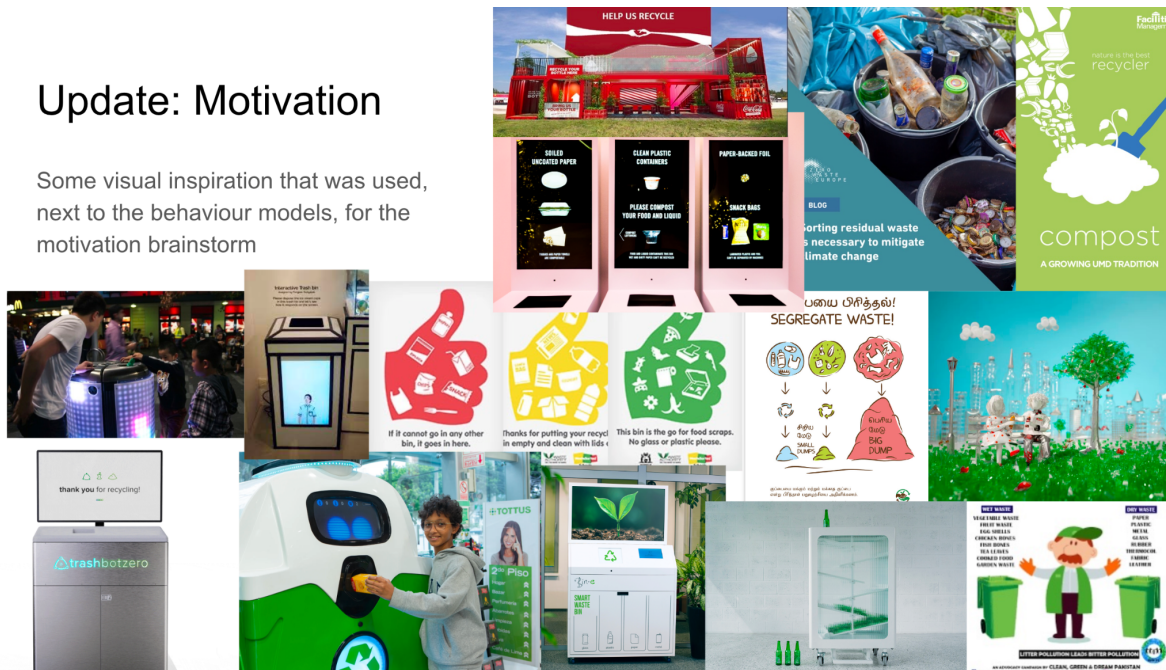


Appendix R: Overview inspiration bins



Update: Motivation

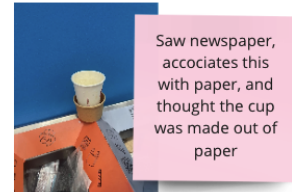
Some visual inspiration that was used, next to the behaviour models, for the motivation brainstorm



Appendix S: Morphological chart

	Waste streams FF3	Bins lids	STICKERING top	STICKERING front	ICONS	TEXT	COLOURS
residual		 hand opening lid			 government	NL/EN EN	 government
Plastic → PMD		 coffee cups			 deafvalbak.nl	one word description	
Paper		 bin splitter				extra explanation	
Organic GFT		 paper slit				can / cannot dispose	
Deposit bottles and cans: PET & cans		 circular opening					
Liquid		 liquid pour opening					

Appendix T: Test ability



Saw newspaper, associates this with paper, and thought the cup was made out of paper

wooden cutlery should go in 'other waste'



asked what the 'bin' icon meant

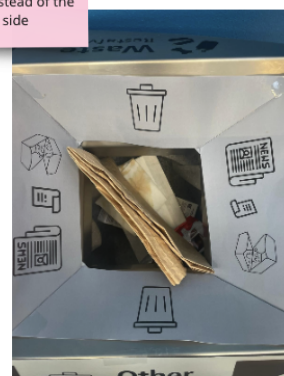
did not really read the 'drink packaging' or looked at the icons of drink packaging



text can not be read from a distance



would find it logical if PSW items were presented on the top in stead of the side



did not separate waste given together

Appendix U: Questionnaire 2

Survey (2)

73
Antwoorden

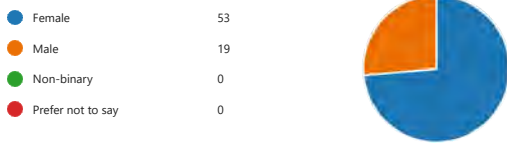
08:08
Gemiddelde tijd om te voltooien

Actief
Status

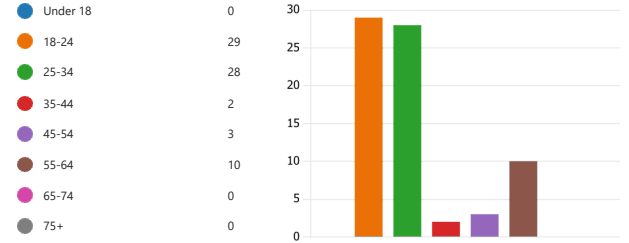
1. Do you consent to your answers being stored and used for this Design for Interaction masters' graduation project?



2. What is your gender?



3. What is your age?

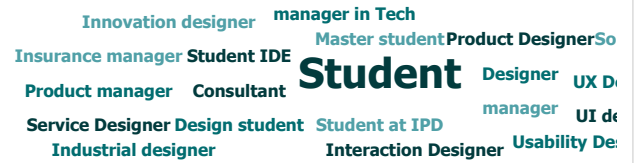


4. What is your profession?

70
Antwoorden

Meest recente antwoorden
"Student"
"Nurse"
"Communications Manager"

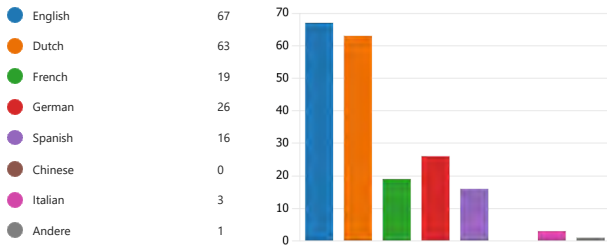
25 respondenten (36%) antwoorden Student op deze vraag.



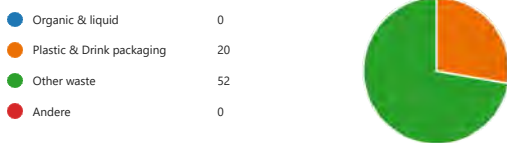
5. What is your nationality?



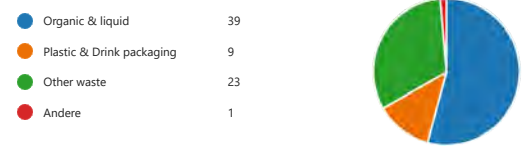
6. What languages do you speak/read?



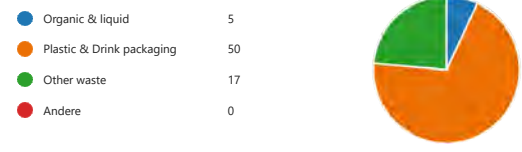
7. Where would you throw away....



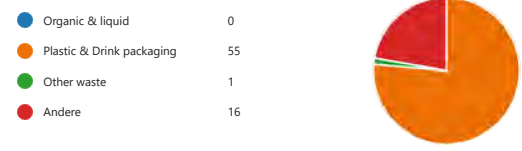
8. Where would you throw away.... (this biodegradable food container?)



9. Where would you throw away....



10. Where would you throw away....

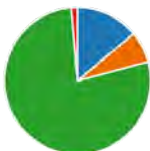


11. Where would you throw away.... (this biodegradable coffee cup lid)



12. Where would you throw away...

Organic & liquid	10
Plastic & Drink packaging	5
Other waste	56
Andere	1



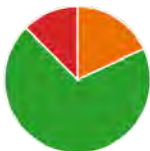
13. Where would you throw away...

Organic & liquid	0
Plastic & Drink packaging	63
Other waste	9
Andere	0



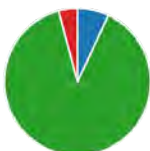
14. Where would you throw away...

Organic & liquid	0
Plastic & Drink packaging	13
Other waste	50
Andere	9



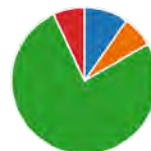
15. Where would you throw away...

Organic & liquid	5
Plastic & Drink packaging	0
Other waste	64
Andere	3



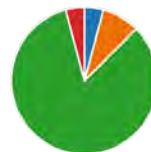
16. Where would you throw away...

Organic & liquid	7
Plastic & Drink packaging	5
Other waste	55
Andere	5



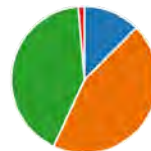
17. Where would you throw away...

Organic & liquid	3
Plastic & Drink packaging	6
Other waste	60
Andere	3



18. Where would you throw away...

Organic & liquid	9
Plastic & Drink packaging	32
Other waste	30
Andere	1



19. Where would you throw away...

Organic & liquid	72
Plastic & Drink packaging	0
Other waste	0
Andere	0



20. Where would you throw away...

Organic & liquid	3
Plastic & Drink packaging	46
Other waste	20
Andere	3



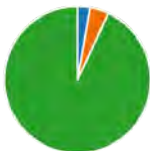
21. Where would you throw away...

Organic & liquid	0
Plastic & Drink packaging	69
Other waste	3
Andere	0



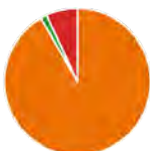
22. Where would you throw away...

Organic & liquid	2
Plastic & Drink packaging	3
Other waste	67
Andere	0



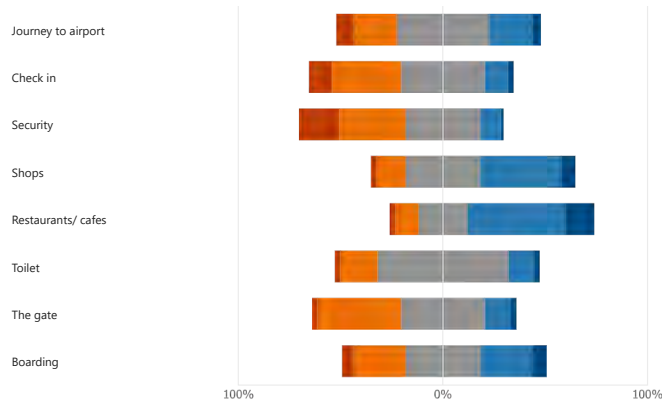
23. Where would you throw away...

Organic & liquid	0
Plastic & Drink packaging	66
Other waste	1
Andere	5



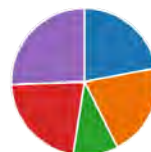
24. Please rate the following parts of an airport journey, by indicating if you like them or not

■ I dont like it at all ■ I dont like it ■ Neutral ■ I like it ■ I like it a lot!



25. Below several images are shown, which one(s) do you like most?

Fun facts about Schiphol's waste	31
Indications of waste items	29
Extra information waste streams	14
Bin closeby indication	31
Waste stream monsters eating ...	36



26. Why did you choose the picture(s) of your last answer?

63
Antwoorden

Meest recente antwoorden
"Because it gives practical information about throwing away, ..."
"I like to know more about it"
"Colourful, easy information to digest, clear guidance at a gla..."

11 respondenten (17%) antwoordden **information** op deze vraag.



27. Do you have any comments regarding the bin?
Did you understand where to dispose of all the items?
Do you have any questions/remarks?

42
Antwoorden

Meest recente antwoorden
"I thought it was good and loved the images around the side..."

12 respondenten (29%) antwoordden **paper** op deze vraag.



28. Do you have any questions or remarks regarding this survey?

24
Antwoorden

Meest recente antwoorden
"Interesting and challenging re where the food waste should ..."

3 respondenten (13%) antwoordden **waste** op deze vraag.



29. Leave behind your email if we can contact you for further questions

31
Antwoorden

Meest recente antwoorden
"titia.ruiter@gmail.com"
"Dijkelaar@gmail.com"
"t.pearsonmoore@gmail.com"

Appendix V: Testing schiphol concept 1



observations / interviews

stimpfol

13-06

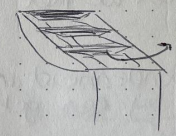
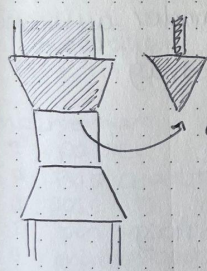
- R | passenger 1 - twix wrapping
↳ found carton & paper confusing, didn't see foil as plastic
- P | passenger 2 - cola bottle (half full)
- P | passenger 3 - box of headphones, mixed paper & plastic
↳ looked at 'plastic' & cartons → related this to paper associated 'wet' waste with organic & liquid
- R | passenger 4 - plastic/paper packaging, bread
- P | passenger 5 - napkin
- P | passenger 6 - emptied crisps in R, crisp bag in P
- P | passenger 7 - napkin in R, mixed salad bowl in P
- R | passenger 8 - napkin in R, "didn't really think about it"
- P | chocolate packaging in R
- P | receipt in R
- P | bottle in plastic, plastic wrap in R
- P | kid, looked at icons, pringles jar R
- P | ~~plastic~~ pet bottle in R
- P | doubted about paper, in plastic, closest to drink carton
↳ from iceland, they recycle paper there
did not know what to do with it now
why not have one recycling bin? plastic, paper, drink
- P | candy wrap in plastic
- P | coffee cup in plastic, including lid
- P | plastic yoghurt bakje + deksel & wooden spoon
in plastic → niet gescheiden
- P

insights

13-06

- carton = paper → not clear
- icon'tjes niet duidelijk genoeg - pas laatste moment
- a lot of pet bottles (even full) in plastic
- recycling icon is confusing if paper needs to go in something else
- people already decide when they walk towards bin, give them indication to chose then also
- passengers do not take time to separate waste
- passengers throw away waste in a rush
↳ time to waste can maybe influence this?
- passengers throw away waste at last moment before boarding

- P1: rested
 - takes time
 - walks slowly
 - looks at cues
- P2: determined
 - walks quick
 - already decides which waste stream
 - doesn't look up close
- P3: doesn't care
 - walks quick
 - realises has to dispose something
 - throws it in without thought



Plastics: Food & drink containers

- carton = paper
- drink packaging includes cans &
- almost no wet waste at gate, can be because of location at gate
↳ people could've emptied bottles / salad

Appendix W: Co-creation session



powerpoint co-creation session

Circular Design Lab

Session Schiphol graduation

How do we motivate passengers to increase waste separation at Schiphol Airport?

Introduction of our projects

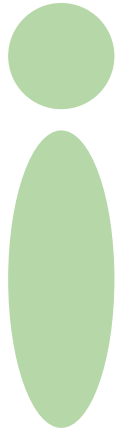


Persona's

1

Motivated to behave sustainably

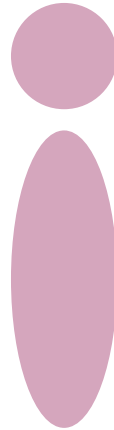
Knows how to act sustainably



2

Motivated to behave sustainably

Does not know how to act sustainably



3

Not motivated to behave sustainably

Does not know how to act sustainably



Agenda co-creation session

- In role braindump (5 min)
- In role ideation (2 min for each)
 - pleasure/pain
 - hope/fear
 - acceptance/rejection
- Divide ideas over c-box (5 min)
- Make one concept in groups of 2 (5 min)

Agenda co-creation session

- In role braindump (5 min)

What would motivate your passenger to separate their waste?

- In role ideation (2 min for each)
 - pleasure/pain
 - hope/fear
 - acceptance/rejection
- Divide ideas over c-box (5 min)
- Make one concept in groups of 2 (5 min)

Agenda co-creation session

- In role braindump (5 min)
- **In role ideation (2 min for each)**
 - pleasure/pain
 - hope/fear
 - acceptance/rejection

Create an idea for each of the words described above

- Divide ideas over c-box (5 min)
- Make one concept in groups of 2 (5 min)

Agenda co-creation session

- In role braindump (5 min)
- In role ideation (2 min for each)
 - pleasure/pain
 - hope/fear
 - acceptance/rejection
- **Divide ideas over c-box (5 min)**

Where would your ideas be on the c-box?

- Make one concept in groups of 2 (5 min)

Agenda co-creation session

- In role braindump (5 min)
- In role ideation (2 min for each)
 - pleasure/pain
 - hope/fear
 - acceptance/rejection
- Divide ideas over c-box (5 min)
- **Make one concept in groups of 2 (5 min)**

Define a concept from the idea you think is best on A4

Appendix X: Testing Phase 2 Schiphol

Observation/interview of the new Schiphol bin and motivation

June 23rd, 2023

Aim:

To find out if the concept developed from the project so far is working and understandable for the passengers.

Area: Around the gates at the D pier, where people are waiting and have time to answer questions. Also, they already have had several opportunities to buy and dispose of waste.

Duration: max. 5 minutes per participant (if interviewed)

Sample number: observing 20-30 passengers, interviewing 5-10 passengers

Preparation:

Prepare a bin that is placed at the gate with the paper prototype to show the new waste streams and information. Place the a5 paper stickers of the motivation waste monsters around the gate, so that people who are waiting can read them.

Observation/interview

1. I will sit down near the bin at the gate in between passengers. I will observe passengers throwing away their waste into the bin and write down what they did in my notebook. Next to the passengers throwing away waste, I will also observe passengers who read or interact with my motivation monsters.
2. If the passenger chooses or does something interesting whilst throwing away waste; such as throwing away an item in the wrong bin, or the passenger is hesitant, I will try to ask the passenger if it is okay to ask some questions
 - 'May I ask you something? I am currently working on the redesign of the bin, and I was hoping you would be able to give me some insights about what you thought when you threw 'an item' away. Would it be okay to ask you some questions?'
 - If consent then ask: What did you throw away? Why did you choose that?
 - Why were you hesitant, or did you not choose this option?
 - Is it clear to you how you should dispose of waste? What is not clear? (text, colour, items)
3. If I see that they are reading this, I will go up to them to ask if it is okay to ask them some questions.
 - 'Hello, I saw you were looking at the time to waste monsters I created. I am designing this and I hope you could give me some feedback on what you like about it and whatnot, would that be okay?'
 - If consent then ask: What did you think when you saw the monsters?
 - Would you act upon it?
 - What did you like? What did you not like?
 - What would inspire you to separate your waste correctly?

Afterwards

Take off the paper prototype and the paper stickers so that nothing is left behind.

Appendix Y: Comparative study test set-up

When: 19th of July 2023 and 20th of August 2023

Where: Schiphol Airport

Observation time per test: 3 hours

Aim: To find out if the concept developed from the project so far is working and understandable for the passengers.

Area: Around the gates at the D pier, where people are waiting and have time to answer questions. Also, they already have had several opportunities to buy and dispose of waste.

Duration: max. 5 minutes per participant (if interviewed)

Sample number: observing 20-30 passengers, interviewing 5-10 passengers

Preparation:

I will provide a bin that is already placed at the gate with the paper prototype to show the new waste streams and information to the passengers. The paper prototype looks like the visual below on the left, it will be placed in the bin as can be seen on the right.

Prototypes for test:



Placement on bin similar to:



Test (19-07-2023)

- I. Start at 10:00 with observing at the gate, and make sure the content of bins is emptied by replacing bin bags with new ones
- II. Place the prototype on the bins
- III. Observe passengers and disposals for 3 hours, and take notes in a notebook about:
 - I. What PSW item is thrown away in which bin
 - II. Describe the behaviour of passengers:
 - i. Do they hesitate?
 - ii. Do they compare?
 - iii. Do they take extra time?

- IV. I will take the binliners out after 3 hours with the help of an Cleaning company A cleaner and I will take photos/videos of waste items
- I. Write down the items and in which bin they are disposed of

0-measure (half of August)

- I. Start at 10:00 with observing at the gate, and make sure the content of bins is emptied by replacing bin bags with new ones
- II. Place the prototype on the bins
- III. Observe passengers and disposals for 3 hours, and take notes in a notebook about:
 - I. What PSW item is thrown away in which bin
 - II. Describe the behaviour of passengers:
 - i. Do they hesitate?
 - ii. Do they compare?
 - iii. Do they take extra time?

- IV. I will take the binliners out after 3 hours with the help of an Cleaning company A cleaner and I will take photos/videos of waste items
 - I. Write down the items and in which bin they are disposed of
- Compare results 0-measure with test measure (after conducting both test)
- I. Percentage of correct disposals vs incorrect
 - a. Did this improve?
 - b. What items were disposed of better?
 - c. Which items were disposed of worse?
 - d. Which items seem to be a problem?
 - II. Do passengers hesitate more to choose compared to 0-measure?
 - III. Do passengers compare their waste items more compared to 0-measure?
 - IV. Do passengers take more time compared to 0-measure?

Appendix Z: Comparative study results

Baseline test		20-08-2023	Gate D10	LA 12:50	
15 item	bin	Correct?	behaviour	notes	
1 plastic foil candy	plastic	V			
2 tissue	paper	X			
3 burger box	waste	V		waste thrown away together	
3 carton packaging	waste	X			
4 carton packaging	paper	V			
5 PET bottle	plastic	-		had to go in statiegeld	
6 PET bottle	plastic	-		had to go in statiegeld	
7 Can	waste	V			
8 coffee cup	waste	X			
8 plastic foil candy	waste	X			
9 Sandwich mix plastic paper	paper	X			
10 plastic foil transparent	paper	X			
11 tissue	paper	X			
12 triangle plastic sandwich container	plastic	V			
13 mixed waste sandwich	waste	V			plastic +paper + foodscraps
14 Coffee cup	paper	X			
14 chips zakje	paper	X		use the closest bin to them, approached from the side	
15 plastic sb cup	waste	X			
15 tissue	paper	X			
			47%		

Design test		19-07-2023	Gate D4	LA 12:50	
passenger	item	bin	Correct?	behaviour	notes
1	receipt	other waste	V		
2	cup, plastic lid	plastic & drink packaging	V		
3	wooden stirring stick	organic & liquid	X		
3	banana peel	organic & liquid	V		
3	coffee cup	plastic & drink packaging	V		
4	mixed waste	other waste	-	had several waste items in one hand and did not take time to waste	
5	paper bag	plastic & drink packaging	X		
6	can	plastic & drink packaging	X		
6	glass bottle	plastic & drink packaging	X		
7	mixed paper + plastic	other waste	V		
7	plastic wrapping	plastic & drink packaging	V	really took the time and looked at his waste per item	
7	paper box	other waste	V		
8	candy wrapping (foil)	other waste	-	doubted between other and plastic	
9	pringles packaging	other waste	V	took quite some time to choose	plastic lid could have been separated into plastic
10	banana peel	organic & liquid	V		
11	plastic bottle	plastic & drink packaging	V		couldve gone in donation box (not available at the gate)
11	paper box	plastic & drink packaging	X		
11	plastic bag	plastic & drink packaging	V		
12	plastic bottle	plastic & drink packaging	V		couldve gone in donation box (not available at the gate)
13	coffee cup + lid	plastic & drink packaging	V	hoovered about organic and then changed mind (paper?)	couldve been separated
13	candy wrapping (foil)	plastic & drink packaging	V		
14	candy wrapping (foil)	plastic & drink packaging	V		
15	tissue	other waste	V		
17	straw	plastic & drink packaging	X		
17	plastic starbuck cup	plastic & drink packaging	V	did not separate waste	
18	tissue	other waste	V		
19	coffee cup	plastic & drink packaging	V		
19	wet tissue	other waste	V		
20	paper bag	other waste	V		
21	paper hamburger box	other waste	V		
21	Coffee cup	other waste	X		
22	paper hamburger box	other waste	V	copied his dad who did the same before him	
22	Coffee cup	other waste	X		
total correct			77%		