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This report details the work of the design research process of project "Round It Up!" for the course Explore Interaction under Money Studio.

TABLE OF CONTENTS

01 Introduction	4
1.1. Final Concept Description: Round It Up!	
1.2. Design Goal	6 7 8
1.3. Interaction Vision	8
02 Cycle One	10
2.1. Context Research	11
2.2. First Idea: Sliding Basket	12
2.3. Key Insights	14
03 Cycle Two	15
3.1. Iteration One: Slidable Basket	16
3.2. Idea Generation: Co-Creation	17
3.3. Iteration Two: Swiping Cake	18
3.4. Iteration Three: Scratching Puzzles	20
04 Cycle Three	23
4.1. Donation Motivation	25
4.2. Iteration Four: Round It Up!	30
05 Reflection	44
06 Reference	46
07 Appendix	48

1 Introduction



This report details the process, findings and final design proposal of the Project Exploring Interaction of Xiaoying Chen. The given theme is designing for prosocial behaviour.

The aim of this project is to increase the possibility of people using digital money to donate while shopping at the supermarket. Based on the results, it provides a research on donation behaviours and positive design.

Within this report, you may find an extensive description of project "Round It Up!", a description and analysis of the current problems, the design process and design proposal. The structure of this report is based on the chronological order of the design process. I will show and justify my process and decisions that has been made throughout this semester.

1.1. Final Concept Description: Round It Up!



Do you remember that a few years ago there was always a donation box somewhere around the supermarket? We used to throw our change in that box and we were pleased to see it filled with plenty of money. Years past, digitization brought us huge convenience, we can pay our bills easily with cards or smart phones. We don't need to deal with coins and small change any more. Yet in the meanwhile, those donation boxes disappeared along with the physical change.

I found it pity on losing a nice behaviour, therefore I researched on the ways of increasing the possibility of people using digital money to donate while shopping at the supermarket. Going through different research and explorations, I designed a different paying machine, "Round It Up!". This machine provides you another choice on paying your bill. By swiping your card in the middle, your total payment will be rounded up to the nearest whole number, and the change will be donated to a corresponding charity. Your kind heart will be appreciated and be recorded in your customer card.

Swipe your card and round it up!

1.2. Design Goal

The general design goal of this project is to research and find a possible way to

increase the opportunity of people using digital money to donate while shopping at the supermarket.

In the beginning, I wanted to find a solid way to persuade them donating while shopping. Yet when I went through the project, I found it more important to raising their awareness on donating and creating empathy between the donators and recipients.



1.3. Interaction Vision

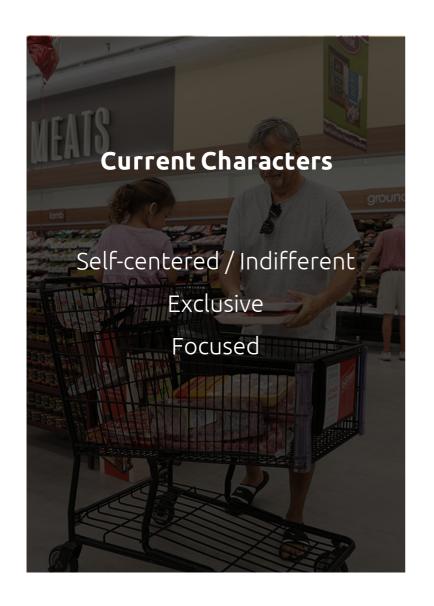
My Interaction vision is

"

dividing and passing your birthday cakes to others.

"







02 Cycle One

2.1. Context Research

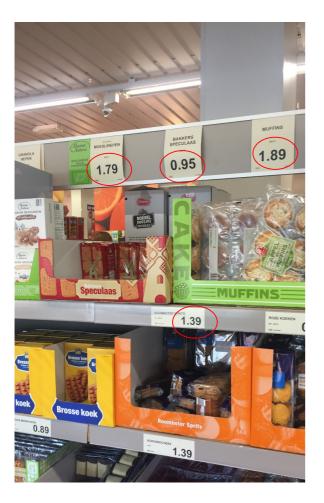
In order to get a general view on the current situation, I carried on a couple period of observation in the supermarket. Besides, I interviewed some people to understand their donation behaviours. The detailed work can be found in the Appendix.



No donation boxes for coins or spare money at the supermarket as I expected.

The only thing about donation is donating the recycle receipt, but the announcement already expired for 10 months.

2.2. First Idea: Sliding Basket



For my first design intervention, I already found the price in the supermarket were always ended with decimals. So I made a quick prototype of a shopping basket that has a slidable plate and users can classified the goods they want to round the price up or just pay with the normal price.

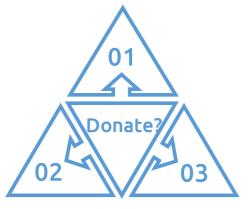


The idea was tested by stimulating a shopping experience in the supermarket. Detailed process and results can be found in the Appendix.



2.3. Key Insights

The key insights I had gathered at the end of this cycle were:



- 1. Empathy with the recipient
- 2. Where the money goes
- 3. Personal Financial Situation





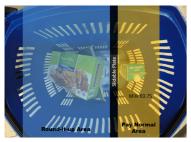
- 1. Three elements influencing donation behaviour
- 2. People don't want to be disturbed a lot whiling doing their grocery shopping.
- 3. People prefer to donate smaller amount of money.

O3 Cycle Two

3.1. Iteration One: Slidable Basket

3.1.1. Test in Context

To continue the first idea from cycle 1, I followed three participants and did a shopping with them in order to test my idea in context.





Tips and Tops

- + Easy to understand
- + Easy to implement
- Not suitable when you buy a lot
- No feedback after + too much efforts
- Disturbing while shopping
- Not motivating

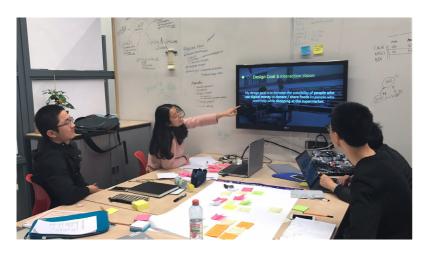


3.1.2. Valuable Findings for Next Iteration

- People don't want to be disturbed while doing the shopping.
- They seem to prefer to donate little money if they need to.
- Where the donation goes is an important element to them.

3.2. Idea Generation: Co-Creation

In order to get as many ideas as possible to develop into different prototypes in cycle 2, I started by conducting a co-creation session with 4 potential users.





We together created a few ideas in three directions, "Gamification", "Compulsive consumption", and "Return / Payback of donations".



3.3. Iteration Two: Swiping Cake

This concept is setting up a "swiping cake" outside the cashier. The "cake" shows a funding goal for a specific activity, more information of the funding organization can be found on the back of the cake. So after you pay, you can use your card as a knife to swipe a slice of "cake" as you want. The size of your slice of "cake" will determine the amount of donation, and corresponding money will be reduced from the funding goal. The less the cake is left, the closer it reaches the goal.



Water: a precious resource

A restored water treatment plant in Bentiu gives residents new hope

The supply of safe crinking water in South Sudan has been severely disrupted by the conflict, as water points have been damaged or fallen into disrepair. Unsafe water puts people, especially children, at increased risk of waterborne diseases such as diarrhoea and cholera. In Bentiu, UNICEF and partners rehabilitated the water treatment plant with the support of USAID, piping safe water all over the town.





Tips and Tops

- + Clear to see how much funding needed & information of the receivers
- + The counting-down of the goal can stimulate people to donate, especially when it's closing to ZERO.
- + Interesting interface to try.
- Seems need to donate relatively large amount of money at one time.
- No individual feedback / following information.
- May not continue to donate after several times.
- May need some time to learn the interface.

3.3.1. Valuable Findings for Next Iteration

- People would like to see the information and the process of the funding.
- It's easier for people to donate little amount of money than large amount at one time.
- There need to be some ways to stimulate people to donate over and over.





3.4. Iteration Three: Scratching Puzzles

I developed the third concept by combining the findings from last two prototypes and ideas from the co-creation. This design includes four parts.

1. Choose the button at the cashier

Round It Up!

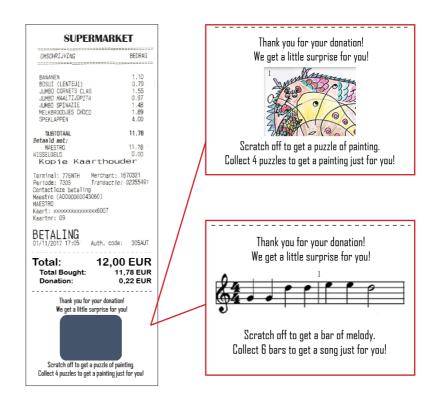
The total price you pay will be rounded up to the nearest whole number.

Pay with Normal

You pay as usual.

2. Get surprise with the receipt

Choose "Round It Up!", you will get a scratching card about an artwork by physically or mentally disabled people. Also, the donation will be recorded on the receipt.



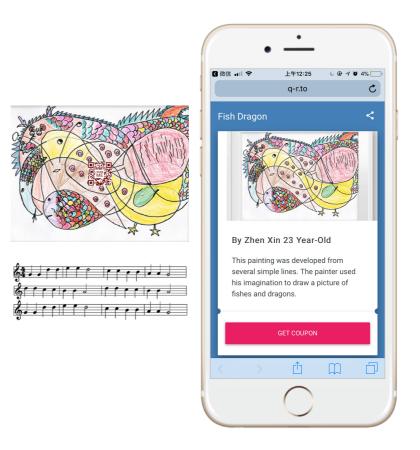
3. Collect the series

Apart from the scratching card, you can also get a collection card with brief description of the current charity activity.



4. Explore more

When full series is collected, you can scan the QR code in the middle to know more about that art piece and the corresponding charity activity.

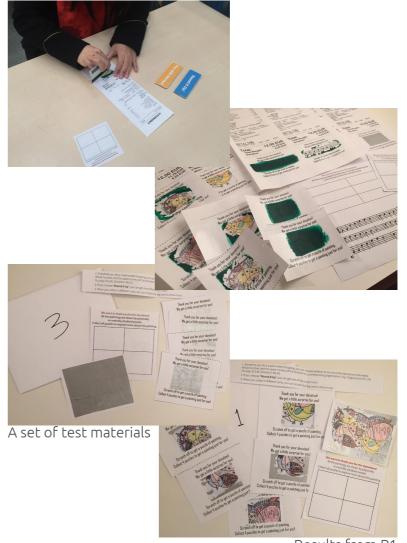


Tips and Tops

- + Self-explained (already has similar behavior in local).
- + People have curiosity to collect things (unconsciously).
- + Little money every time, more motivated to do it more times.
- + Give a choice to get more information or not.
- + Can have personal donation account (connect to customer cards) & (provide milestones).
- + Can educate children in a fun way
- Visual puzzles are better than a bar of melody.
- Need a better way instead of QR code (hard to put together).
- The dusts are a bit annoying (a big place to scratch).

3.4.1. Valuable Findings for Next Iteration

- People like to have freedom of choices
- People like the scratching interaction, but not too much
- It's easy to accept for people to donate little money at one time.



Results from P1

04 Cycle Three

"

What triggers people to donate (again and again)?

"

4.1. Donation Motivation

From the last test, I found people were willing to donate every time they went for shopping. However, the interaction on the last concept will only happen when people choose the "Round It Up" button. So I started wandering, what triggered people to choose the right button? What would be the motivation for them to do a certain activity?

To find the answers, I began with observing the existing behaviours in the supermarket. I experienced the whole process of collecting a sticker for exchanging a certain product from the supermarket. There were 4 moments would stimulate them to start collecting stickers.



1.Seeing individual stand



2. Asking from the cashier

Spaarzegels / Stickers?

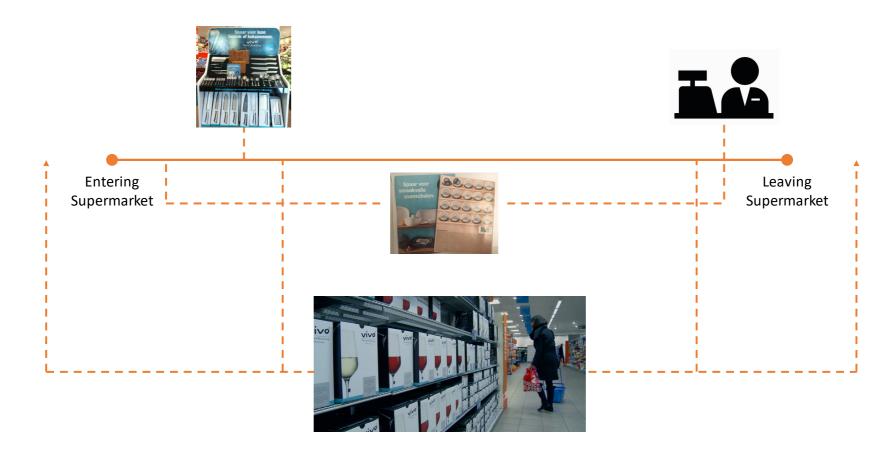


3. Getting flyers in cashier desk / entrance

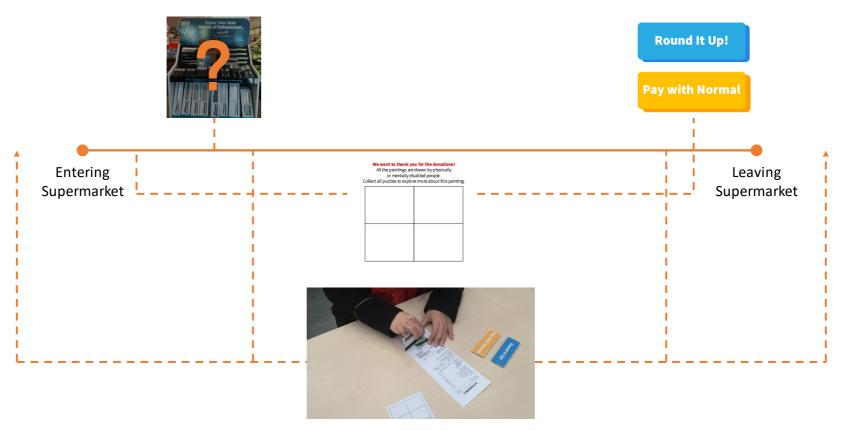


4. Seeing other people doing inside / outside supermarkets

I aligned these moments in a shopping timeline



Later I put the interactions from my last concept to the corresponding timeline and compared the difference.



I found the part of "individual stand" was missing in my concept, which means people cannot get enough information during the shopping process. So when they come to the cashier desk and facing to two payment buttons, they wouldn't know what these mean, therefore they will be more likely to choose the normal one. Based on the finding, I added an extra part to my concept, a screen showing the real-time funding progress with an explaining stand and flyers can be gathered.





However, this part didn't show enough positive feedback during evaluation. Although people can be attracted by the screen and come to check the information, the information will not last long in their mind and they will forget them when finishing the shopping. Besides, the flyers are redundant. Most people will put them back or just ignore them.

4.1.1. Literature Research

After failure on figuring out the answers from the current behaviours, I started literature research. Literature in the donor behaviour field indicates the decisions to support more than one charity organisation may mainly depend on the following considerations.

Personal experiences: A common stimulus impelling an individual to support a charity in a particular field arises when the person has a moving experience such as witnessing a close relative contracting a fatal or debilitating disease (cancer for instance) [1,2,3,4,5]. A decision to donate to another charity in a different field might result from a further distressing personal experience, e.g., having been a victim of violent crime.

Promotional campaigns: Independently of personal experiences, decisions to give to a charity concerned with various causes may result mainly from donors having been attracted by the promotional materials of the charities involved. Appealing promotions can cause a potential supporter to recognise a charity's superior characteristics [6], and this in turn might be

associated with 'the percentage of an individual's charitable pot' that goes to the organisation [4].

Differences in emotional returns: The term 'helpers' high' describes the surge of pleasurable emotion that some individuals experience consequent to a charitable act or donation [7]. Allegedly, helpers' high leads to feelings of calmness, inner self-worth and physical warmth that can be very strong in certain individuals [8].

General need for variation: The theory of variety seeking behaviour [9], asserts that under certain conditions all people require variety in their lives. Desire for variation is said to be innate [10], to be associated with curiosity and the propensity to become bored, and to impel people high in the inclination to seek new or different experiences, including consumption experiences.

4.2. Iteration Four: Round It Up!

4.2.1. Visualization Different Buttons

According to the literature, I could use the last three elements to attracting people to donate, the first element can be partly included by creating empathy with the recipients, so that the donors can feel or understand the recipients' experience.

Now the problem is to find a way to let people to choose the right button ("Round it Up" button), in order to experience the whole design. So I thought why not visualize the consequences of choosing different buttons? In this way, they can get the message immediately in the start of the design.

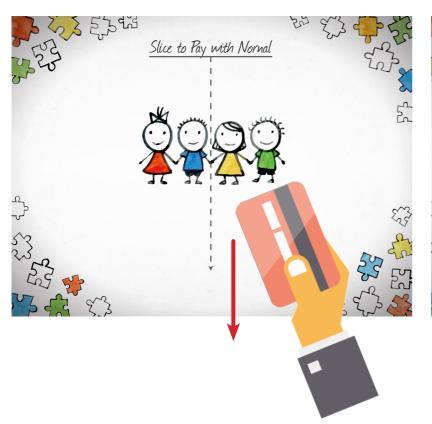
4.2.2. Prototype 1

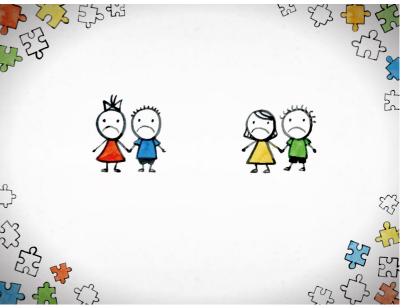
In this prototype, I visualize the two buttons into two different animation.



Pay with Normal

Pay with Normal: It illustrate 4 children hand in hand together. If you choose to pay with normal price, you will need to swipe your card between them. This will separate them apart and result in four upset faces.





Round It Up!

Round it Up: This also illustrate 4 children hand in hand together. If you want to choose this payment method, you can put your card on the heart below, and the payment will be done by contactless payment. A big heart will be shown behind the children as well as 4 big smiley faces.





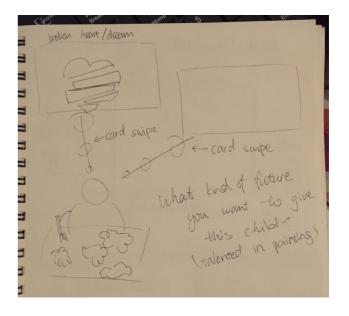
Evaluation

This prototype showed significant results from quick test. All people can immediately get the message and prefer to choose the "Round it Up" button. However, the guiding in this concept is negative. People choose the "good" button not because they really want to do a good thing, but because they don't want to do a bad thing and be a bad person.

My vision is to give the essential information to people and raising their awareness on caring others and donation is only a way to achieve the aim. In this concept, the animation is forcing you to donate other than giving you the choice. My next goal is to find a positive way on guiding, so that people will not make the decision because of feeling guiltiness.

4.2.3. Prototype 2

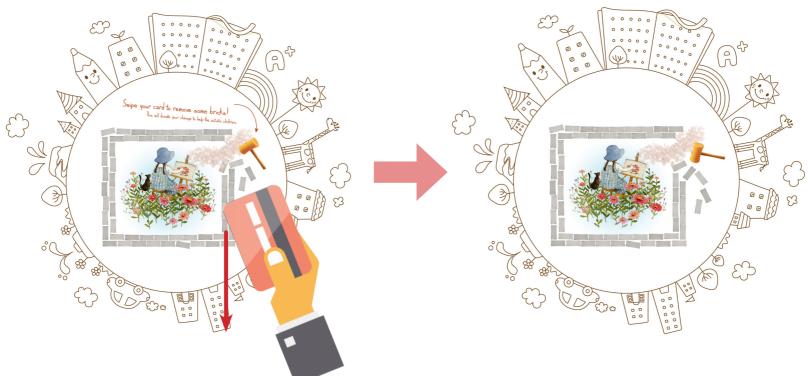
I drew several different set of visualization for quick testing, and I found that as long as I provided the "Pay with Normal" choice, people would prefer to choose the better consequence from the two illustrations. This means as long as there are two choices, they will compare them and choose the better one. So this is still leading them to choose the "good" button to a certain extent, because the "Pay with normal" button is already not the normal (traditional) way to pay.



Therefore, I decided to abandon the "Pay with Normal" button, and only keep the "Round it Up" button. In this way, it will be an added choice to the traditional payment, so people will not feel wrong or guilty to pay in the traditional way.

My previous concept was about autistic children who loved painting. Hence in this prototype I wanted to illustrate their world, to create empathy between them and the people outside their world.

This animation illustrates a little girl who loves painting, but she only paint in her own world. There is a solid wall between her and the outside world. The outside world is only black and white to her. If you want to help her to see more on the outside world, you can choose to swipe you card through the right wall. The big hammer will knock down a part of the wall every time you do so. Every time the wall is broken, some colour will leak out to the outside world and eventually the outside world will be as colourful as the inside world.

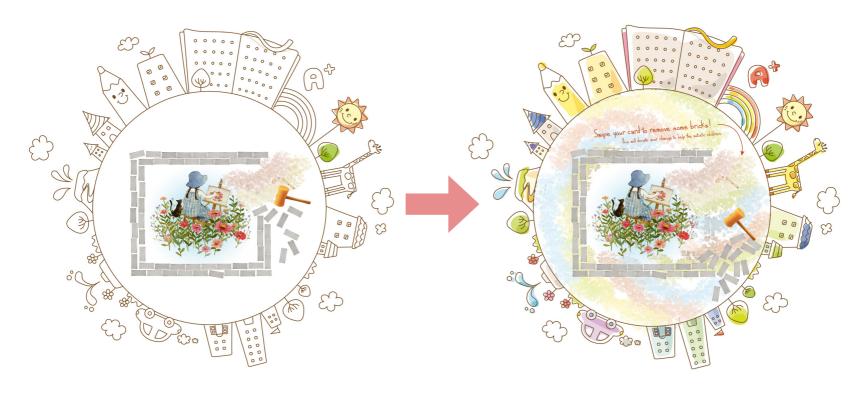


Evaluation

- + Show some donation progress.
- + Quick and simple, suitable for people in the supermarket.
- + People were provided with different choice, but not be forced to choose it.
- People need a little time to understand the illustration of breaking down of the wall.

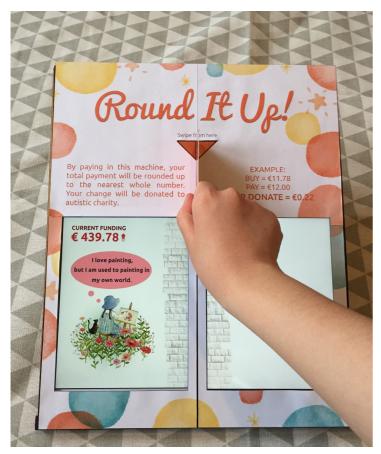
- People also need some time to understand the colour leaking. The relationship to an autistic child is not so clear.

In this stage, I decided to abandon the previous concept, the Scratching Puzzles. Since this interaction could already be stood alone to be a concept, the designs after the payment seemed to be a different concept and couldn't add much value to this concept.



4.2.4. Final Prototype

I developed the last prototype by combining findings from the previous research. Since the product need to explain itself clearly, I made it like a small poster.





To make the concept more complete and clearer I redesigned the illustration.

- The real-time funding progress was added since this was great appreciated from previous research. People tend to do and even think like others because of the effect of conformity.
- The little girl's world and the outside world is more clearly by showing them separately in different side.
- The animation was more fluent and clearer, a quote added.
- Every time when people donate, some extra elements will be added to the illustration, in this way it can stimulate people to donate again.

Two Ipad mini was put in two sides to illustrate a complete illustration, in this way it allowed users to swipe their card in the middle and experience the intended interaction.

After the payment is done, the donation record will also be printed in the receipt and stored in the customer cards.













Animation Demonstration 1

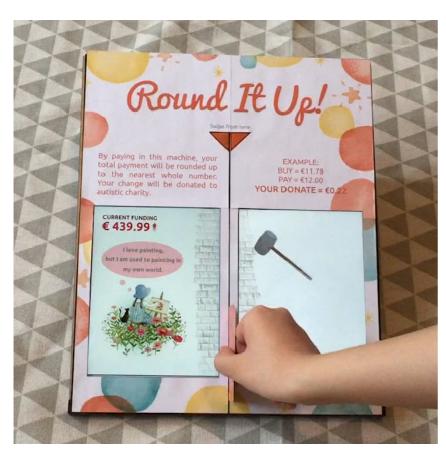








Animation Demonstration 2



A video demonstration of the interaction (only works in PDF)



4.2.5. Concept Evaluation

Interview

Four people who had never known this concept were interview after experiencing the product. They all showed positive feedback on the interaction. Yet the prototype still need some more iterations to develop, like how the machine can be nicely integrated in the cashier desk.

An interesting finding is that none of them mentioned they wanted to know where the money goes or how the money will be used. This was quite different from my early research, people said that their donation will much depend on knowing where the money goes and how it would be used. Maybe the product itself was clear enough to get these message or people became more focusing on the progress rather than the result in this interaction. This can be an interesting research direction for the future study but due to the time limit I didn't get enough evidence to prove one hypothesis.



Technology Acceptance Model (TAM, Davis 1993)

To gain a general evaluation of the concept, I made a questionnaire based on the Technology Acceptance Model. This model includes three part, Perceived Ease of Use, Perceived Usefulness and Attitude towards Use. This explained people's acceptance of the product in professional context (supermarket for this concept). Besides, whether this would work and arouse their awareness on donation while shopping. I presented this questionnaire to 13 people after trying my prototype. The full contents and results of the questionnaire can be found in the Appendix.

The result from the part of Perceived Ease of Use showed that the product is easy to understand and use. All answers were higher than scale 4 (strongly agree).

For the Perceived Usefulness, people indicated positive feedback on raising awareness towards donation activities and they would like to donate more often when checking out in the supermarket. Yet the influence on the donations outside the supermarket is not so strong.

On the Attitude towards Use, people showed positive



and proactive results. Overall, the product can be useful to increase the possibility on donation while shopping.

In all, the final concept was focused on the two important considerations mentioned above for donating behaviours, Promotional Campaigns and Emotional Returns. It achieved the "helpers' high" (pleasurable emotion that individuals experience consequent to a charitable act or donation) which was an important character (self-assurance / confident) in my interaction vision.

Although these evaluations showed positive results on the concept, it still need to be improved and tested in a long period. What people said could be very different from how they react. The prototype also need to work better to gain more precise results.



05 Reflection

This has been a quite different project compared to my previous projects. In my previous study, I seldom finished the project with more than two iterations. However in this project, I challenged myself to do as many iterations as possible. There were mainly three takeaways I learned from this project.

The first one was the research and design method. In the beginning of the project, we were required to set our design goal and interaction vision. In my previous projects, I wouldn't be so organized in the process, determining design goal was more random to me. I found formulating interaction vision had been quite useful to guide me in the right direction throughout the progress. It is also a good way to evaluate concept, to see whether it has achieved the intended interaction.

The second thing was learning to research continuously and design with reasons. In this project, I was guided to design based on previous findings. This made my design decisions more convincing and understandable. Every time I started a new iteration,

I looked back to the last findings, and designed new elements reasonably. I kept questioning myself why, so that the design interventions didn't come just from air.

Thirdly, the continuous user tests throughout the design research process kept reminding me to design with the users rather than designing for my own wish. Looking back to the process, I also learned to abandon in a suitable time. I wanted to combine the third concept with the fourth one, but the users showed me it's unnecessary. Sometimes less is more, simple interaction can also be powerful.

In this project, I gained not only the design and research skills, but also some practical skills. For example, making animation using After Effect and working on different materials and forms. One of the things that I prefer to do in the future project is that I should conduct different activities in parallel. For example, I can conduct the evaluation activity and conceptualization activity in parallel to design the process itself to be more efficient.

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07 Appendix

Appendix A

Cycle 1: Observation & Interview

Original Documents in: https://drive.google.com/open?id=0B2GFaaSxO1ncdWFTd1N6bU1SLUk

Observation

Next to Recycle Machine

Time: 2 x 45 mins People come: 6 + 8

People donate receipt: 2 + 2

People check announcement: 0 + 2

Main Findings:

- Most of them operated the machine very familiarly.
- Only about 30% people will donate their receipt.
- Most people will not check the announcement.

Other Shoppers

Main Findings:

- Every customer is quite concentrated on their own shopping experience. Some are doing very fast shopping, some will hesitate for a while. But all of them are having a relatively private shopping.
- Some customers will be attracted by something that they are not planning to buy, and turn back to buy it, especially on discount part
- Not many interactions between different people.

More Findings: https://drive.google.com/open?id=0B2GFaaSxO1ncRVU1SC0xQ3ZBelk

Slidable Basket Test & Results: https://drive.google.com/open?id=0B2GFaaSxO1nceWtBOUlYS0htQ1k

Appendix B

Cycle 2: Process Report

https://drive.google.com/open?id=1Y2MgKZIvcY49dEqZjwxf2SWeFfkz107E

Cycle 2: Presentation

https://drive.google.com/open?id=10TlzuP6lDMco3H7LIIprGDQyyD_PB56o

Appendix C

Demonstrate Video: Project Round It Up

https://youtu.be/_yw4EGPNJmY

Appendix D

Evaluation Questionnaire: Technology Acceptance Model: https://goo.gl/forms/fGncwZadQ7tkbgzi1

Evaluation Form - Round It Up!

I am a student from Department of Industrial Design Engineering, TU Delft.

To support my design process and evaluate my product, I sincerely invite you to take part in my user test.

Please fill in this questionnaire and thank you for your participation!:)

Concept Description

Do you remember that a few years ago there was always a donation box somewhere around the supermarket? We used to throw our change in that box and we were pleased to see it filled with plenty of money. Years past, digitization brought us huge convenience, we can pay our bills easily with cards or smart phones. We don't need to deal with coins and small change any more. Yet in the meanwhile, those donation boxes disappeared along with the physical change.

I found it pity on losing a nice behavior, therefore I researched on the ways of increasing the possibility of people using digital money to donate while shopping at the supermarket. Going through different research and explorations, I designed a different paying machine, "Round It Up!". This machine provides you another choice on paying your bill. By swiping your card in the middle, your total payment will be rounded up to the nearest whole number, and the change will be donated to a corresponding charity. Your kind heart will be appreciated and be recorded in your customer card.

Swipe your card and round it up!

Part 1. Perceived Ease of Use

Strongly

Disagree

This part is about means strongly di						from 1 to 5. 1
I cαn underst	tand cle	arly hov	v it worl	cs.		
	1	2	3	4	5	
Strongly Disagree	0	0	0	0	0	Strongly Agree
Leαrning to ι	ıse it is	easy fo	r me.			
	1	2	3	4	5	
Strongly Disagree	0	0	0	0	0	Strongly Agree
It is eαsy for	me to r	ememb	er how i	t works.		
	1	2	3	4	5	
Strongly Disagree	0	0	0	0	0	Strongly Agree
It is easy for (swiping card				neaning	of the i	nteraction
	1	2	3	4	5	
Strongly Disagree	0	0	0	0	0	Strongly Agree
Overall, I find	d it easy	to use.				
	1	2	3	4	5	

Strongly

Agree

