Improving user experience in using personal collection functions in social apps

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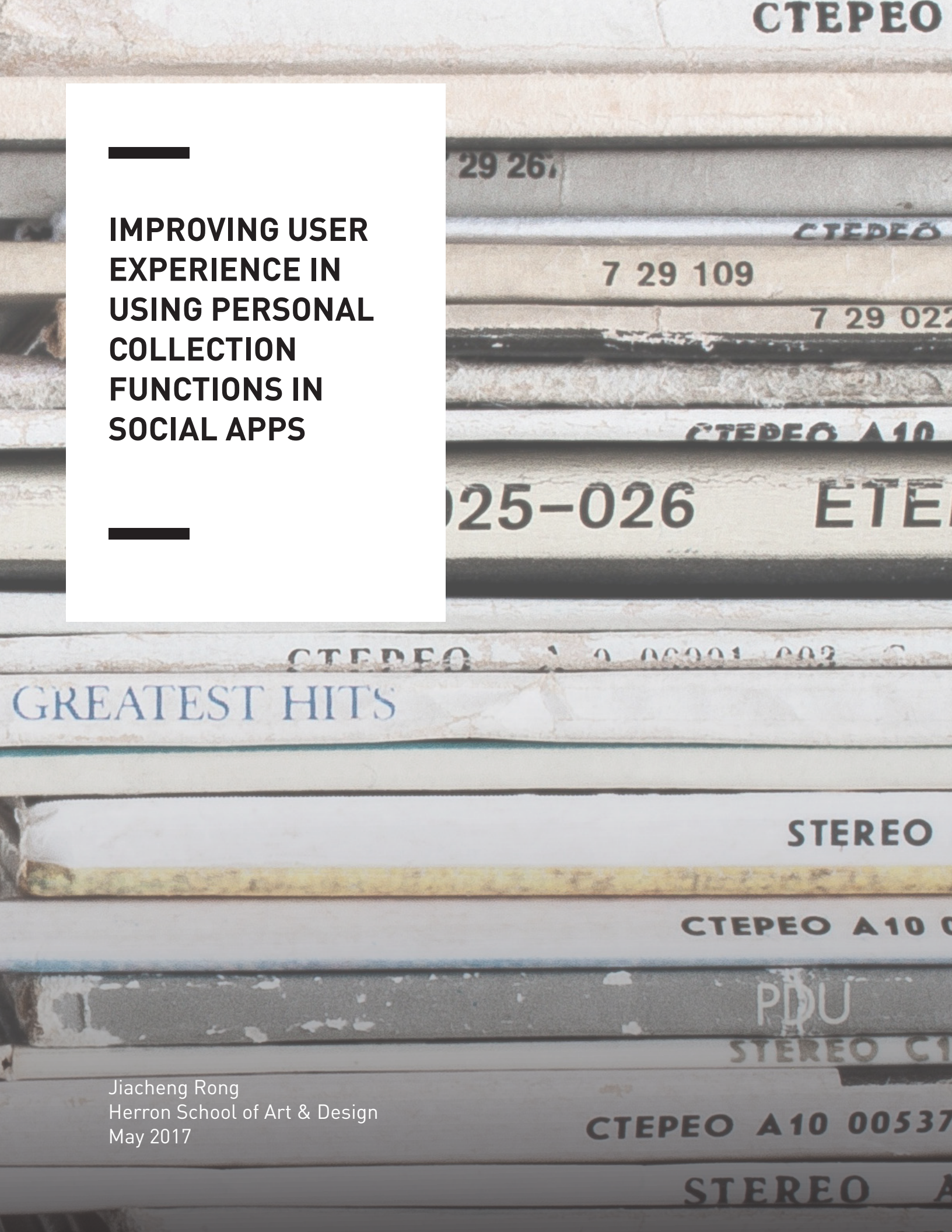

IMPROVING USER EXPERIENCE IN USING PERSONAL COLLECTION FUNCTIONS IN SOCIAL APPS

Jiacheng Rong
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INTRODUCTION

INTRODUCTION

This thesis intends to explore what the user needs of personal collection function are in social apps. This thesis will use design thinking process and human-centered design methods to collect qualitative data from personal collection users. These methods provide the ability to try to find out solutions and solve current problems in using this function. The final objective is to improve the user experience in using personal collection function in social apps.

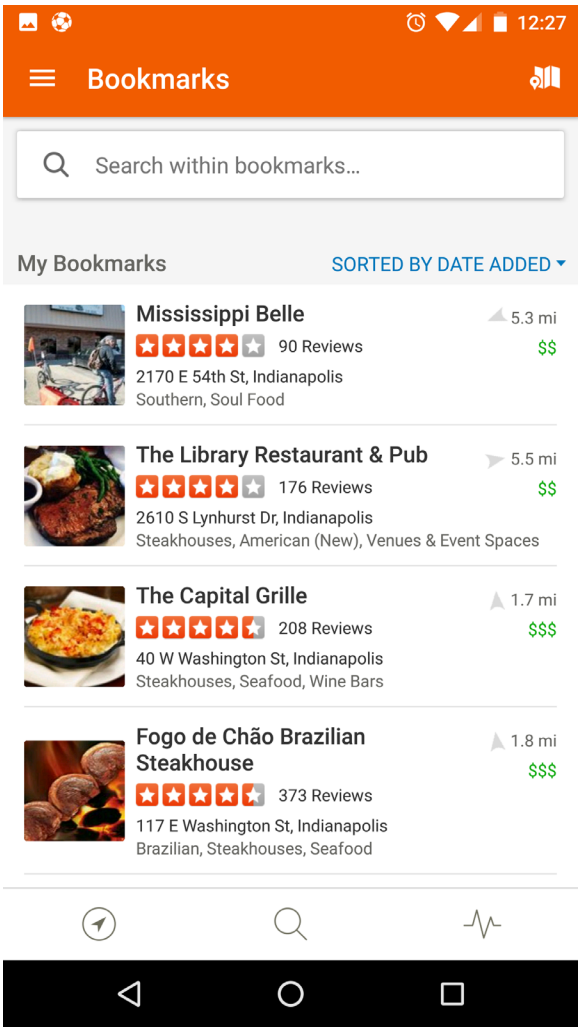
With regards to personal collection lists, it is easy to remind people of some similar behavior in life. Why do you collect CDs? How do you organize your files or your rooms? How do you find a movie from your collections? If you break down the concept of the Personal Collection Function, you will see some familiar behaviors such as collecting, organizing, and re-finding. These behaviors and the reasons behind these behaviors are fascinating. Studying Personal Collection Function is to study these acts in the social media context.

In initial observations, the research already found some problems in using PCF. First, users saved so many items that they cannot remember what they have. Second, users saved so many items that they could not find what they were looking for. Third, when the function is used in several apps, it becomes hard to remember which item is in which app.

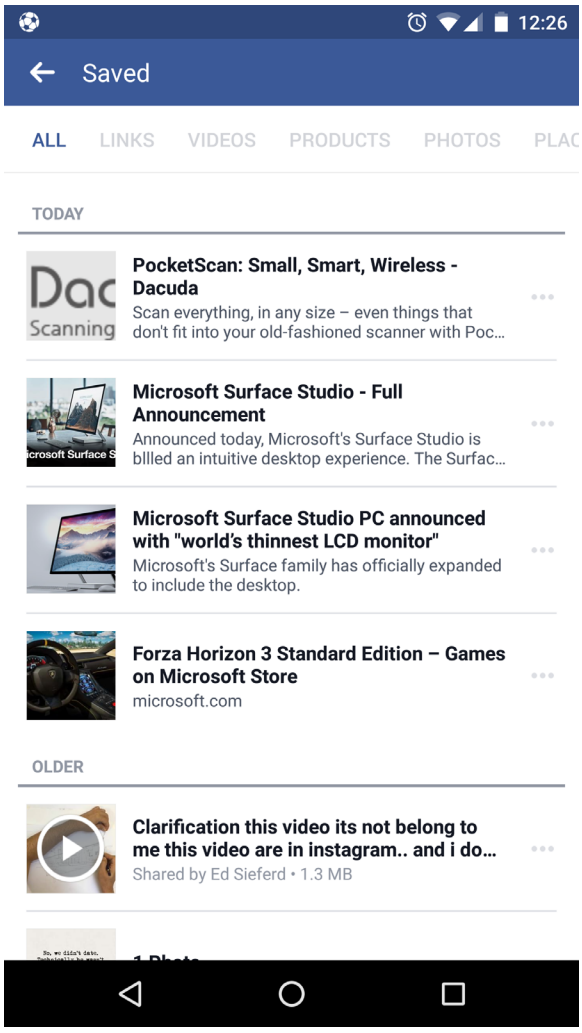
This thesis is not just about studying behaviors and motivations; it is also about finding more using problems like these and developing solutions for these problems to improve user experience in using PCF.

PERSONAL COLLECTION:

The term 'Personal Collection Function' means the functions in mobile applications and social networks which users use to save items only for themselves and to be seen only by themselves. The 'Favorites' function in YouTube and the 'Saved' function in Facebook are examples of PCF. 'Personal Collection List' means the list of the Personal Collection Function. In this thesis, they will be abbreviated as 'PCF' and 'PCL.'



'Bookmarks' function, PCF in Yelp



'Saved' function, PCF in Facebook

RESEARCH QUESTION

HOW MIGHT ADDRESSING PERSONAL COLLECTION FU APPS IMPROVE USER EXPE APPS?

USER NEEDS FOR
UNCTIONS IN SOCIAL
ERIENCE WITH THOSE

SUB-QUESTIONS

- **WHO IS USING PERSONAL COLLECTION FUNCTIONS IN SOCIAL APPS?**

- **WHY ARE THEY USING PERSONAL COLLECTION FUNCTIONS?**

- **WHAT ARE THEIR PROBLEMS AND FRUSTRATIONS WHEN USING PERSONAL COLLECTION FUNCTIONS IN AN INDIVIDUAL APP AND AMONG SEVERAL APPS?**

- **WHAT PERSONAL INFORMATION MANAGEMENT METHODS ARE PREFERRED BY SOCIAL MEDIA APP USERS?**

OBJECTIVES

- **CREATE PERSONAS FOR PERSONAL COLLECTION FUNCTION USERS**
- **IDENTIFY HOW USERS USE PERSONAL COLLECTION FUNCTIONS**
- **IDENTIFY WHY USERS USE THESE FUNCTIONS AND WHAT ARE THEIR NEEDS FOR THIS FUNCTION.**
- **IDENTIFY CURRENT CHALLENGES AND PROBLEMS IN USING COLLECTION FUNCTIONS**
- **DEVELOP SOLUTIONS FOR CURRENT PROBLEMS.**

SCOPE

SCOPE & RESEARCH LIMITATION

Due to the research time frame, the scope of this research should be appropriate and practical. The first limitation is this research will only focus on 3 Chinese social apps. They are Wechat, Sina Weibo, and Zhihu. The first reason for choosing these apps is they all have plenty of users and a big part of these users have experience in using personal collection function in these apps. Secondly, lots of these users are overlapped, which means these three apps are good targets for studying user behaviors across different platforms. Finally, user experiences of personal collection functions in these three apps are frustrating. Due to the lack of basic functions, users are struggling in using these three apps. So, this research will have plenty of room in improving these experiences.

Another limitation is this research will only focus on the mobile versions of these three apps. Desktop versions will not be considered. Also, different age groups have different behaviors in using social apps and personal collection functions. It is not practical to study all users using these apps, so this research will focus on users from 20 years old to 28 years old.

This research will only be using Design Thinking and People-centered process; therefore, all research data will be qualitative data. Due to the one-year time limit and resource limit, this research will stop at the implementing phase. So, any form of solutions won't have further implementing beyond prototype.

TARGET APPLICATIONS

WECHAT

WeChat is a cross-platform instant messaging service developed by Tencent in China. It is one of the largest standalone messaging apps by monthly active users. As of May 2016, WeChat has over a billion created accounts and 700 million active users.

Favourites (Personal collection) functions:
Search ✓ Sort ✗ folder ✗ tag ✓

SINA WEIBO

Sina Weibo is a Chinese microblogging website. Akin to a hybrid of Twitter and Facebook, it is one of the most popular sites in China. It is in use by well over 30% of Internet users, with a market penetration similar to the United States' Twitter.

Favourite (Personal collection) functions:
Search ✗ Sort ✗ folder ✗ tag ✗

ZHIHU

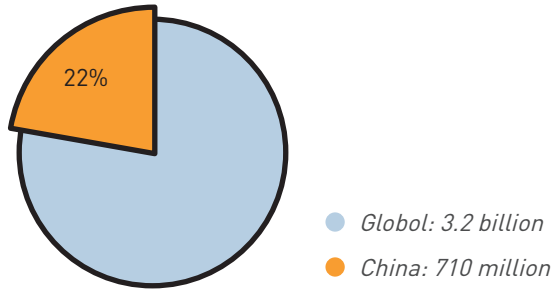
Zhihu is a Chinese question-and-answer website where questions are created, answered, edited and organized by the community of its users. Chinese-language internet users nowadays increasingly resort to Zhihu for expert knowledge and insights into various topics.

Favourites (Personal collection) functions:
Search ✗ Sort ✗ folder ✓ tag ✗

JUSTIFICATION

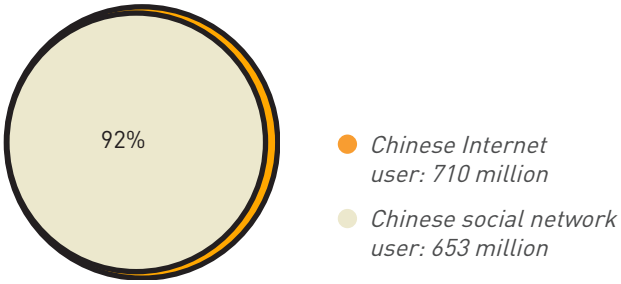
RESEARCH JUSTIFICATION

GLOBAL INTERNET USER



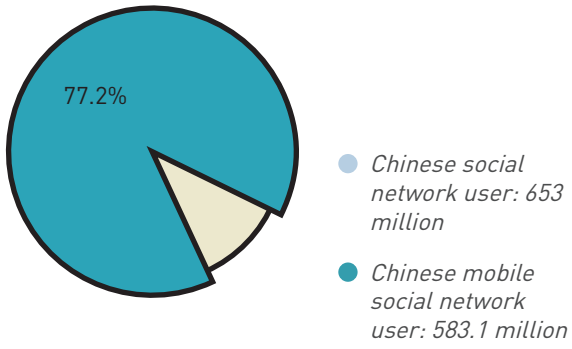
The Internet now has a large and ever-growing member of users. Per the International Telecommunication Union,[1] more than 3 billion people are now using the Internet around the world. The number of Internet users has increased from 738 million in 2000 to 3.2 billion in 2015. In 2015, China eclipsed 710 million internet users.[3]

SOCIAL NETWORK USER



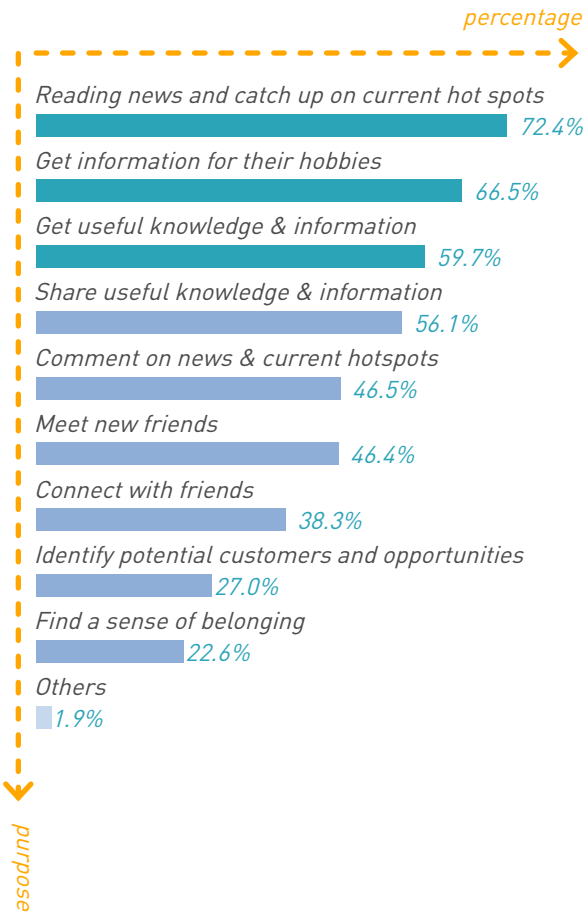
Inside this enormous group of internet users, a big percentage of them are social network users. By 2015, 92% of Chinese internet users are also social network users. 653 million people are using social networks in China.[2] Since this research is about personal collection functions in social apps, the number of users prove that this research question is worth studying.

MOBILE INTERNET USER



Social network users tend to go mobile. In China, 89.3% of users use social networks on their phone.[4] Users tend to be lightweight and fast in using social networking. Since users prefer to use social networks on mobile devices rather than desktop devices, this thesis focuses on social apps on mobile platforms which may have a larger impact on more people.

CHINA MICROBLOG USING PURPOSE



The purpose of using social networks is more and more shifting towards getting information. At the beginning, the main reason for using social networks was to connect with people and meet new people. Beyond these purposes, more and more people are starting to use social networks as a vehicle for information and knowledge consumption. In China, 72.4% of microblog users use microblogs for reading news and catching up on current hot spots. 66.5% of users say microblogs help them get information for their hobbies. 59.7% of users use it to get useful knowledge and information which can help them in their work or life.[4]

As a method for saving and collecting that information and knowledge for later use, PCF in social networks are an essential topic to study. From my observation and my own experience using the functions, I recognize several problems. For example, users save many items but can't find the one they are looking for. Or the user has many apps, but can't remember which item is in which app and list. From my initial research and investigation those kinds of problems are bothering many users. Another problem is that although personal collection function is useful and important, this function is an area that has not been studied much. It is valuable to research this problem and find out what the problems are and what the solutions could be.

1. International Telecommunication Union, 2015
2. Digital in 201 report: We Are Social, 2015
3. China Internet Network Information Center, 2015
4. A Report on User Behavior of Social Application in China, China Internet Network Information Center, 2015

LITERATURE REVIEW

RE-FIND & RE-ACCESS INFORMATION

Social networks have become a more and more valuable information source for people. The study, 'Going back in Time: An Investigation of social network Re-finding,' claims that re-finding is a regular activity in social networks.[1] The emergence of the personal collection function is evidence of this. Two big motivations behind this function are personal information management and re-access and retrieval of information. It is like the bookmark function in browsers. GBIT (Going back in Time: An Investigation of social network Re-finding) focuses on re-access activity on twitter and proves that information on social networks, like twitter, can offer a long utility for users and that re-accessing information is a common activity.

1. Meier, Florian, and David Elsweiler. "Going back in Time: An Investigation of social network Re-finding." Proceedings of the 39th International ACM SIGIR conference on Research and Development in Information Retrieval. ACM, 2016.

The KFTF study (Keeping and re-finding information on the web: What do people do and what do they need?) takes it a step further in information re-access activity.[2] KFTF focuses on the methods that people use in their workplace to re-access web information. This study tests several different methods to keep web information for later use and several re-finding methods. Results show that with a search service, partial completion of a site's web address and Hyperlinks from another web site provide participants a 95% success rate in re-accessing a web site after 3-6 months. The study divides keep methods and re-access methods, but didn't clearly show the relationships between these two. However, the results suggest that a search function is helpful in re-accessing information. Another point this study made is that motivation behind saving is important, but this study did not focus much on links between motivation for saving and saving methods.

2. Bruce, Harry, William Jones, and Susan Dumais. "Keeping and re-finding information on the web: What do people do and what do they need?."Proceedings of the American Society for Information Science and Technology 41.1 (2004): 129-137.

In 'What Can Searching Behavior Tell Us About the Difficulty of Information Tasks? A Study of Web Navigation,' the research described a way to measure the difficulty of information seeking tests.[3] The more time searchers spent on the task and the more web pages they visited, the more difficult they assessed the information seeking task. Although this test method is designed to measure difficulty in finding information on websites, it is still valuable and can be redesigned to measure the difficulty of re-accessing information in personal collection so that we can test and measure different methods which can help user to re-access information more easily.

3. Gwizdka, Jacek, and Ian Spence. "What can searching behavior tell us about the difficulty of information tasks? A study of Web navigation."Proceedings of the American Society for Information Science and Technology 43.1 (2006): 1-22.

FOLDER & CATEGORIZING

Folder structure and categorizing is a very common personal information management method. In 'Bringing order to the Web: automatically categorizing search results,' researchers developed a user interface that organizes Web search results into hierarchical categories and tested and compared how users reacted to categorized results and normal listed results.[4] The test results show that they were 50% faster at finding information that was organized into categories. The results convincingly demonstrated that the category interface is superior to the list interface in both subjective and objective measures.

4. Chen, Hao, and Susan Dumais. "Bringing order to the web: automatically categorizing search results." Proceedings of the SIGCHI conference on Human Factors in Computing Systems. ACM, 2000.

Compared to folder structure and categorizing, searching could also be a very efficient way of seeking information. 'Searching to Eliminate Personal Information Management' shows that search systems can alleviate the need to organize personal information by helping users find it no matter where we encountered it, what we remember about

it, and even if we forget it exists.[5] Some may ask in finding information and personal information management why we need to categorize and folder when we have the searching function? DTMFA (Don't take my folders away: organizing personal information to get things done) gives an answer to that.[6] In this study, participants tended to not give up folders even after they choose to utilize both folder and searching. There are three reasons. First, users can't trust to rely on search alone. Second, they want more control on grouping information and knowing things are in the right place. The third reason is visibility/understandability. Participants said folders help them understand information better and see relationship between things. I agree with that, but the situation in personal collection might be different.

5. Cutrell, Edward, Susan T. Dumais, and Jaime Teevan. "Searching to eliminate personal information management." Communications of the ACM 49.1 (2006): 58-64.

6. Jones, William, et al. "Don't take my folders away!: organizing personal information to get things done." CHI'05 extended abstracts on Human factors in computing systems. ACM, 2005.

Lastly, collaborative categorizing and machine learning in categorizing could be useful in managing and re-accessing information. 'Machine Learning in Automated Text Categorization' shows that using machine learning to automatically categorize text is full of potential and brings more efficiency in categorizing information.[7] But this technique still has many problems such as it being difficult to categorize non-text media. Also, in social networks, types of information may be much more complex.

7. Sebastiani, Fabrizio. "Machine learning in automated text categorization."ACM computing surveys (CSUR) 34.1 (2002): 1-47.

TAGGING

Tagging is another very common personal information management method, and most tagging systems in social networks is social tagging. In 'Personal Information Management vs. Resource Sharing: Towards a Model of Information Behaviour in Social Tagging Systems,' researchers focused on Flickr, YouTube, Delicious and

Connotea and found two main motivations behind social tagging: sharing and personal information management.[8] In 'Survey on Social Tagging Techniques,' researchers take it a step further.[9] They identified several motivations behind social tagging. They are future retrieval, attract attention, play and competition, self-presentation, opinion expression, task organization, social signaling, and money and technological ease. Only a few of these motivations can be related to personal collection because information in personal collection is more internal. The information is not for sharing or social purpose, they are for later use.

So, how does a tag system help personal information management? How can it be measured? What different influences could happen between using tagging and social tagging? 'Evaluating tagging behavior in social bookmarking systems: metrics and design heuristics' gives some answers.[10] The study researched social tagging in social bookmarking systems. They measured and evaluated tagging behavior by setting six metrics: tag growth, tag reuse, tag non-obviousness, tag discrimination, tag frequency, and tag patterns. Although their subject was CiteULike, they believe these metrics can be applied to different domains. But these metrics are not user focused, so they don't demonstrate how tags affect user behavior.

8. Heckner, Markus, Michael Heilemann, and Christian Wolff. "Personal information management vs. resource sharing: Towards a model of information behaviour in social tagging systems." (2009): 42-49.

9. Gupta, Manish, et al. "Survey on social tagging techniques." ACM Sigkdd Explorations Newsletter 12.1 (2010): 58-72.

10. Farooq, Umer, et al. "Evaluating tagging behavior in social bookmarking systems: metrics and design heuristics." Proceedings of the 2007 international ACM conference on Supporting group work. ACM, 2007.

FOLDER V.S. TAG

We want to know which method is more fit for personal collection: tag or folder? Which one would the user prefer? Could those two methods work together? 'Folder versus tag preference in personal information management' illustrates two studies in Gmail to compare user behavior in using folder and tag. Results of both studies show a strong preference for folders over tags for both storage and retrieval.[11] Also, retrieval tasks showed lower success rates and slower retrieval speeds for tag use. So, in email management, folder structure might be better but items and information in a personal collection is a different dynamic. Also in this study, the reason behind this preference is not clear.

11. Bergman, Ofer, et al. "Folder versus tag preference in personal information management." Journal of the American Society for Information Science and Technology 64.10 (2013): 1995-2012.

After reviewing these studies there are still many questions that need to be answered and problems that need to be solved. First, no study touched on the question of why users saved an item and never find the item again. What other problems are PCF users experiencing right now? Furthermore, there is very little research directly targeting personal collection and no study researched the user experience among several apps and platforms. In personal collection function, what is the relationship between the three common information management methods: searching, folder, and tagging. Which one is the best? What strengths does each have? Could they work together? Another problem is that there is no research using a qualitative research method. So, my research is focused on some of these questions and trying to answer them while giving some possible solutions by using the Design Thinking process and human-centered design methods.

DESIGN PROCESS

SIMPLEX PROCESS

The design process of this study is adapting Min Basadur's Simplex process. Per Basadur: *Simplex is an innovation process that harnesses creativity. It consists of deliberately finding and solving valuable problems, and implementing workable solutions that yield changes in the form of new and better products, services and procedures.*[1] As a problem-solving model, Simplex has three phases and eight steps. They are:

1. Simplex: A flight to creativity. [Buffalo, NY]: Creative Education Foundation, 1994.

Phase one: Finding Problems

1. Problem finding
2. Fact finding
3. Problem definition

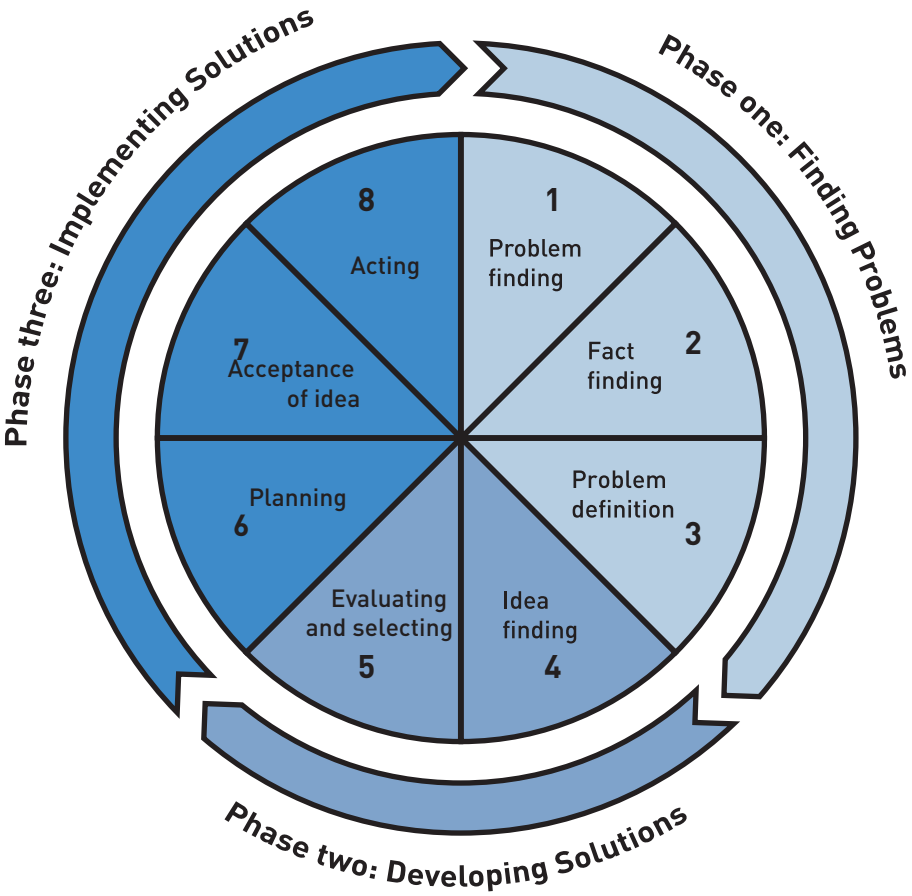
Phase two: Developing Solutions

4. Idea finding
5. Evaluating and selecting

Phase three: Implementing Solutions

6. Planning
7. Acceptance of idea
8. Acting (implementing the idea)

The reason for choosing the Simplex process in this study is because it is an effective and complete process for solving problems creatively. As a design thinking process created by Min Basadur, this step-by-step, cyclical process provides a good guideline for addressing complex challenges. Also, it follows people-centered design principles and involves users (the problem owner) in each step, which makes sure that the outcome is relevant and reliable.



Simplex Process Wheel

ADJUSTED SIMPLEX PROCESS

Due to the limitations of the time frame and resources for this thesis, modifications must be made to the Simplex process. In the design process of this thesis, the primary focus is in first two phases: Finding Problems and Developing Solutions. Design research breaks down the first phase into two: Research, Analysis, and Synthesis. For the last phase, Implementing Solutions, this thesis is only able to conduct two methods: Prototyping, Prototype Evaluation. Moreover, due to the content of this thesis, PCF, each step further breaks down to design thinking methods which makes more sense for a problem in the app development field. The adapted design process serves the same purpose with Simplex process and follows the same principles, and is more suitable for the problem in this thesis. The design process includes:

Phase one: Research

1. Interview (problem finding, fact finding)
2. Usability test (problem finding, fact finding)

Phase two: Analysis and Synthesis

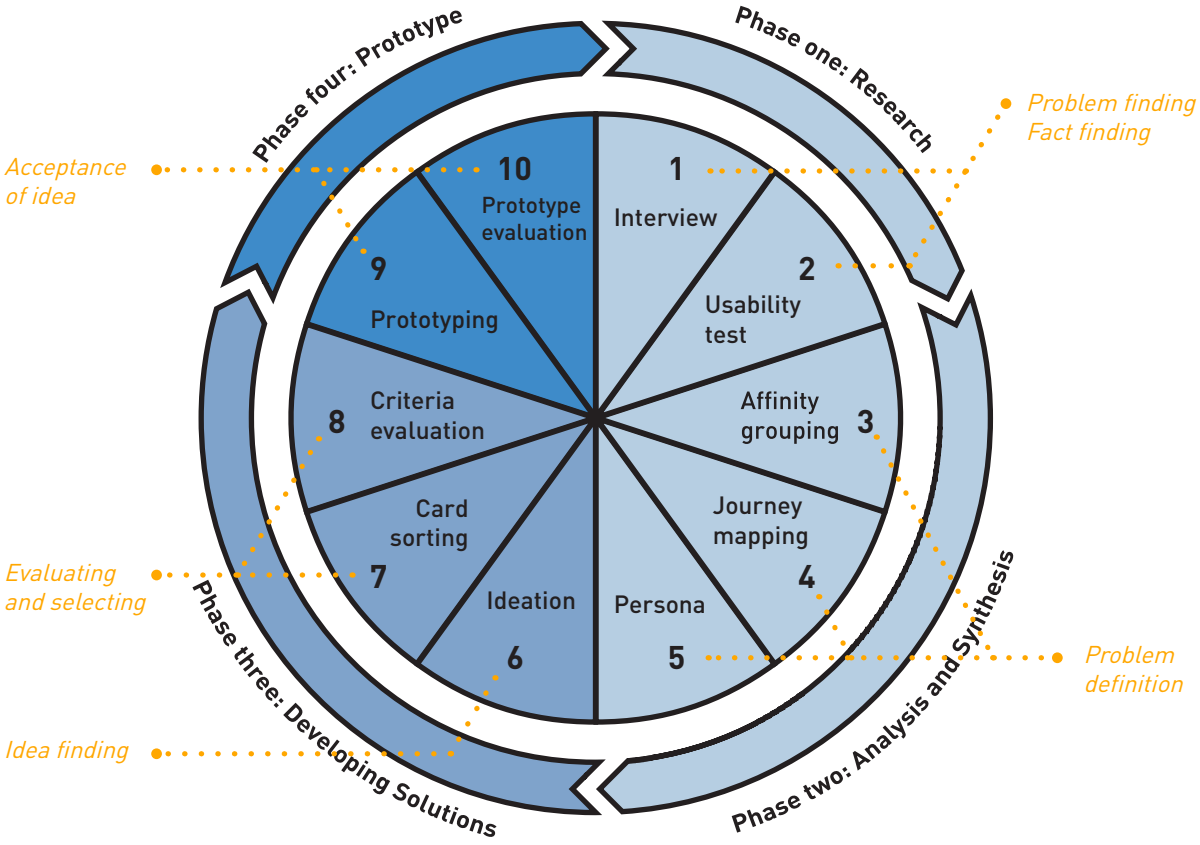
3. Affinity grouping (Problem definition)
4. Journey mapping (Problem definition)
5. Persona development (Problem definition)

Phase three: Developing Solutions

6. Ideation (Idea finding)
7. Card sorting (Evaluating and selecting)
8. Criteria evaluation (Evaluating and selecting)

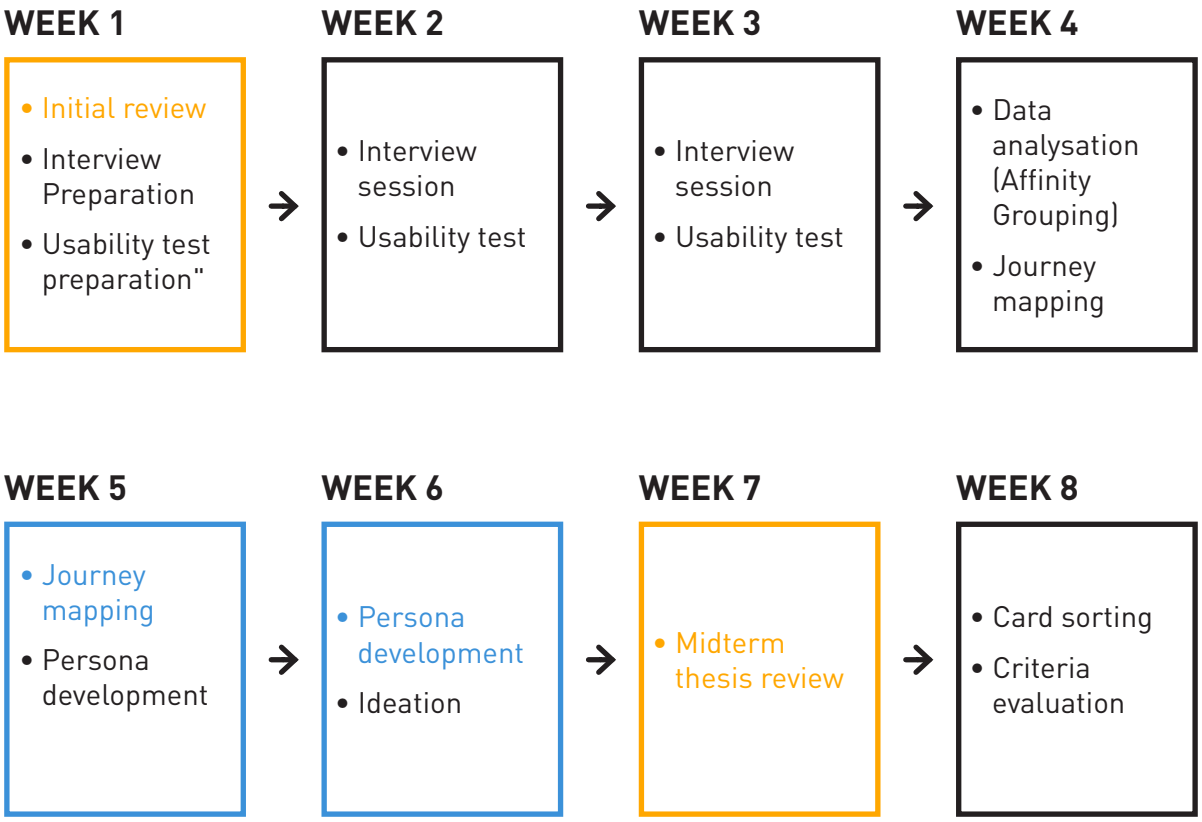
Phase four: Prototype

9. Prototyping (Acceptance of idea)
10. Prototype evaluation (Acceptance of idea)

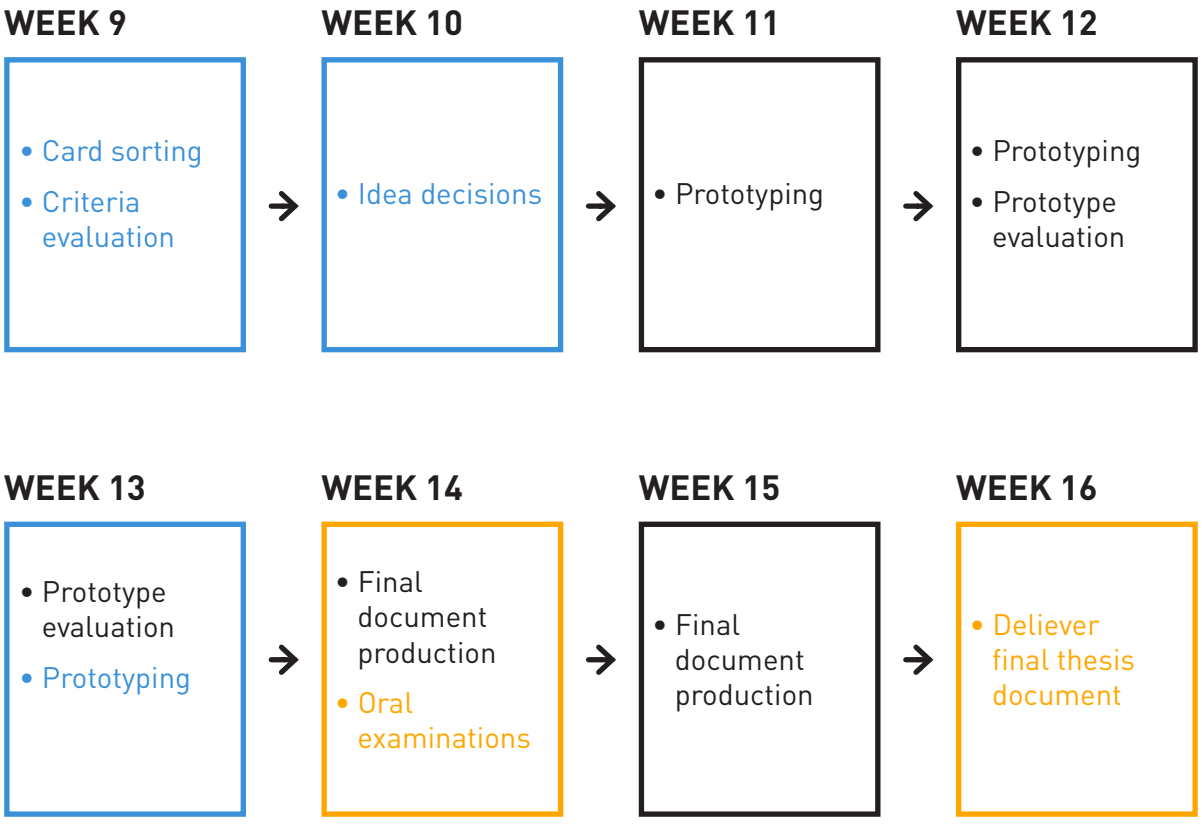


Adujusted Process Wheel

ACTION PLAN



To successfully implement the design process and finish the thesis writing in the necessary time frame, an action plan is made for every week. The action plan includes time for preparing and implementing each method as well as major checkpoints for the thesis.



KEY: • Thesis major check points • Deliverables

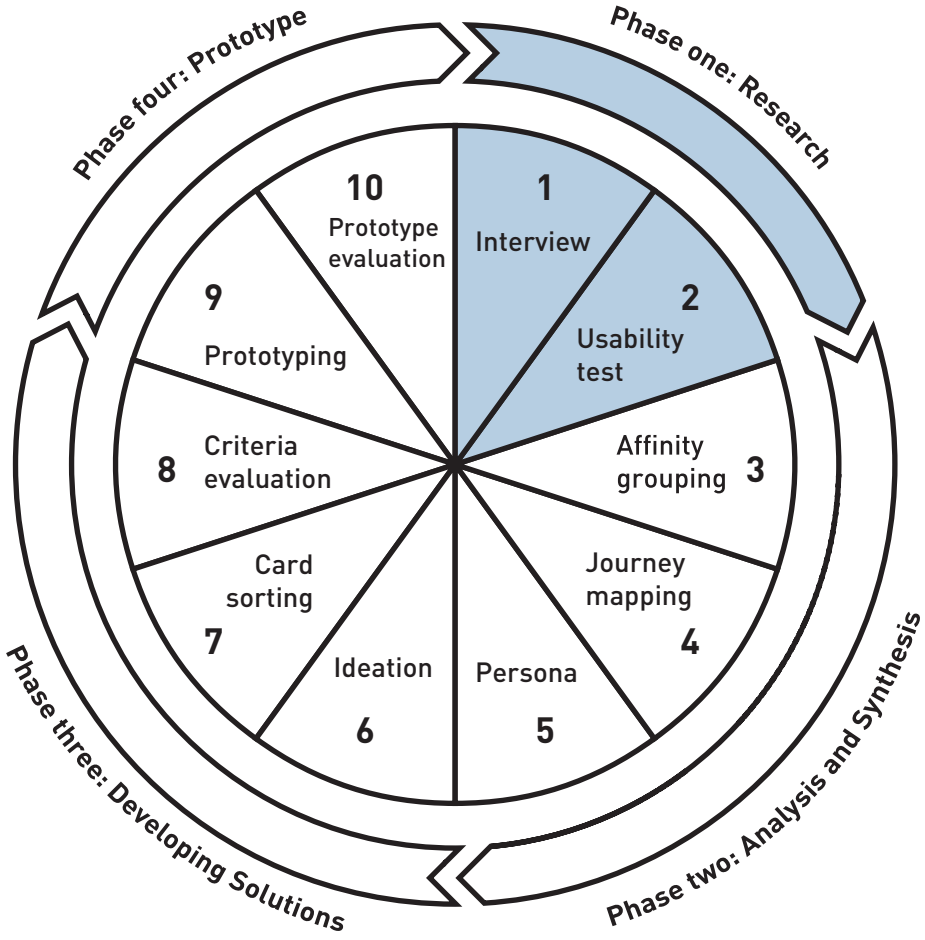
PHASE I
RESEARCH

PHASE I RESEARCH

Overall the purpose of this phase is to find problem and fact. For this thesis, problem finding and fact finding means:

1. Identify how users use personal collection function
2. Identify why users use these functions and what are their needs for this function.
3. Identify current challenges and problems in using collection functions

Two methods were used in the research phase to reach these purposes. They are Interview and Usability Test.


Phase one: Research
Phase two: Analysis and Synthesis
Phase three: Developing Solutions
Phase four: Prototype
1
Interview
2
Usability test
3
Affinity grouping
4
Journey mapping
5
Persona
6
Ideation
7
Card sorting
8
Criteria evaluation
9
Prototyping
10
Prototype evaluation

INTERVIEW

METHODOLOGY

In qualitative research, an interview is a conversation to collect specific information by asking questions. Per IDEO: *Human-centered design is about getting to the people you're designing for and hearing from them in their own words. There's no better way to understand the hopes, desires, and aspirations of those you're designing for than by talking with them directly.*

An interview is a good research method to get good quality insights and understanding directly from the problem-owner. The depth of detail from the interviewee is one of the biggest advantages interviews have. It is easy to engage users if you conduct an interview like a casual conversation. When people feel comfortable they are more willing to talk. Another benefit is the flexibility of an interview. You can easily get the whole story from an interviewee by asking follow-up questions or by dropping some questions when the interviewee does not have much to say on a topic. With these advantages, Interview is chosen as the first method in the research phase.

INTERVIEW PROCESS

The key objectives for Interview in this thesis are to get information about how they use social media and personal collection functions, the reason why they use these functions, and what current problems they are experiencing. Information about why they save items, how they re-find items, what their experience is, and their troubles are also essential to this method.

In the interviews:

- 10 participants participated in 10 one-on-one interviews.
- Each interview takes about 30 minutes
- About 20 questions are asked to each participant
- Most interviews are conducted on video chat tools like Hangout and Skype.
- Chinese is used as the main communication language (since participants are all Chinese and target app are Chinese apps)
- The documentation methods are note taking and voice record

Interview questions are divided into four sections:

1. General questions about using social media
2. Questions about re-find activities in social apps
3. Experiences in using personal collection functions
4. Similar behavior in Daily life

Interviewing by 'Google Hangouts'

INTERVIEW SCRIPT

General

- What social media apps do you like to use?
- How often do you use these apps?
- What kind of account do you like to follow and why? (Friends? News? Games?)
- What do you usually share with your friend and why?
- What do you usually save to your personal collection list and why?
- How do you decide when you want to share an item or save it to yourself?

- 平时你喜欢用那些社交软件？
- 用这些社交软件的使用频率是怎样的？
- 这些社交软件中你主要关注了一些什么什么样的账户？（朋友，新闻，体育）
- 你通常分享（转发）一些什么东西给你的朋友？分享的理由是？
- 你通常会自己的收藏夹里保存什么东西？保存的理由是？
- 如果你觉得看到了什么有趣的东西通常你是如何决定保存这个东西或者分享这个东西的？

Re-find

- Did you ever try to re-find item in your social media?
- How do you re-find this item?
- Where do you usually re-find an item from? (things you post & share? In your personal list?)
- Why do you want to re-find an item? Could you give me an example and describe the detail with me?
- Overall how difficult do you feel it is to re-find an item you have seen before? What difficulty do you have with the re-finding process?

- 在用社交软件的过程中，有没有找过以前看到过的东西（一篇文章你觉得有用下次再打开看，一篇文章你重复看了很多次，看了一眼没时间看想下次看）？
- 你是怎么找以前看过的东西的？
- 你通常能在哪儿找到以前见过的东西（自己发的，分享列表，收藏夹？）
- 通常你想看第二遍的东西是什么？想重新看的原因是什么？举个例子
- 总体来说你想找一个看过的东西的过程困难吗？为什么？
- 你觉得有什么办法可以帮你更快的找到你以前见过的东西？

- Could you think of anything, any method which can help you better find an item?

Personal collection function

- What problem or inconvenience do you have with this function?
- What's your experience with using this function among several apps?
- Does a personal collection function help with the re-finding process? How does it help? What do you like about this function?
- What do you want to change with this function? What could be improved?
- How many items do you have in your personal collection lists?
- Have you ever tried to organize your lists? How do you organize your lists? (delete useless ones? categorize?) Categorizing, tagging, searching by keywords, sorting by what method do you prefer to use to manage your list and why? What other methods could be good?
- Do you have items you never re-find or use in your list? What are these items? Do you remember why you saved these items at the beginning? How do you deal with these items? Do you think this discussion will change your decisions about what you save in your private lists in the future?

- 你在用收藏夹的时候有什么不方便的地方么？
- 你有在多个不同的社交软件使用收藏夹的经历吗？体验如何？
- 收藏夹对于你在找以前见过的东西的时候是否有帮助？为什么？收藏夹这个功能你觉得有什么优点？
- 你觉得现在社交软件的收藏夹有什么缺点？什么地方可以改进？你各个社交软件中收藏夹里现在大约都有多少东西？
- 你有没有整理过收藏夹？怎么整理的？ 8 加文件夹，加标签，改顺序，关键词检索，在用收藏夹的过程中你更偏向其中的那些方法？为什么？能想到其他那些可以帮助使用收藏夹的方法？
- 你的收藏夹里有没有你从来没再看过用过的东西？是些什么东西？你是否还记得当初是什么原因存下这些东西？你会怎么处理这些东西？（删除？）你觉得我们这次谈话对于你以后使用收藏夹有什么影响吗？（存些什么东西？怎么用收藏夹？管理收藏夹？）

Behavior in Daily life

- Do you like to organize things(information)? What's your experience with organizing things?
- Do you collect things in your spare time? what do you like to collect? Why do you like to collect them? How do you manage these collections?
- What other information do you want to let me know which I haven't covered?

- 你喜欢整理东西（信息）吗？说说你的经历？
- 你喜欢收集东西吗？收集些什么为什么？你怎么管理你的这些收藏的？
- 你有什么我没有问道但你想让我知道的信息么？

USABILITY TEST

METHODOLOGY

In people-centered interaction design, Usability testing is a method used to evaluate a product by testing it on users. This is an essential method to usability problems in interaction design since it gives direct input on how real users use a system.[1] In other words, to find problems and find facts in app design and interaction design field, usability testing is irreplaceable. Since this method simulates the real using environment for users, it is easy to capture where users have troubles and find the problems for target apps. Compared to asking directly 'what trouble do you have with this app', you may get answers easier by observing their interaction since users may not realize what problem they have unless they really use it.

1. Nielsen, J. (1994). Usability Engineering, Academic Press Inc, p 165

USABILITY TEST PROCESS

To find out facts, current problems, and usability issues for the three target apps in this thesis, a usability test with two tasks are designed. Test accounts are set before conducting the test. For those three target apps, each test accounts already followed around 30 accounts from different fields. Each test account has saved around 40 items with a big variety in PCF. In this way when a participant is conducting the test, they are more likely to feel like using this app on their own account. In conducting the usability tests:

- 8 participants participated in 8 one-on-one tests
- Each test takes about 30 minutes
- 2 tasks are asked to conduct for each participant
- All tests are conducted face to face, Either in their home or a private room
- Chinese is set as the app language
- Testing device is a Nexus 6p android phone
- the documentation methods are screen record with touch track and voice record.

In the usability test, the first task is designed to test out saving behavior and finding behavior in using PCF. Ideally, if this research could have a longer time frame,

tasks could be designed towards re-finding behavior in PCF. By asking participants to save something and ask them to re-find the item a few months later the task would be more like real user behavior. In this thesis, the researcher can only use finding behavior to simulate a re-find behavior in the real world. The second task is designed to test out organizing activities in PCFs. In the three target apps, Zhihu is the only one that has a folder function, so in this task Wechat and Weibo are not tested. A method called 'think out loud' is asked as additional requirements in each task. Participants are asked to say out loud their every move as well as each thought so that the researcher can have a better understanding of what they are thinking, where they are stuck, and what the problems are.

Touch track

Screenshot from a video record of a usability test
Testing app: Zhihu

TESTING SCRIPT

"Thank you for taking the time to be part of our research study. My name is Jack. Throughout the duration of this session, we are here to learn about the effectiveness and usability of personal collection function in several apps."

感谢你参与这次测试，我是杰克。这次是的主要目的是测试几款软件的可用性。

"While performing the tasks, please try and think out loud while doing so--telling me everything you are thinking or is going through your head. We are not here to test or evaluate you, but only to observe. In doing this you are helping us better understand what does and does not work about the design of this function. So, feel free to try in the test and give any feedback"

当你在进行测试时，尽可能说出你每一步脑子里在想什么，例如‘我想打开打开菜单，我想向下下滑找 XXX，这个是个可用性测试，所以你的所有操作和想法都没有对错之分，所以大胆试尽可能多的告诉我每一个动作你想做什么

"The session should take about 30 minutes. If you have any questions before we get started please feel free to ask!"

这个测试将大约用是三十分钟，在测试前你有什么问题要现在问我吗？

Task 1

Save and find
Time: 10 min

"For the first task, imagine you are browsing in your own account. Choose three items (photo, video, post) you want to see again later and save them into your personal collection list. After you saved three items try to find one related to work out and one item related to magic in your personal collection list"

"Please think out loud, saying whatever you are thinking as your complete this task."

保存与检索

关于这个测试，假想你在使用自己的社交软件，你在看的过程中选择三个你想保存到收藏夹的东西（可以是照片，视频，文章）。当你选择完并且保存完这些东西以后，打开收藏夹分别找到一篇有关健身的文章以及一篇有关魔术的文章。

Task 2

Organizing
Time: 15 min

"For the second task, imagine this is your own personal collection list and you want to organize it. Please create at least three folders, name them, and put items into these folders based on the name you give."

"Please think out loud, saying whatever you are thinking as you complete this task."

整理

关于这个测试，假想你在使用自己的收藏夹你想要整理你的收藏夹，请你至少创建三个文件夹，命名这些文件夹，并将收藏夹中的内容放入这些文件夹中

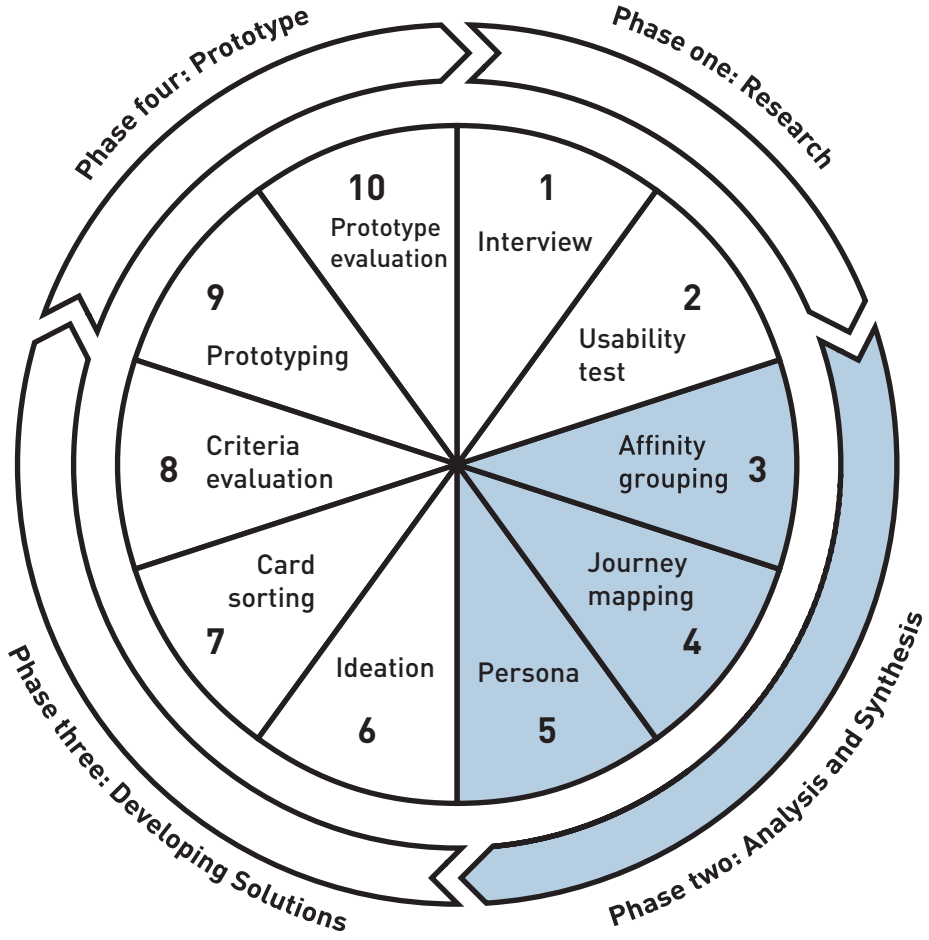
PHASE II
ANALYSIS AND SYNTHESIS

PHASE II:
ANALYSIS AND SYNTHESIS

Overall, the purpose of this phase is to define the problem. For this thesis, problem definition means to make sense through data from phase one to define:

1. Who is using PCF
2. Their behavior in using PCF
3. The reasons for using PCF
4. Problems in using collection functions

Three methods were used in the Analysis and Synthesis phase to reach these purposes. They are Affinity grouping, Journey mapping, and Persona.


Phase four: Prototype
Phase one: Research
Phase three: Developing Solutions
Phase two: Analysis and Synthesis
10
Prototype evaluation
1
Interview
9
Prototyping
2
Usability test
8
Criteria evaluation
Affinity grouping
3
Card sorting
7
Journey mapping
4
Ideation
6
Persona
5

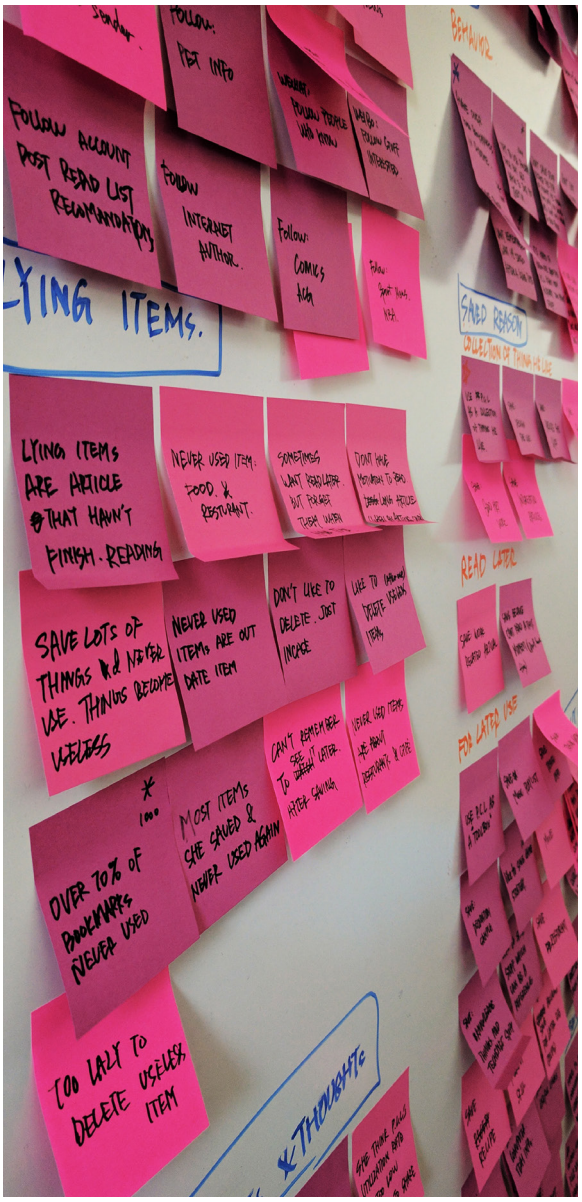
TRANSCRIBE & AFFINITY GROUPING

METHODOLOGY

Affinity grouping is a method to help make sense of different types of data. For example, when analysing data as behaviors, facts, user needs, problems, frustrations, issues, opinions, insights, and ideas, Affinity group could be an easy way to start. The only thing that needs to be done is to put similar data together and try to categorize them to make sense and see patterns. When finishing affinity grouping it will be easy to see the structure and density of the data so that further analysis can be made.

TRANSCRIBE & AFFINITY GROUPING PROCESS

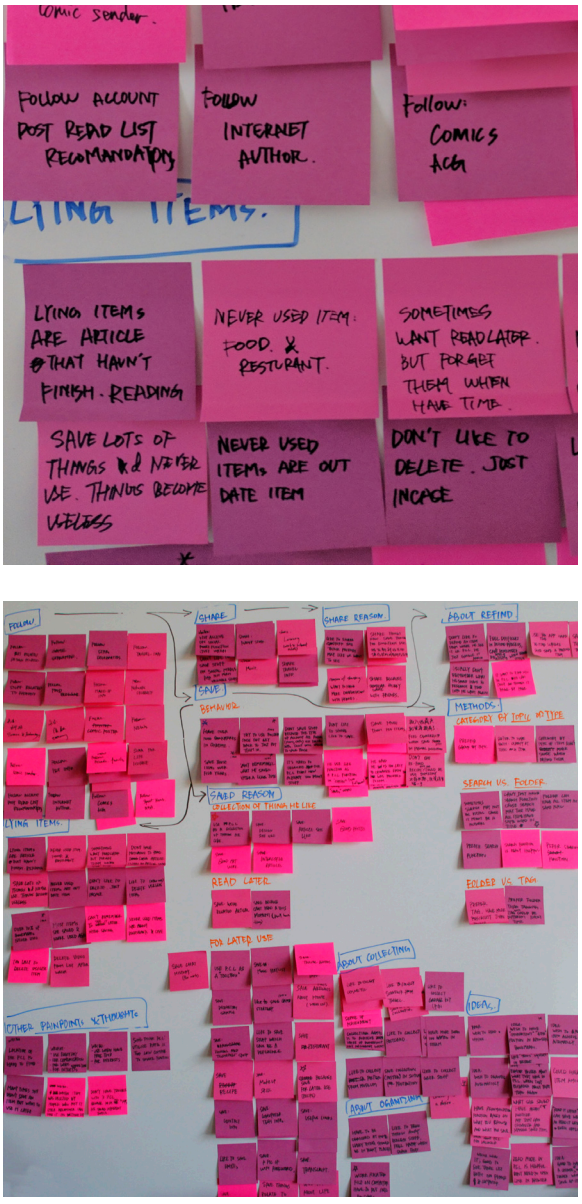
A big variety of raw data is collected from the Research Phase such as notes, video records, and voice records. To make sense of them together and turn all raw data into valuable insights visually, the first step is to transcribe all data onto post-its so that they are easy to move, group and see patterns. After that, affinity grouping all data brings organization to the mess of information, so then it's easy to show the structure and density of the data. As a result of this method, all data were organized into 15 categories and some sub categories:



Affinity grouping data on post-its

CATEGORIES

- Organizing behavior in daily life
- Collecting behavior in daily life
- App use
- Type of account followed
- Reason of sharing
- Type of items shared
- Amounts of saved items
- Save behavior
- Reason for saving
- Saved items
  - ◊ use later
  - ◊ read later
  - ◊ a collection of things liked
- Manage behavior
- Manage methods
  - ◊ tagging
  - ◊ folder search
  - ◊ categorize by topic V.S. by file type
- Re-find behavior
- Never used item
- Ideas



Affinity grouping data on post-its

JOURNEY MAP

METHODOLOGY

The Journey map for design was first introduced through the Acela high-speed rail project of IDEO (1999).[1] *It has become one of the most widely used tools for service design and has been utilized as a tool for visualizing intangible services.*[2] A journey map is basically a timeline of a user's experience. It shows the story of the customer's experience. It not only identifies key interactions that the customer has, but it also shows user's feelings, behavior, motivations, problems, and options for each of the touchpoints.

1. Brown, T. Change By Design June 30, 2016

2. Jump up ^ Expanded Customer Journey Map: Interaction Mapping Framework Based on Scenario June 30, 2016

OVERALL JOURNEY MAP

An overall journey map was made to have a better understanding of current problems in using PCF. It also identified the common overall user experience flow. Behaviors, motivations, opinions, pain points and problems were also shown visually in each step of the flow. In the overall journey map, each square means a major touchpoint. Arrows show the direction of the flow. A red data means it's an important data and many participants mentioned about this data. '+' and '-' means positive data and negative data. By creating this journey map, three main reasons for using PCF are summed up:

Use later

This is the biggest reason for users to use PCF. Users like to use PCL as a tool box where they save items when they see something useful and some could be used later (i.e. travel notes, recipes, etc.)

Read later

When user found an interesting long article (or post, or video) but he doesn't have time at that moment to finish it. So, he saves this article to his PCL to read later when he has time. This is also a big reason for users to use PCF.

Collection of things liked

This using reason is very different from the first two. Users save items into PCL just because they like it, not necessarily because they think it is useful. For example, users putting photography and artworks they like in their PCL.

Major problems in using PCF are included in each step in the overall journey map. They are also listed below:

Organizing prolems

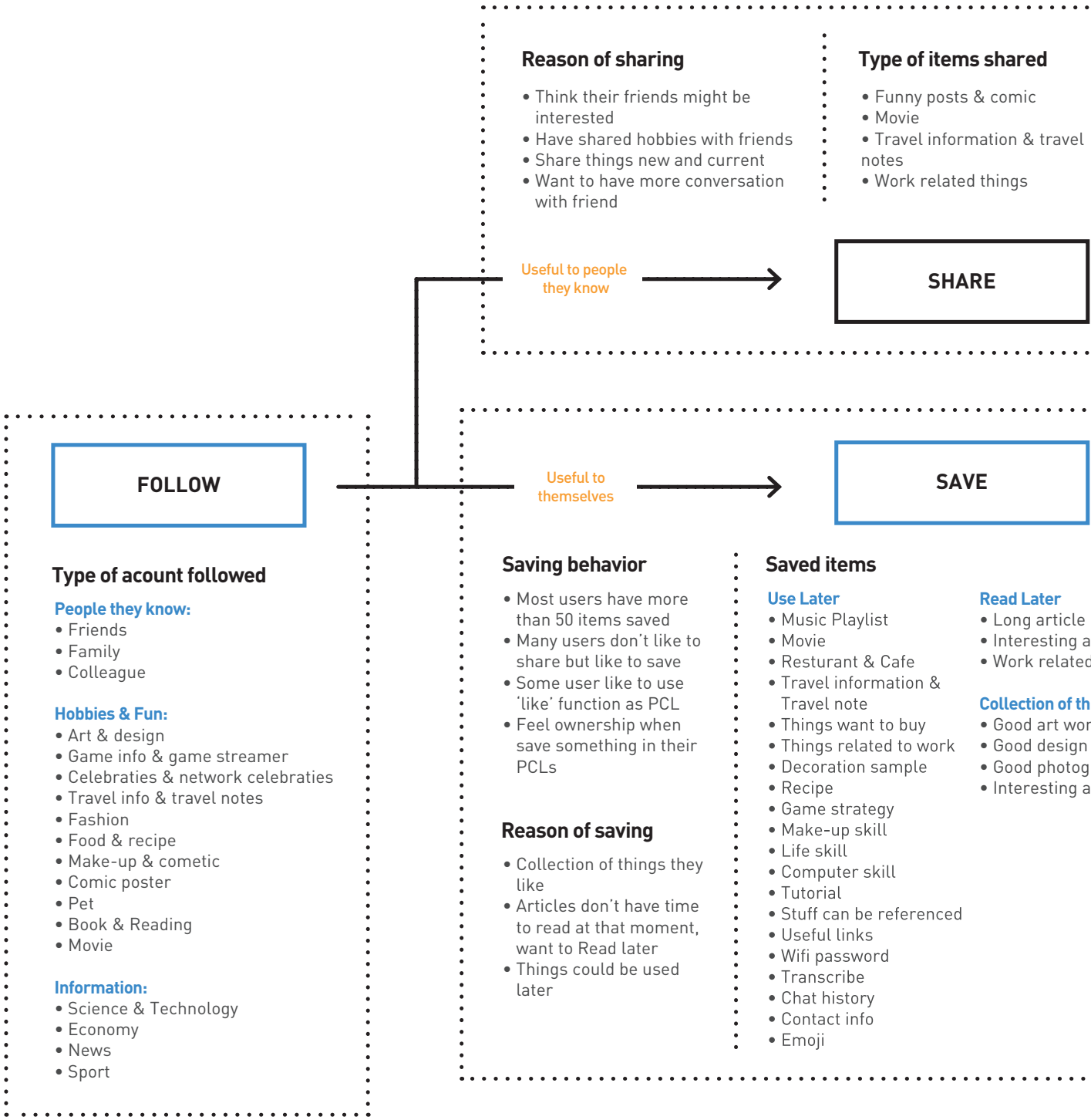
- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
- Hard to organize because don't have an organize function

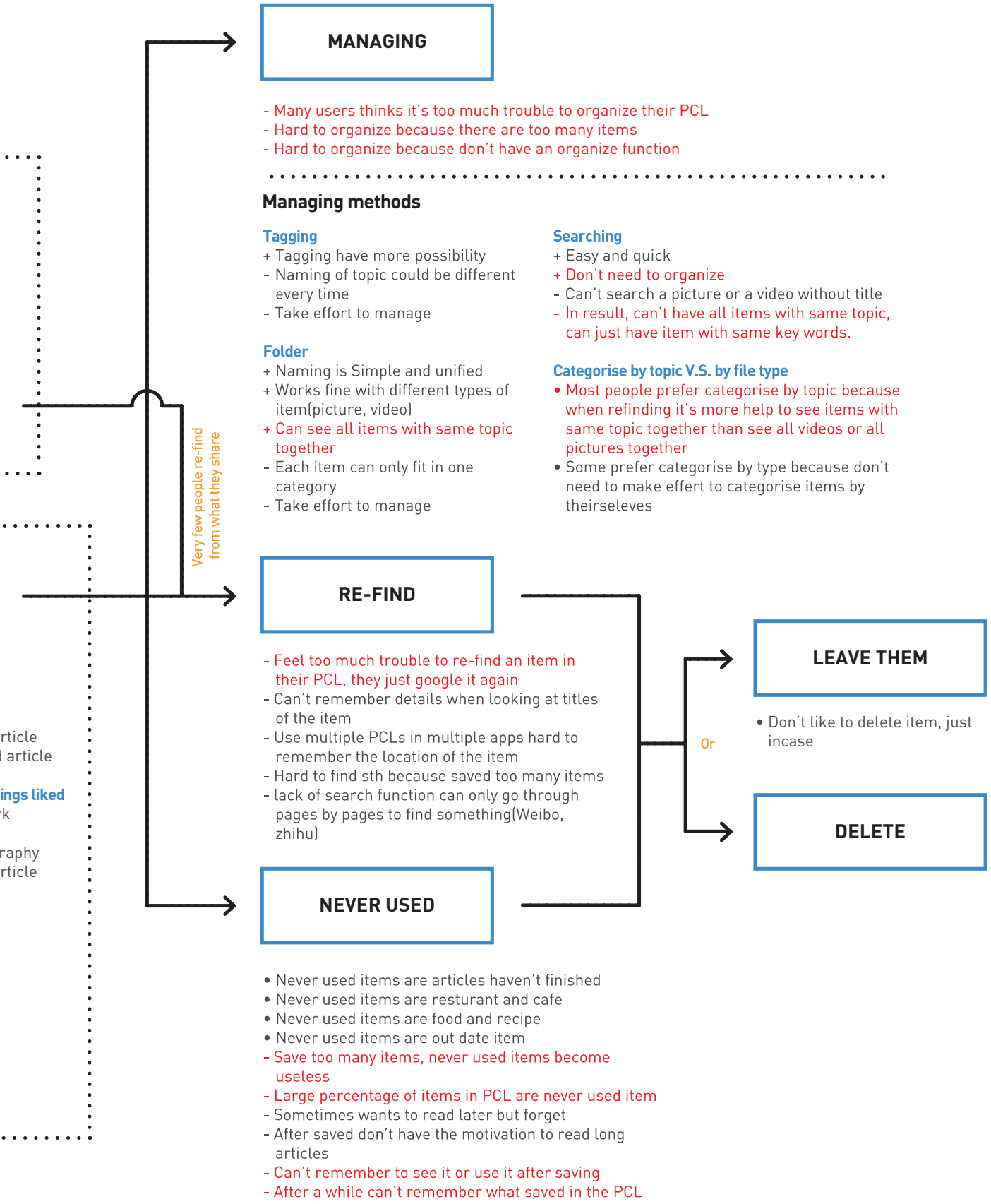
Re-find problems

- Feel too much trouble to re-find an item in their PCL, they just google it again
- Can't remember details when looking at titles of the item
- Use multiple PCLs in multiple apps hard to remember the location of the item
- Hard to find sth because saved too many items
- lack of search function can only go through pages by pages to find something

Never used items

- Save too many items, never used items become useless
- Large percentage of items in PCL are never used item
- Sometimes wants to read later but forget
- After saved don't have the motivation to read long articles
- Can't remember to see it or use it after saving
- After a while can't remember what saved in the PCL


Reason of sharing
• Think their friends might be interested
• Have shared hobbies with friends
• Share things new and current
• Want to have more conversation with friend
Type of items shared
• Funny posts & comic
• Movie
• Travel information & travel notes
• Work related things
Useful to people they know
SHARE
FOLLOW
Useful to themselves
SAVE
Type of acount followed
People they know:
• Friends
• Family
• Colleague
Hobbies & Fun:
• Art & design
• Game info & game streamer
• Celebraties & network celebraties
• Travel info & travel notes
• Fashion
• Food & recipe
• Make-up & cometic
• Comic poster
• Pet
• Book & Reading
• Movie
Information:
• Science & Technology
• Economy
• News
• Sport
Saving behavior
• Most users have more than 50 items saved
• Many users don't like to share but like to save
• Some user like to use 'like' function as PCL
• Feel ownership when save something in their PCLs
Reason of saving
• Collection of things they like
• Articles don't have time to read at that moment, want to Read later
• Things could be used later
Saved items
Use Later
• Music Playlist
• Movie
• Resturant & Cafe
• Travel information & Travel note
• Things want to buy
• Things related to work
• Decoration sample
• Recipe
• Game strategy
• Make-up skill
• Life skill
• Computer skill
• Tutorial
• Stuff can be referenced
• Useful links
• Wifi password
• Transcribe
• Chat history
• Contact info
• Emoji
Read Later
• Long article
• Interesting a
• Work related
Collection of th
• Good art wor
• Good design
• Good photog
• Interesting a


MANAGING
- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
Managing methods
Tagging
+ Tagging have more possibility
- Naming of topic could be different every time
- Take effort to manage
Folder
+ Naming is Simple and unified
+ Works fine with different types of item(picture, video)
+ Can see all items with same topic together
- Each item can only fit in one category
- Take effort to manage
Searching
+ Easy and quick
+ Don't need to organize
- Can't search a picture or a video without title
- In result, can't have all items with same topic, can just have item with same key words.
Categorise by topic V.S. by file type
• Most people prefer categorise by topic because when refinding it's more help to see items with same topic together than see all videos or all pictures together
• Some prefer categorise by type because don't need to make effert to categorise items by theirseleves
Very few people re-find from what they share
RE-FIND
- Feel too much trouble to re-find an item in their PCL, they just google it again
- Can't remember details when looking at titles of the item
- Use multiple PCLs in multiple apps hard to remember the location of the item
- Hard to find sth because saved too many items
- lack of search function can only go through pages by pages to find something(Weibo, zhihu)
Or
LEAVE THEM
• Don't like to delete item, just incase
DELETE
NEVER USED
• Never used items are articles haven't finished
• Never used items are resturant and cafe
• Never used items are food and recipe
• Never used items are out date item
- Save too many items, never used items become useless
- Large percentage of items in PCL are never used item
- Sometimes wants to read later but forget
- After saved don't have the motivation to read long articles
- Can't remember to see it or use it after saving
- After a while can't remember what saved in the PCL

PERSONA

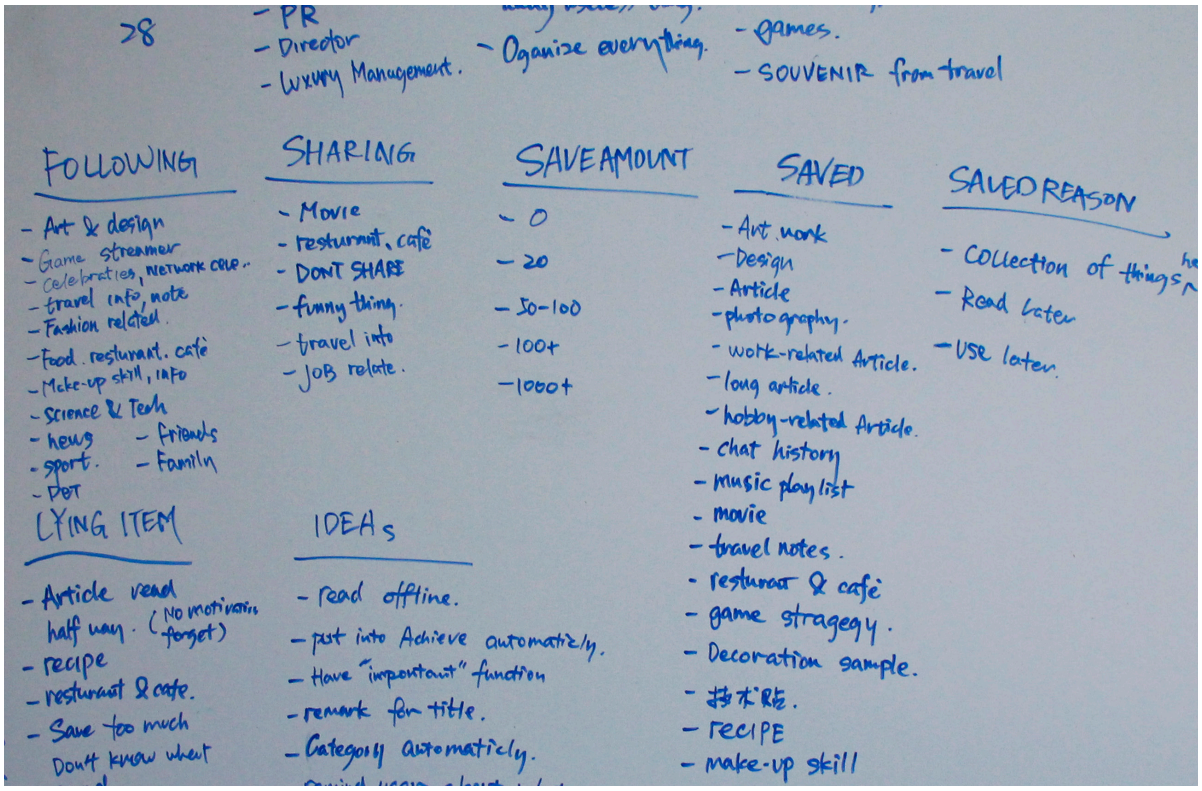
METHODOLOGY

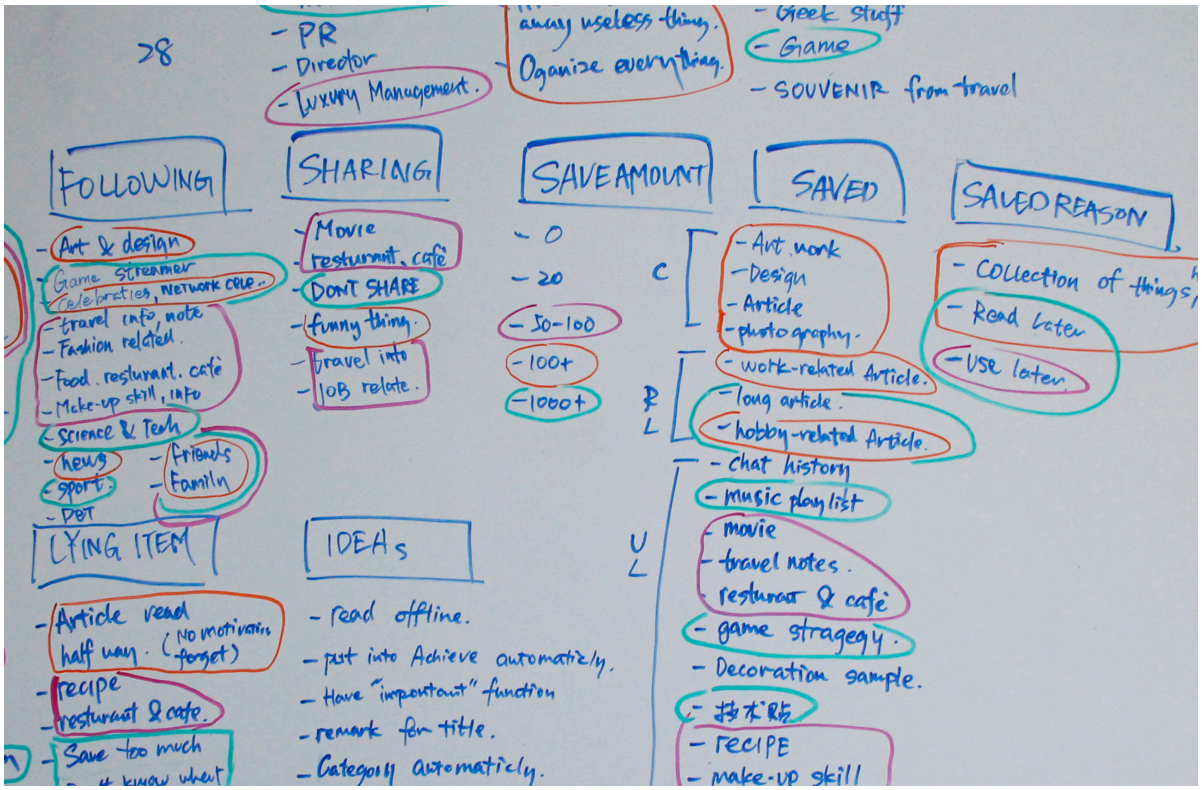
Persona is a common method in design thinking and in user experience design. It's a method that creates play-acted fictitious characters to help solve design questions.[1] The creation of persona is always based on research data, so it can help designers and researchers to get a better understanding of their users. By creating a narrative for the persona, a designer can also understand the using scenario and their using experience. With this understanding, it will help the researcher and design making decisions since they already know their audience.

1. Alan Cooper: "The origin of personas ". Cooper Journal, May 15, 2008.

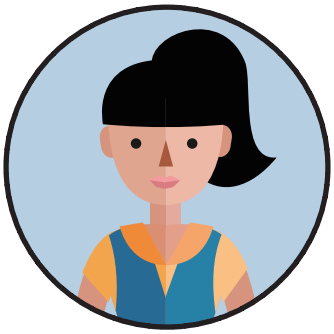
PERSONAS, NARRATIVES, AND INDIVIDUAL JOURNEY MAPS

In this thesis, when the researcher goes through all the data, three typical types of users were found. They all have big differences in using behavior, using purpose, and needs. Based on the analyzed data, three personas were made to show who are the typical users for personal collection functions, what their using behaviors are, what their frustrations are, and what their needs are? Three different narratives are created for the three persona characters so that they can be understood in a natural storytelling way. Also, each individual persona journey were made to show how different users go through the whole process in using personal collection function.





Persona developing process



EMMA HU

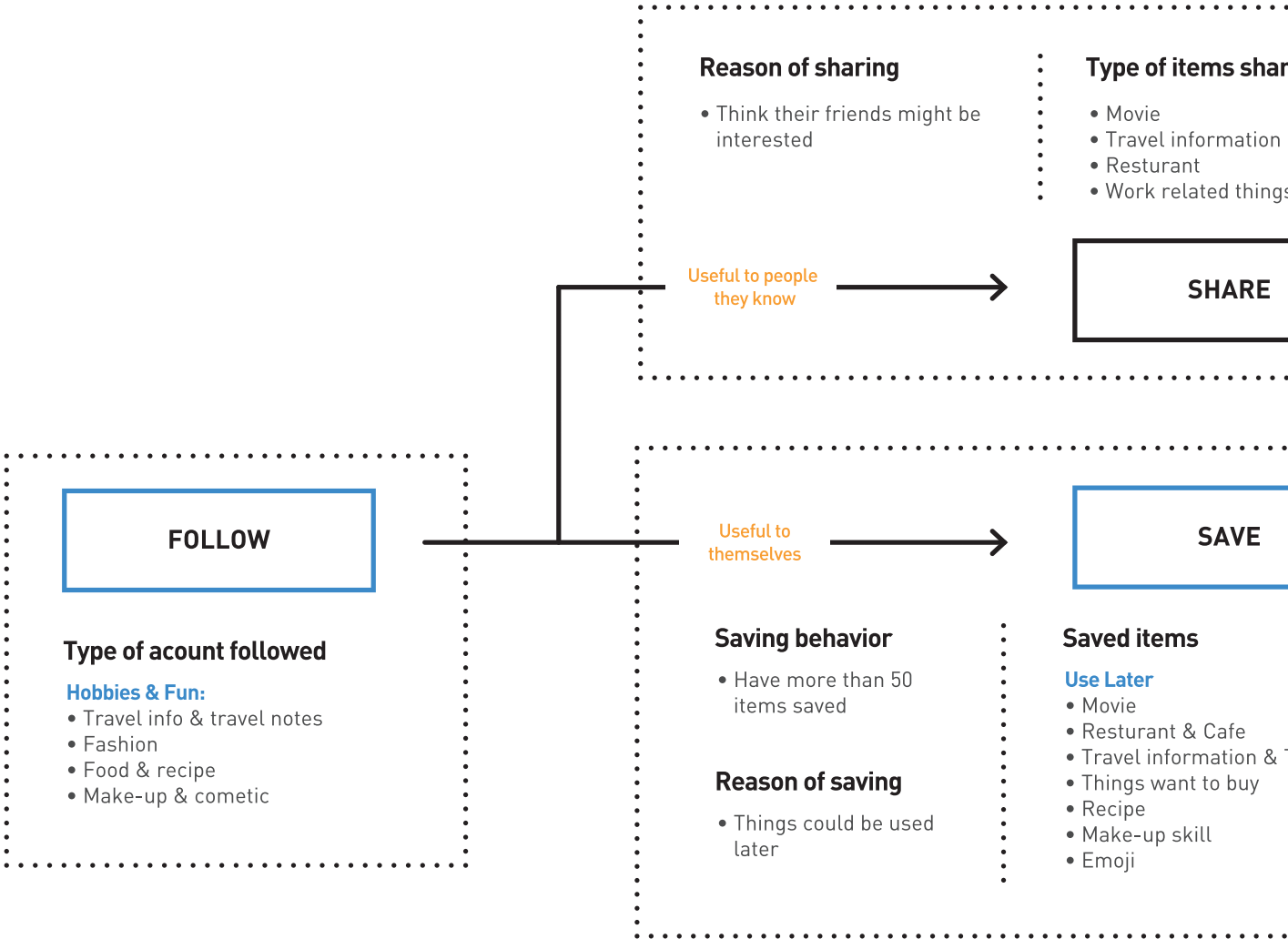
Age:24
Job: Luxury market assistant
Use scenario: Work time, spare time
Skills: Marketing, luxury management
Used App: Wechat, Sina Weibo
Way of using PCL: Save Items for later use
Likes: Luxury, travel, food, movie

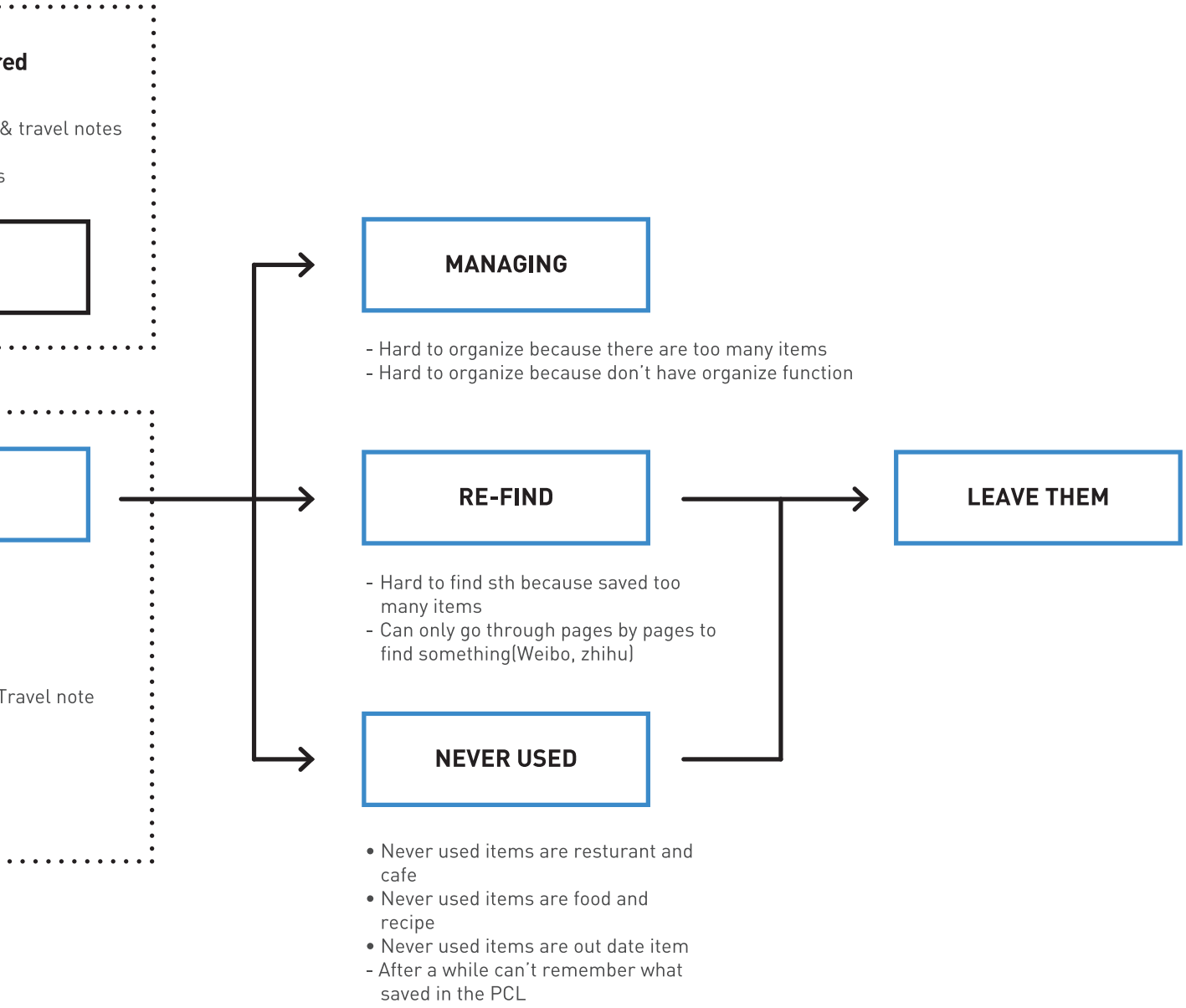
Emma is 24 years old girl and from Shanghai. She studied luxury management at graduate school and now she is working at LVMH as a marketing assistant. She likes her workspace to be clean and neat so she cleans her desk every day, but in her spare time she is more relaxed and casual. She doesn't sort out her house like her desk. As a hobby, she likes to collect cosmetics. She doesn't mean to use all the cosmetics she has, but owning those collections makes her feel happy.

Emma spends a lot of time on the smartphone every day. She uses WeChat and Sina Weibo a lot. She uses WeChat to communicate with work mates, friends, and family. She follows a lot of accounts in WeChat and Weibo. Many of those accounts post things related to her hobbies such as travel notes, new restaurants, fashion and luxury information, and make-up skills. She likes to share posts about movies, restaurants and travel notes. She thinks her friends may be interested in those things. She also shares some fashion related articles because she works in the luxury business and she thinks those things may be useful to her friends at work. In her favorite list (PCL), there are more than 50 items. Most of them are things she thinks she may use later. In her favorite list, there are movies she wants to watch in her spare time, places to travel to in the future, make-up skills, and new restaurants and cafes she wants to go to with her friends. She also likes to cook, so she saved lots of recipes in her list. She likes to save things she may want to buy in the list to decide whether to buy later. Also, every time she comes across cute emojis, she saves them to a list because she could use them when she chats with her friend.

Because she has saved lots of items into her PCL, she feels frustrated when she wants to find something in her list. Most times she can't remember what she saved or in which app she saved an item. When she wants to find something she only has some fuzzy impression of what and where. She never can organize her favorite lists, so the only thing she can do is go through her list page by page when she is looking for something. Also, plenty of these items in PCLs are never used items. Most of these items are recipes or restaurants and cafes. She thought she might go to those 'new restaurants with friends someday, but that never happened and those restaurants were not new anymore. After a while, she can't even remember what she has in her lists.

EMMA'S JOURNEY




red
& travel notes
s
Travel note
MANAGING
- Hard to organize because there are too many items
- Hard to organize because don't have organize function
RE-FIND
- Hard to find sth because saved too many items
- Can only go through pages by pages to find something(Weibo, zhihu)
LEAVE THEM
NEVER USED
• Never used items are resturant and cafe
• Never used items are food and recipe
• Never used items are out date item
- After a while can't remember what saved in the PCL

EASON LIV

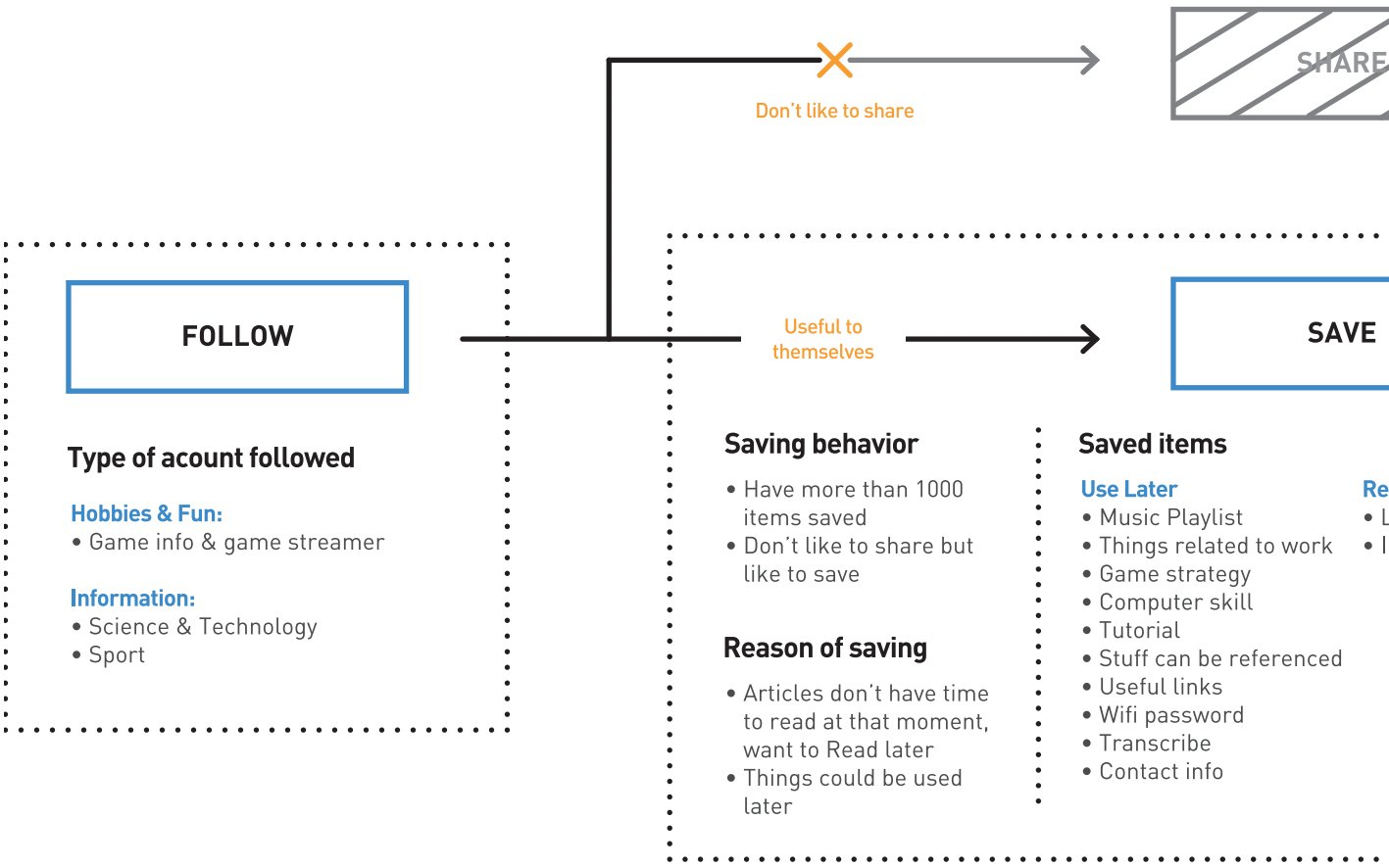
Age:28
Job: Front-end engineer
Use scenario: Work time, spare time
Skills: Computer science
Used App: Wechat, Sina Weibo, Zhihu
Way of using PCL: Save Items for later use, save unfinished articles to read later
Likes: Game, Comics

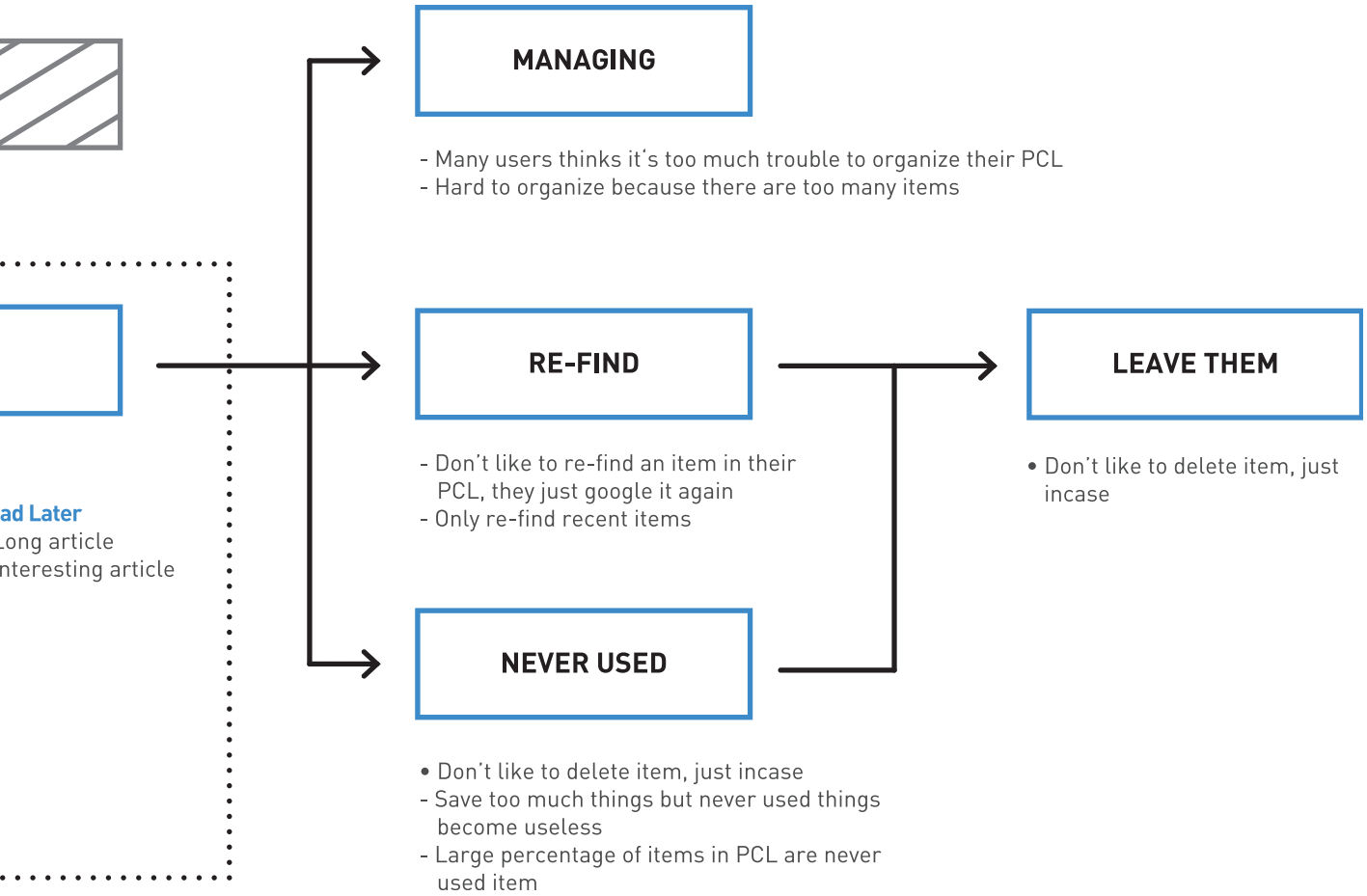
Eason Liv is a 28 years old front-end engineer. He studied computer science at UIUC and now he is working at Amazon. He considers himself a casual person, he doesn't like to be organized, and he doesn't mind living in a messy room. His girlfriend he lives with is always helping to clean and organize his room. The only thing he is organized with is the work-related files in his computer. He always hates to organize them, but it's work so he must. As a hobby, he likes to collect games on 'Steam'. He has over 100 games on Steam. He has only played a few of these games. Although he knows he won't play most of his games, he still can't help buying games on Steam. He never regrets buying a game only because it was on-sale. Many times, he just looks at his collection and he feels happy owning these games.

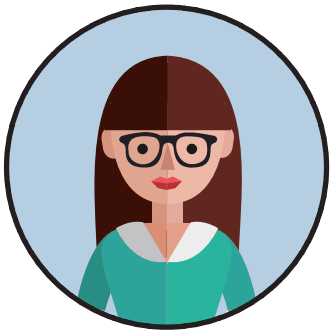
Eason Liv spends a lot of time on the smartphone every day. WeChat, Sina Weibo, and Zhihu are his three most used apps. For him, WeChat is a communication tool. Zhihu and Weibo are where he likes browsing things he likes. On these apps, besides his family and friends, he follows game information, game streamers, sports, and things related to science and technology. He doesn't like to share things on social apps because he thinks the things he follows is not very common and his friends may not share hobbies with him. But he does like to save things into his PCL. He has used Sina Weibo for four years and now there are more than 1000 items in his PCL. To use later or read later are two main reasons he has saved those Items. In many cases, he saw a long article or interesting article he doesn't have time to read at that moment, so he saves those articles with the hope he has a chance to read them later. He also likes to use PCL as a toolbox. He likes to put everything he feels useful into PCL. There is a big variety on his list. Useful links, contact information, wifi passwords, music playlists, strategies for games, and tutorials are among the items on his list.

However, 70% percent of items in his list are never used. He saved so many things that he can't remember what he has on his list. Whenever he wants to find something he never tries to find them on his list because he knows he won't be able to find it on his list, so he just googles it again. The only things he uses in his list are those recently saved items because he can still remember what they are and they are still easy to find since they are at top of his list. He tried once to categorize and organize his items, but he quits very quickly because there is too much of them. Also, he is not willing to delete any items because he believes he may use them someday.

EASON'S JOURNEY




MANAGING
- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
RE-FIND
- Don't like to re-find an item in their PCL, they just google it again
- Only re-find recent items
LEAVE THEM
• Don't like to delete item, just incase
NEVER USED
• Don't like to delete item, just incase
- Save too much things but never used things become useless
- Large percentage of items in PCL are never used item
ad Later
Long article
nteresting article



ZOE XIA

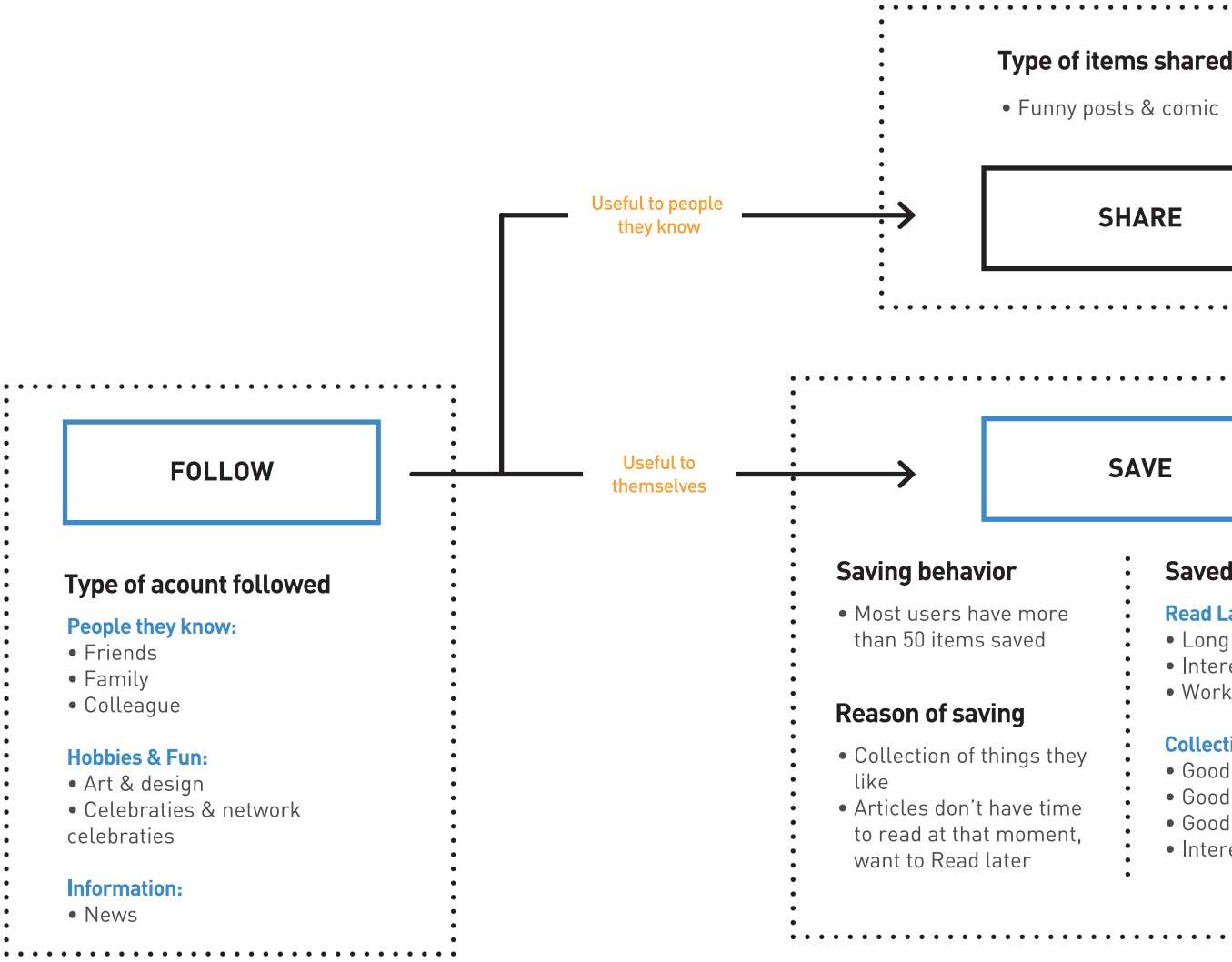
Age:20
Job: Undergraduate student
Use scenario: Spare time
Skills: Landscape design
Used App: Wechat, Sina Weibo
Way of using PCL: Collection of things she liked, save unfinished articles to read later
Likes: Art, design, photography

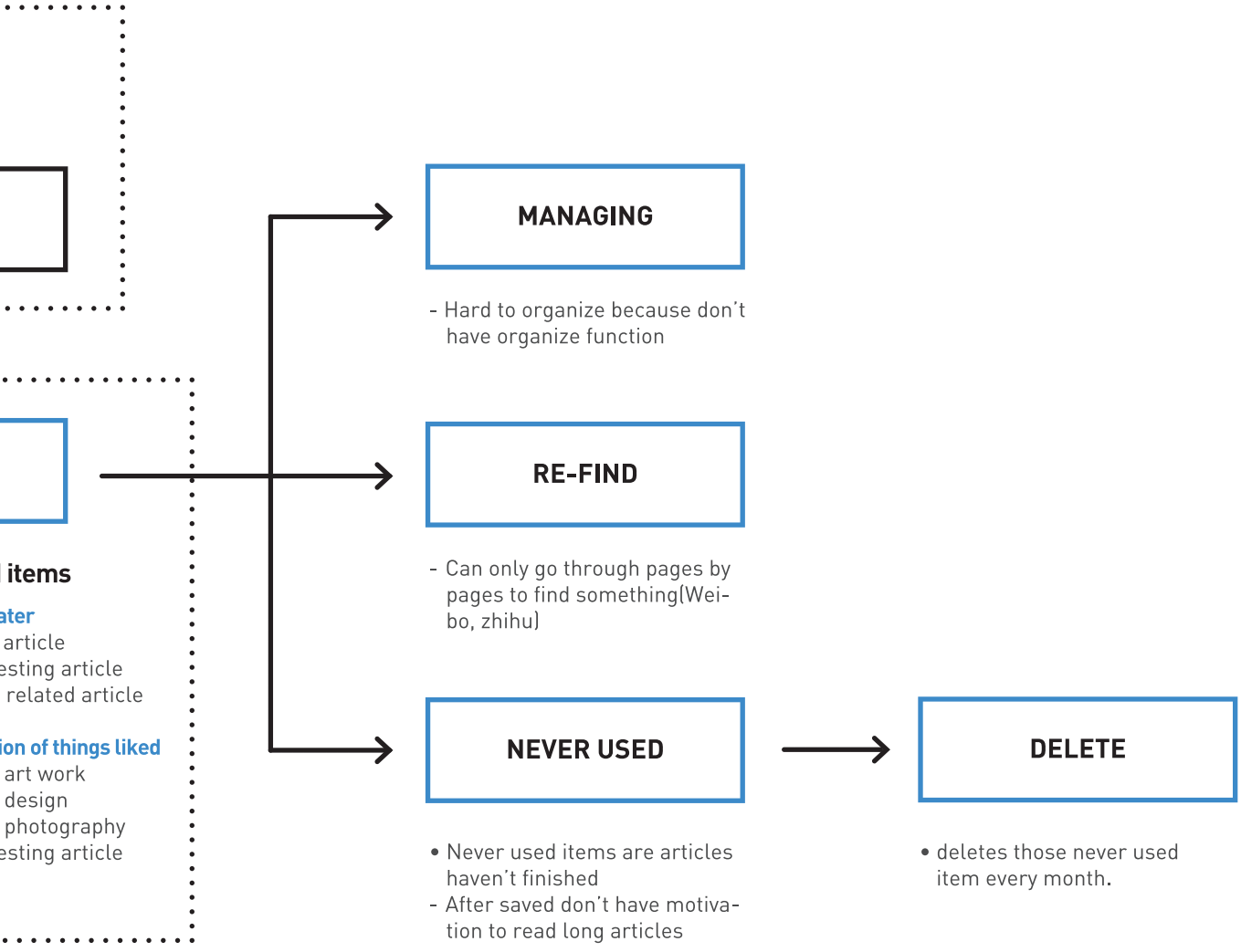
Zoe is a 20 years old undergraduate student studying landscape design. She likes to call herself OCD (Obsessive - compulsive disorder) for fun because she wants everything in her life to be neat, tidy, and in control. She likes to clean and organize her room. Everything needs to be put in a specific place. When she is cleaning up, her favorite part is throwing away useless stuff. She feels happy when she throws away things. She likes to buy posters and art from galleries and museums to collect them. She likes to put them in boxes and suitcases so that someday when she has her own house she can put them up in her room. Besides posters, she also collects postcards. She likes to exchange postcards with people all over the world. She doesn't have much time to travel around so postcard collections from different countries makes her feel very happy.

The smartphone has become a big part of Zoe's life. Her two most used social media apps are WeChat and Weibo. Most people she follows on WeChat are people she knows in person. Weibo is a place for her hobbies. She likes art and design so she follows a lot of artists, designers, and photographers on Weibo. She also likes to follow news and hot topics so she follows some news accounts, celebrities, and network celebrities. She likes to share funny things and hilarious posts with her friends. She doesn't like to share much of her hobbies on social media. She likes to keep that to herself and save those things she likes in her PCL. She uses her PCL as an online collection of things she likes. In her 'online gallery,' she has collected many designs, artworks, and photography. She also likes to save articles to her list. Some of those articles are unfinished articles she read half way through while some of them she has finished but wants to keep because she likes them.

Although she thinks the functions in WeChat and Weibo are inconvenient, she still doesn't have much trouble when she wants to find something in her list. She has a good memory and she can easily remember where she saves it. Although she must go through page by page, she still succeeds in finding the things she is looking for every time. Some never used items in her list are articles she has hasn't finished reading. When she sees those articles again she feels a lack of motivation to finish them. She deletes those never used items every month.

ZOE'S JOURNEY




items
ater
article
esting article
related article
ion of things liked
art work
design
photography
esting article
MANAGING
- Hard to organize because don't have organize function
RE-FIND
- Can only go through pages by pages to find something(Weibo, zhihu)
NEVER USED
• Never used items are articles haven't finished
- After saved don't have motivation to read long articles
DELETE
• deletes those never used item every month.

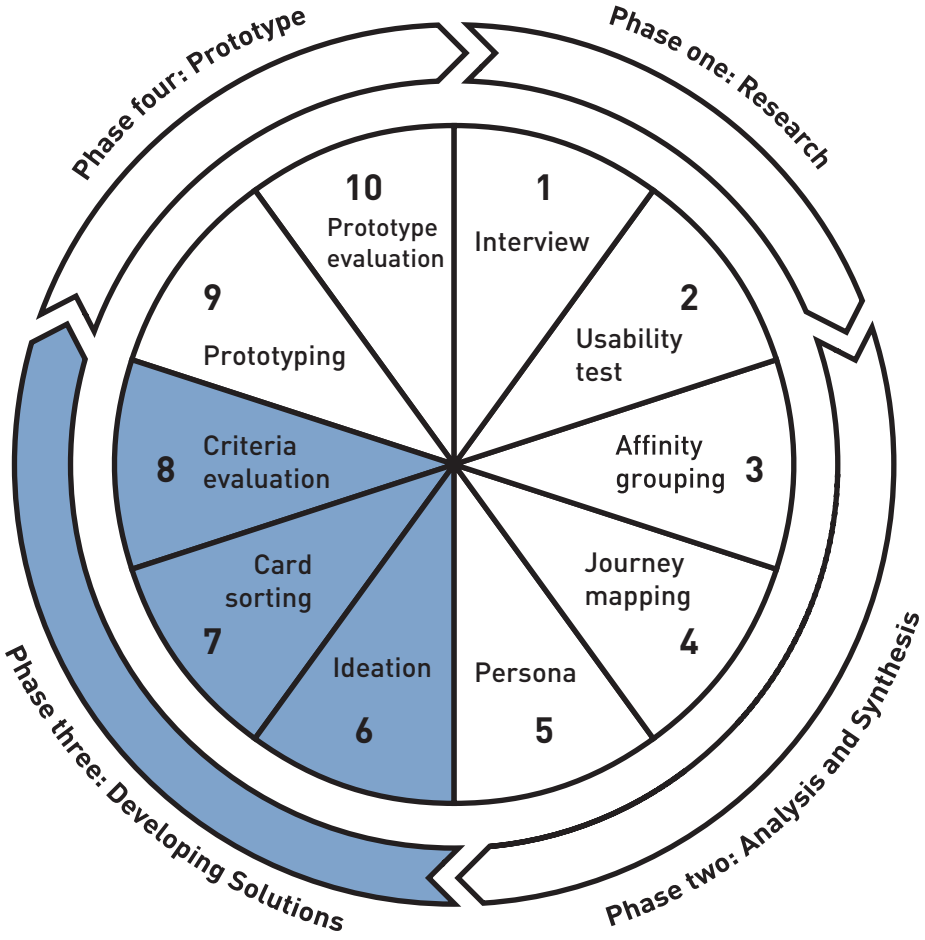
PHASE III
IDEATION AND EVALUATION

PHASE III: IDEATION & EVALUATION

Overall, the purpose of this phase is to find ideas, evaluate these ideas, and select some ideas as possible solutions. For this thesis, that means:

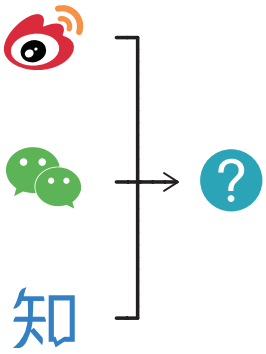
1. To find possible ideas and solutions in using PCF.
2. Evaluate all ideas and solutions and see which ones are the preferred ones for users.
3. Select and decide the ideas to move on for further development.

Originally in the plan, the ideation session and brainstorming are included to generate ideas, but lots of good ideas are already gathered from interviews. Therefore, in this phase, focuses are adjusted from generating to evaluation and selection. Two evaluative methods are conducted in this phase: they are Card Sorting and Criteria Evaluation.


Phase one: Research
Phase two: Analysis and Synthesis
Phase three: Developing Solutions
Phase four: Prototype
1
Interview
2
Usability test
3
Affinity grouping
4
Journey mapping
5
Persona
6
Ideation
7
Card sorting
8
Criteria evaluation
9
Prototyping
10
Prototype evaluation

IDEAS

IDEA 1: UNIFIED NEW APP



Description:

This idea is to pull all PCLs from different apps (WeChat, Weibo, Zhihu, and more) and put them together in a new unified app so that a user can organize, re-find, and use PCF in the same place. This new app will at least include some basic function, such as searching. Since the decisions have not been made at this point, idea 2-16 could be considered as potential functions for this new app. Idea 2-16 could also be considered as individual solutions.

Target problems:

- Hard to organize because don't have an organize function
- Use multiple PCLs in multiple apps hard to remember the location of the item
- Hard to find sth because saved too many items
- lack of search function can only go through pages by pages to find something(Weibo, zhihu)

IDEA 2: FOLDER FUNCTION

Description:

This idea allows users to create folders to organize their PCL. Also, it allows users to name the folder and when saving new items, users will be asked to choose which folder they want to put in (or create new folder)

Target problems:

- Hard to organize because don't have an organize function
- Hard to find sth because saved too many items

IDEA 3: AUTO FOLDER FUNCTION

Automatic

Description:

This idea could be considered as an add-on idea for Folder function. The only difference between these two is that an auto folder function can categorize items in PCL and name each folder by topics automatically (by using machine learning). The purpose of this idea is to organize PCLs for users. When a user saves new items to their list, a recommended folder will be provided.

Target problems:

- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
- Hard to find sth because saved too many items

IDEA 4: REMIND FUNCTION

Description:

When users google something or research something on their browsers, the system will search the same keyword in their PCL to find if users already have items saved with a similar topic in their PCL. If they do have something within the same topic, a notification will pop up on their phone to remind the user.

Target problems:

- Many users thinks it's too much trouble to organize their PCL
- Feel too much trouble to re-find an item in their PCL, they just google it again
- Can't remember details when looking at titles of the item
- Use multiple PCLs in multiple apps hard to remember the location of the item
- Hard to find sth because saved too many items
- lack of search function can only go through pages by pages to find something(Weibo, zhihu)
- Can't remember to see it or use it after saving
- After a while can't remember what saved in the PCL

IDEA 5: TAG FUNCTION

Description:

This idea allows users to add tags to each item. In that way, users can organize their PCL and see all items with the same tags together. From a functional point of view, the only difference between folder system and tag system is that one item can only be in one folder, but in tag system an item can have many tags.

Target problems:

- Hard to organize because don't have an organize function
- Hard to find sth because saved too many items

IDEA 6: AUTO TAG FUNCTION

Automatic

Description:

This idea is like auto folder function except this function give items tags automatically instead.

Target problems:

- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
- Hard to find sth because saved too many items

IDEA 7: STAR FUNCTION

Description:

Users can put a star on important items or items that are used often. Every 'starred' item can be seen together.

Target problems:

- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
- Hard to find sth because saved too many items
- Save too many items, never used items become useless
- Large percentage of items in PCL are never used item

IDEA 8: AUTO STAR FUNCTION

Automatic

Description:

Based on use rates of each item, the system will put stars on important items automatically for users.

Target problems:

- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
- Hard to find sth because saved too many items
- Save too many items, never used items become useless
- Large percentage of items in PCL are never used item

IDEA 9: ARCHIVE FUNCTION

Description:

Users can put useless items and used items into the archive. Archived items can be seen only in the archived folder so that these items will not interfere with users when users want to re-find something. Also, the items in the archive are not totally deleted just in case someday user may need them again.

target problems:

- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
- Feel too much trouble to re-find an item in their PCL, they just google it again
- Hard to find sth because saved too many items
- Save too many items, never used items become useless
- Large percentage of items in PCL are never used item

IDEA 10: AUTO ARCHIVE FUNCTION

Automatic

Description:

Based on use rate and unused time, the system will help put items into the archive automatically.

Target problems:

- Many users thinks it's too much trouble to organize their PCL
- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
- Feel too much trouble to re-find an item in their PCL, they just google it again
- Hard to find sth because saved too many items
- Save too many items, never used items become useless
- Large percentage of items in PCL are never used item

IDEA 11: OFFLINE FUNCTION

Description:

With this function, users can save items to 'local' so they can read or use them in a no internet environment. For example, when a user is on a subway or airplane with no internet, but the user has time to finish his half-read article then the offline function will be used.

Target problems:

- Sometimes wants to read later but forget
- After saved don't have the motivation to read long articles
- Can't remember to see it or use it after saving- Large percentage of items in PCL are never used item

IDEA 12: MULTIPLATFORM

Description:

For this function, users can use their PCF on phone, desktop, and tablets. Although other platforms are not the focus of this thesis, some participants mentioned that they want this function because they want to see their PCL on all their devices and they think they can organize their PCF easier.

Target problems:

- Hard to organize because don't have an organize function

IDEA 13: READ MODE

Description:

This function allows users to read their items easier. In read mode, the interface of an item will change into a mobile friendly version (compared to the original website). Font size will be bigger; advertisements will be removed. This idea is not targeted toward these critical problems in using PCF, but it will help 'read later users'.

IDEA 14: SUGGESTION FUNCTION

Description:

Based on what a user has saved and browsed, the system will recommend content that users are interested in. Although this idea is also not targeted toward these critical problems in using PCF, many participants mentioned this idea.

IDEA 15: RATE FUNCTION

Description:

User can rate their items. Items can be rated according to the importance from 1 star to 5 stars. When users want to find items, they can choose to show only 5 star items or items from 2 stars to 4 stars. Users think with this function they can organize their PCF easier.

Target problems:

- Hard to organize because there are too many items
- Hard to organize because don't have an organize function
- Hard to find sth because saved too many items
- Save too many items, never used items become useless

IDEA 16: ITEM AMOUNTS

342 Items

Description:

Users can see how many items they saved in their PCL.

CARD SORTING

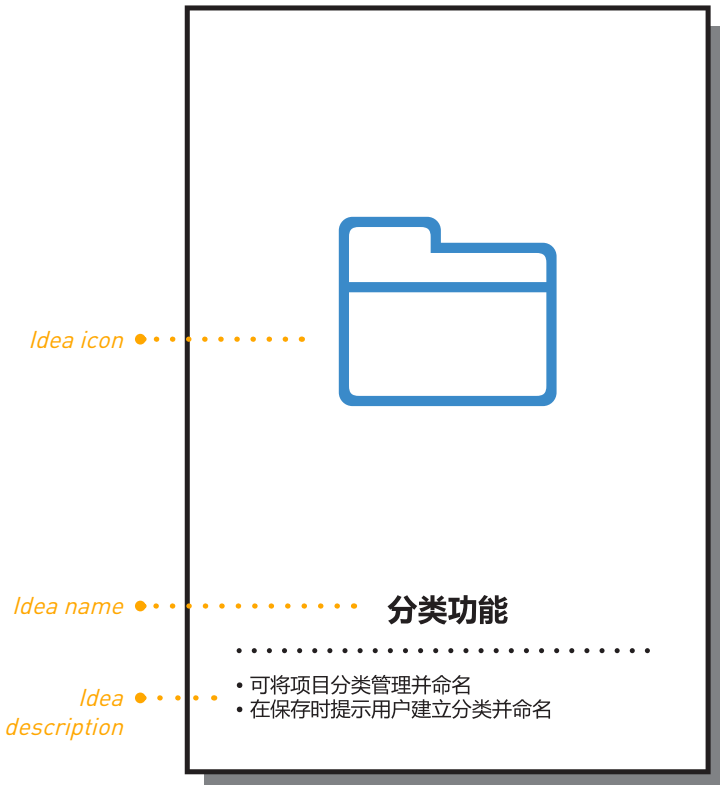
METHODOLOGY

Per IDEO *"A Card Sorting is a quick and easy way to spark conversation about what matters most to the people you're designing for"* A card sorting activity is an easy method for users to engage with. You just need to prepare cards with a word or an image and then ask participants to rank them by preference. By asking follow up questions and why questions, you can gain deeper insights and reasons behind their preferences and values.

CARD SORTING PROCESS

The objective of this method is to gain insights and preferences from users about these 16 ideas. In this method, the researcher designs an Idea Card for each idea that has the idea name, an icon, and some descriptions. In total, 18 cards are designed and participants are asked to sort out these cards based on their preferences. In the card sorting:

- 6 participants participated in 6 one-on-one sessions.
- Each sorting takes about 8 minutes
- 16 idea cards were asked to sort out
- 5 sessions are conducted face to face, Either in their home or a private room. 1 session is conducted online by using 'Realtimeboard' and Hangout.
- Chinese is used as the main communication language (language used on idea cards are also Chinese)
- the documentation methods are note taking and photos



'Folder Function' Card

One result from Card sorting

CRITERIA EVALUATIONS

METHODOLOGY

In the sessions, the Criteria Evaluation method is used right after Card sorting since preferences from users are not enough to decide from all the ideas. To evaluate an idea, many other aspects also need to be considered. For example, is this idea feasible? Does this idea solve main problems? For this purpose, these ideas need to have a deeper evaluation by users. By setting up evaluation criteria for each idea, the researcher can get a deeper and more comprehensive opinions from users.

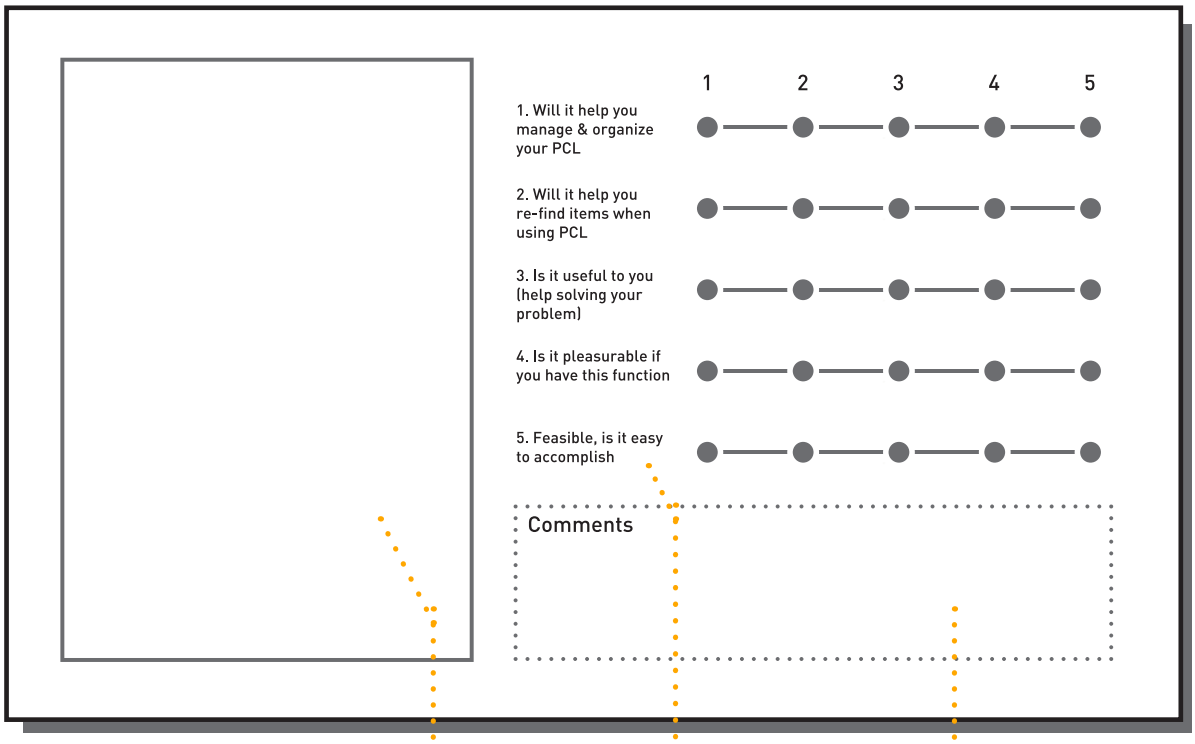
CRITERIA EVALUATION PROCESS

In this method, only preferred ideas (from Card Sorting) are part of a further evaluation for each participant. When a participant thinks an idea is totally useless, that idea will not be included in Criteria Evaluation. Participants are asked to rate each criterion from 1 to 5 for each idea. Five criterion are evaluated for each idea by each user. They are:

1. Will it help you manage & organize your PCL
2. Will it help you re-find items when using PCL
3. Is it useful to you (help solving your problem)
4. Is it pleasurable if you have this function
5. Feasible, is it easy to accomplish (This criteria is only asked to evaluate when participant have software development experience)

In the Criteria Evaluation:

- 6 participants participated in 6 one-on-one sessions.
- Each evaluation takes about 8 minutes
- 5 sessions are conducted face to face, Either in their home or a private room. 1 session is conducted online by using 'Realtimeboard' and Hangout.
- Chinese is used as the main communication language (language used on evaluation worksheets are English)
- the documentation methods are note taking and photos



Criteria Evaluation worksheet sample

Place to glue Idea Card

Criteria

Comments area

A participant working a Criteria Evaluation worksheet

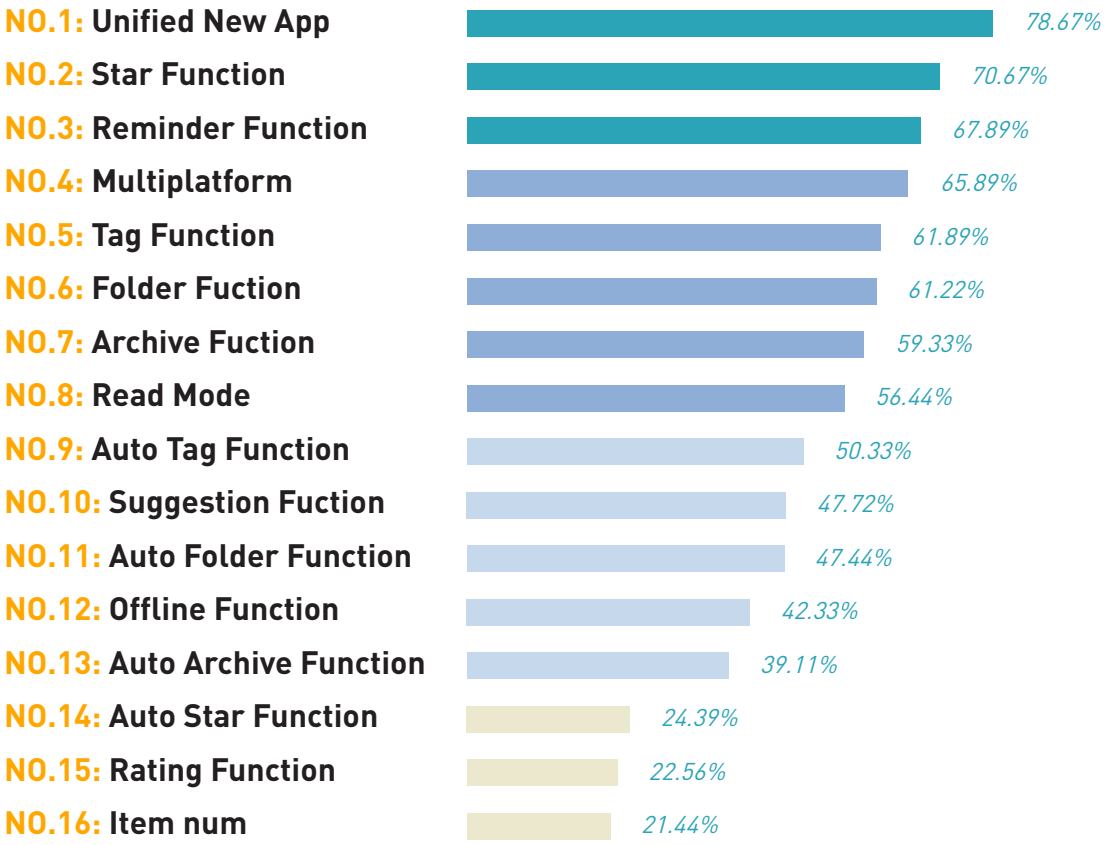
DECIDED SOLUTIONS

DECISION PROCESS

Many insight and opinions are gathered through these two methods. Analysis and synthesis of the evaluation data enables research to lead to a better decision on which ideas need to be carried on in further steps.

For Card Sorting results, it is hard to see patterns just from six sorting sessions. Therefore, the researcher give a value on each idea based on the sorting orders so that every idea has a grade in each sorting. Then, the researcher can calculate an average grade for each idea across six sorting sessions. Then a ranking for ideas is made based on average scores. For Criteria Evaluation results, things are easier. Participants already rated each criterion in each idea. The researcher needs to calculate average scores for each criterion for each idea.

IDEA RANKING

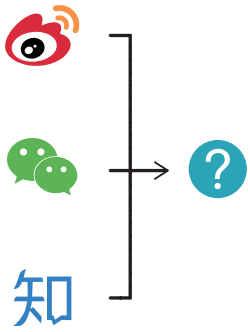


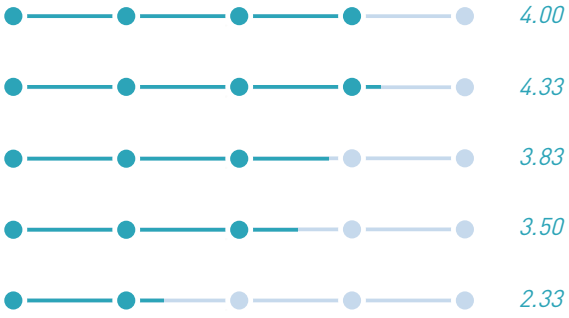
SELECTED IDEAS

The results from the two methods are both valuable. The natural relationship between ideas are also needed to take in consideration. For example, Folder and Tag may not mesh well together, so rank and star should only have one. Therefore, decisions could not be made just based on idea rankings. All aspects are needed to be considered.

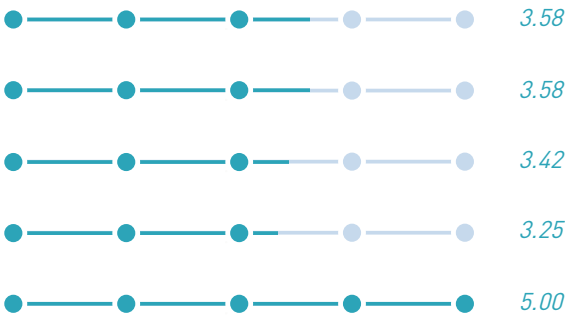
Due to the particularity of the Unified new app idea, there could be two options for developing solutions. First, if this idea is chosen, all other selected ideas could become functions within the Unified new app. Second, if this idea is not chosen, selected ideas could come together as design guidelines for apps PCF. In both results, the Unified new app has a very good outcome so other ideas will serve as functions for this Unified new app.

1. UNIFIED NEW APP





2. STAR FUNCTION



3. REMIND FUNCTION

1. Organize	2.50
2. Re-find	4.83
3. Useful	4.00
4. Pleasurable	3.67
5. feasible	3.67

4. MULTIPLATFORM

1. Organize	3.33
2. Re-find	3.83
3. Useful	3.17
4. Pleasurable	3.67
5. feasible	4.33

5. FOLDER FUNCTION

1. Organize	3.83
2. Re-find	4.00
3. Useful	3.67
4. Pleasurable	3.17
5. feasible	5.00

6. ARCHIVE FUNCTION

1. Organize	3.25
2. Re-find	2.42
3. Useful	2.75
4. Pleasurable	2.58
5. feasible	5.00

7. READ MODE

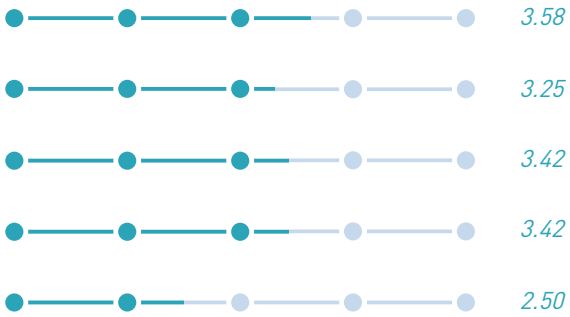
1. Organize	1.58
2. Re-find	1.58
3. Useful	2.08
4. Pleasurable	3.08
5. feasible	4.00

8. SUGGESTION FUNCTION

1. Organize	2.17
2. Re-find	2.33
3. Useful	2.67
4. Pleasurable	2.50
5. feasible	5.00

9. AUTO FOLDER FUNCTION

Automatic



10. OFFLINE FUNCTION

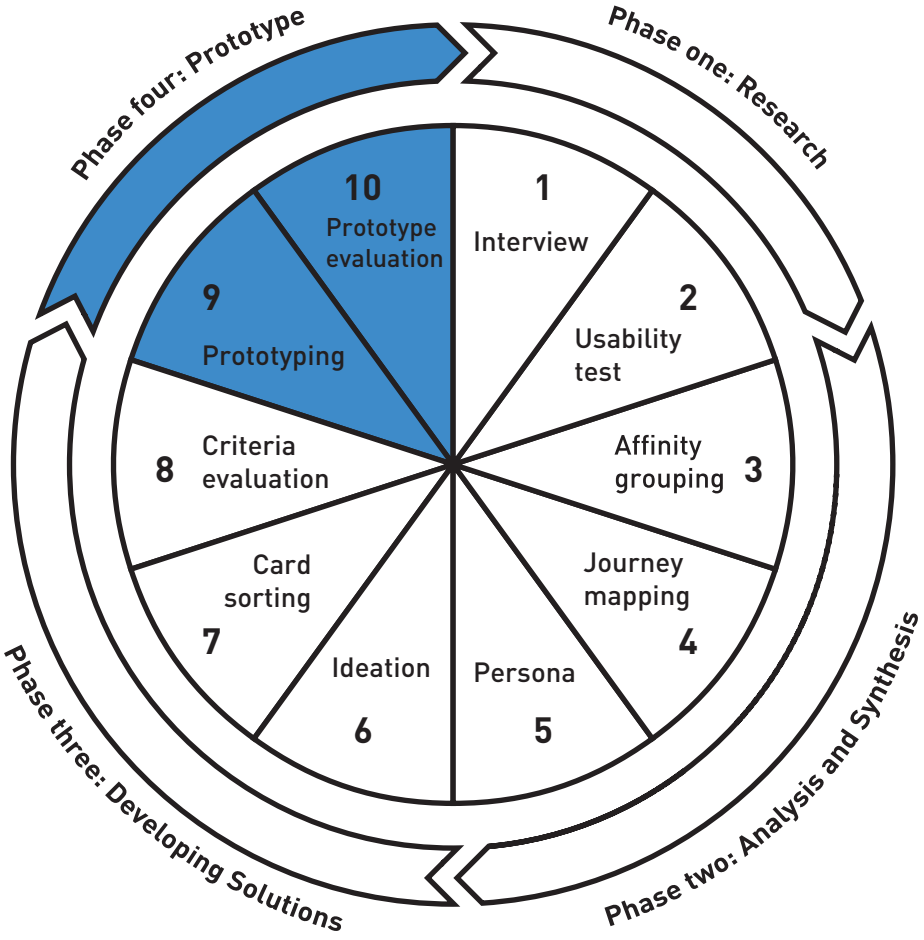
PHASE IV
PROTOTYPE

PHASE IV: PROTOTYPE

Overall the purpose of this phase is acceptance of the idea. For this thesis, that means:

1. To develop prototypes for solution ideas.
2. Evaluate prototypes and gain feedbacks and approvements from users.
3. Refine solution prototypes

In this phase, two main methods are Prototyping and Prototype Evaluation.


Phase four: Prototype
Phase one: Research
Phase three: Developing Solutions
Phase two: Analysis and Synthesis
10
Prototype evaluation
1
Interview
9
Prototyping
2
Usability test
8
Criteria evaluation
Affinity grouping
3
Card sorting
7
Journey mapping
4
Ideation
6
Persona
5

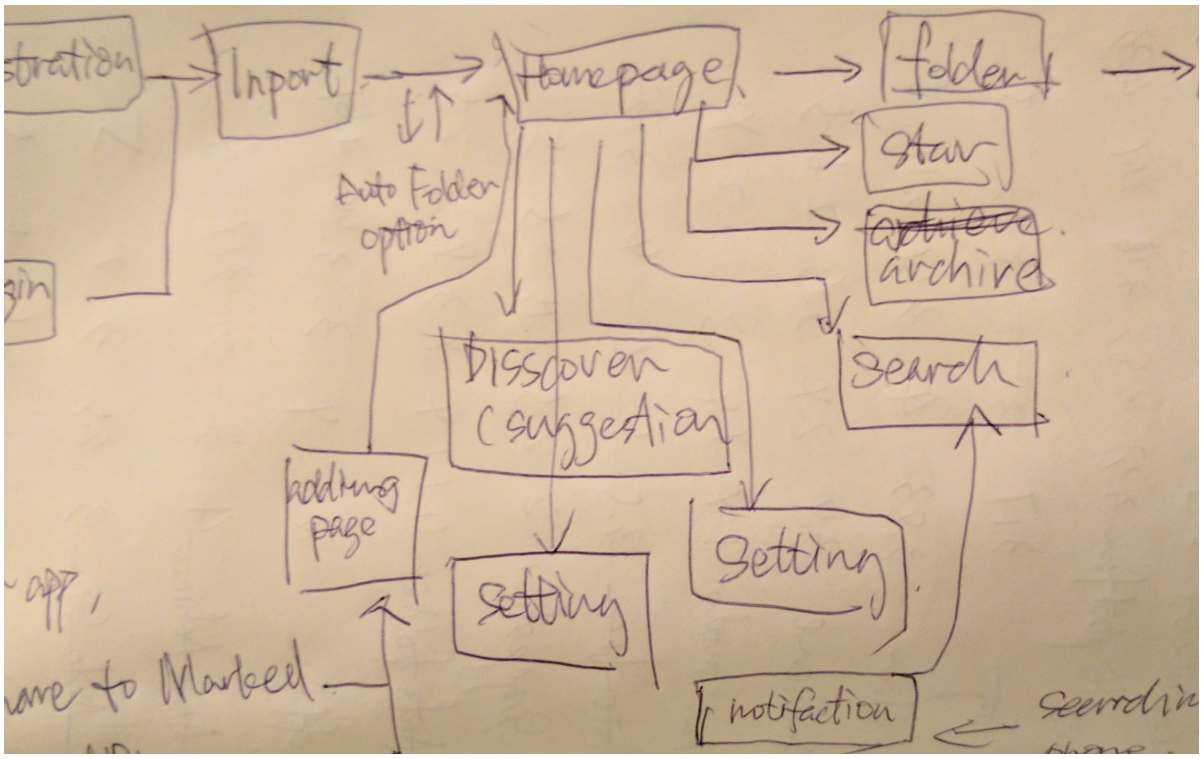
PROTOTYPE

METHODOLOGY

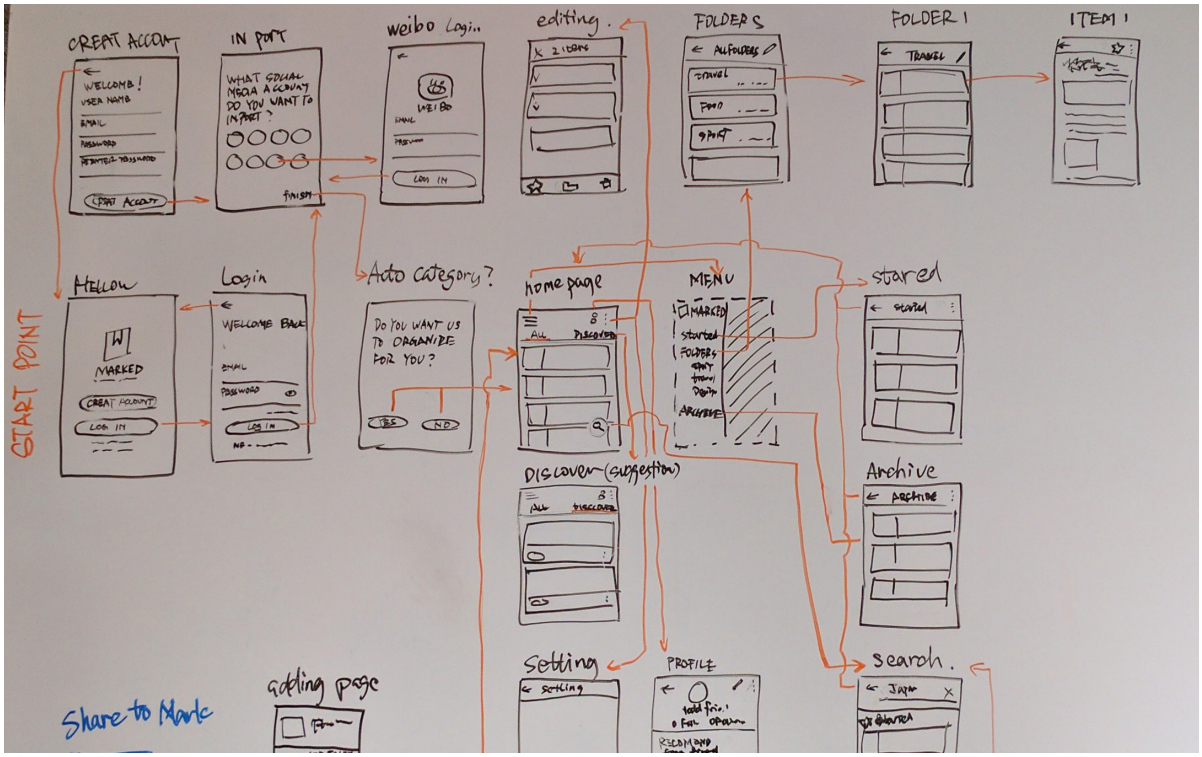
Prototypes are developed to test out these ideas and solutions. With a visualized prototype, users can have a clearer picture of how ideas become real so that they can give further input and feedback in an early stage of development. By gathering this input and feedback, quick prototype iterations can be made.

PROTOTYPING PROCESS

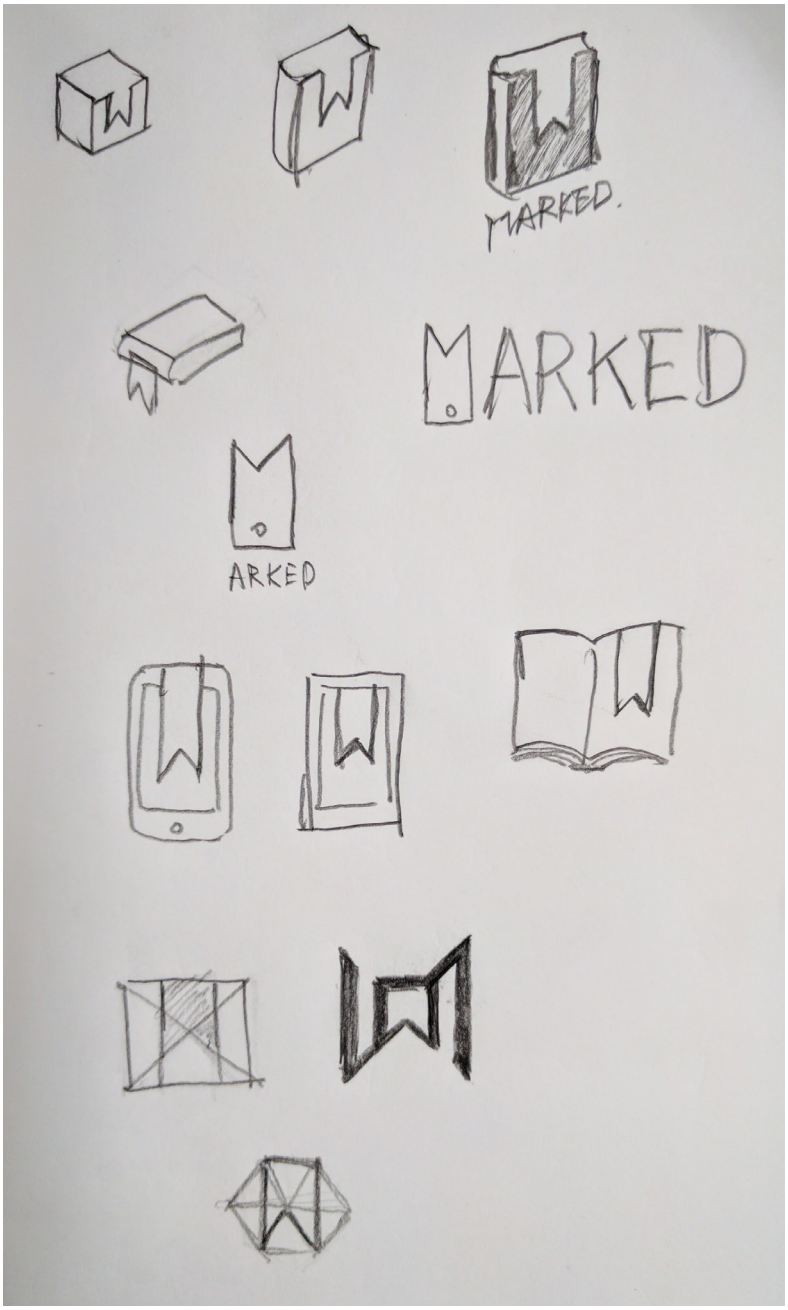
In this thesis, an intractable app prototype was made so that users can click through every page and get a good understanding of how high fidelity solutions turned out. Before making this prototype, a flowchart and a wireframe are made to determine a clear functional flow for the prototype. A quick logo design and branding are also created for the solution prototype. For now, this solution is called 'Marked' since the concept of marking things for later use is suitable for this solution prototype. Adobe experience design is the development tool for this prototype



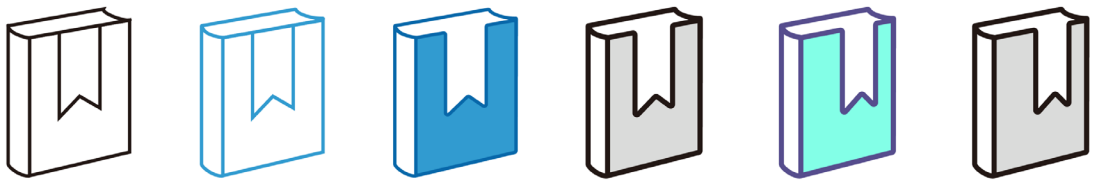
Flowchart draft



Wireframe draft

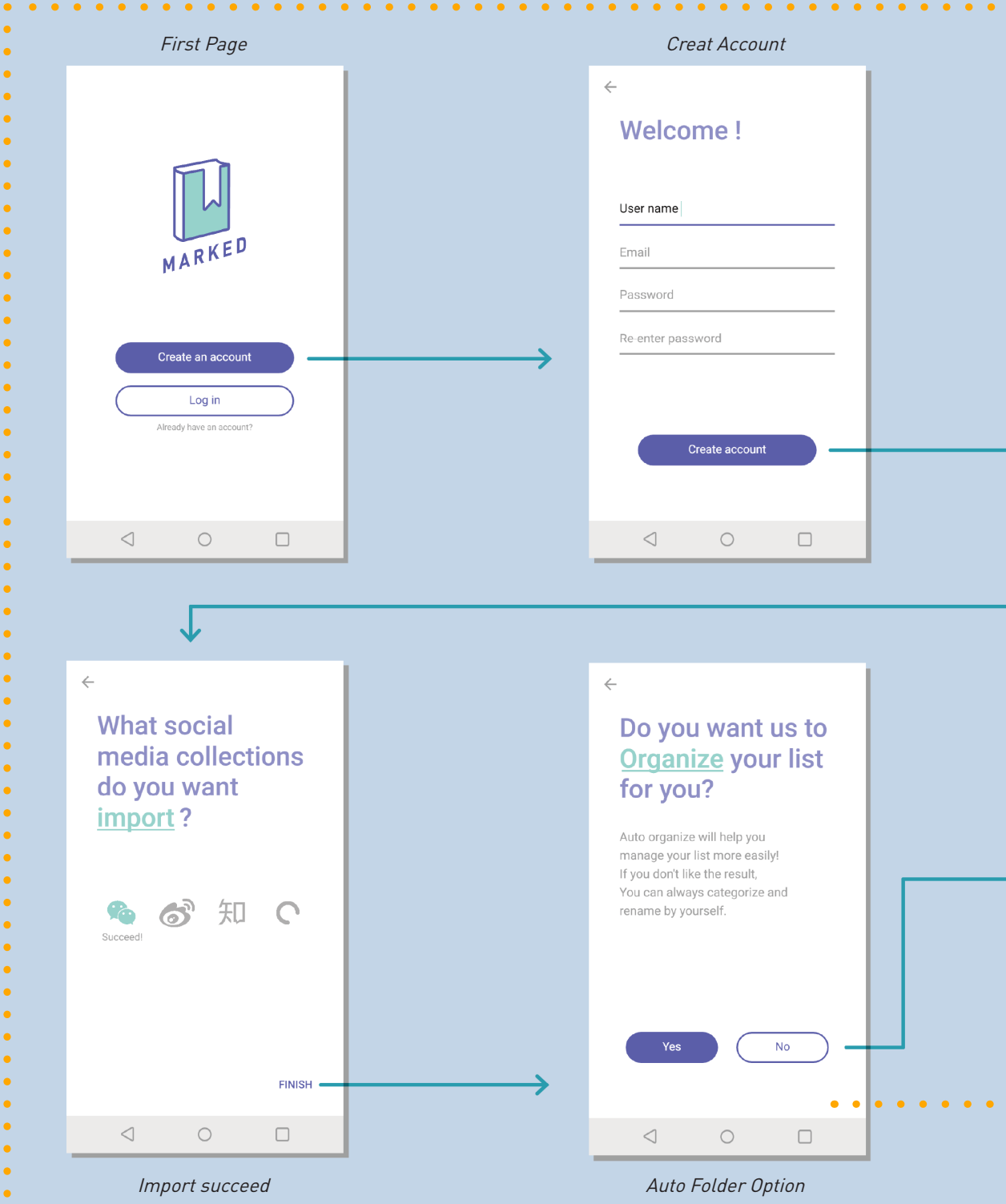


Branding drafts



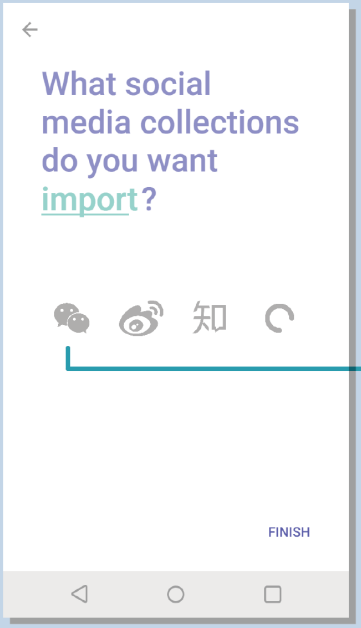
Branding drafts

PROTOTYPE MARKED

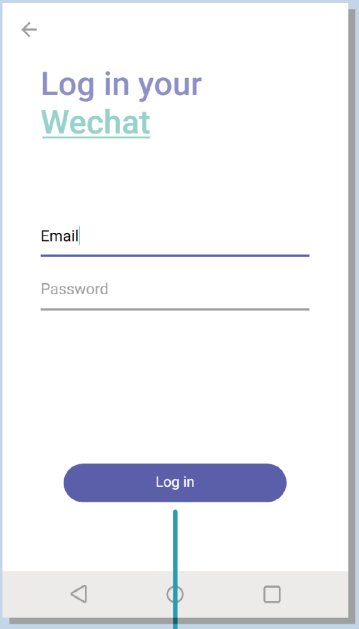


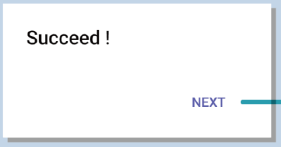
IDEA1
UNIFIED NEW APP

Data Import

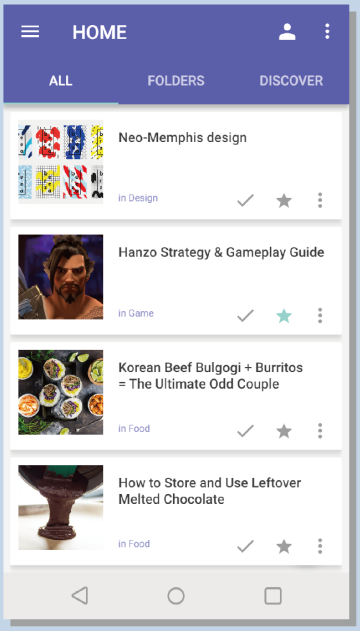


Wechat Login



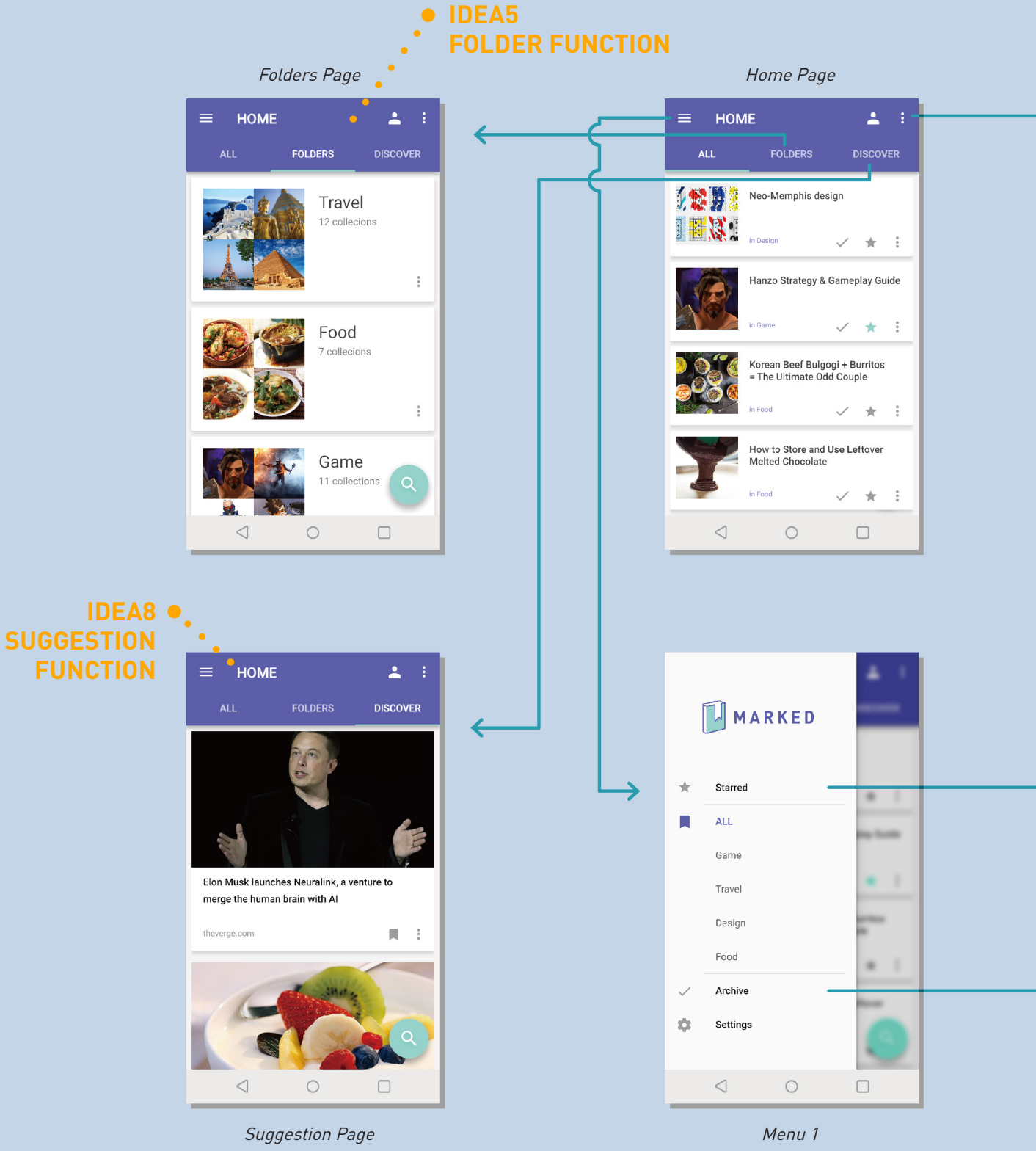


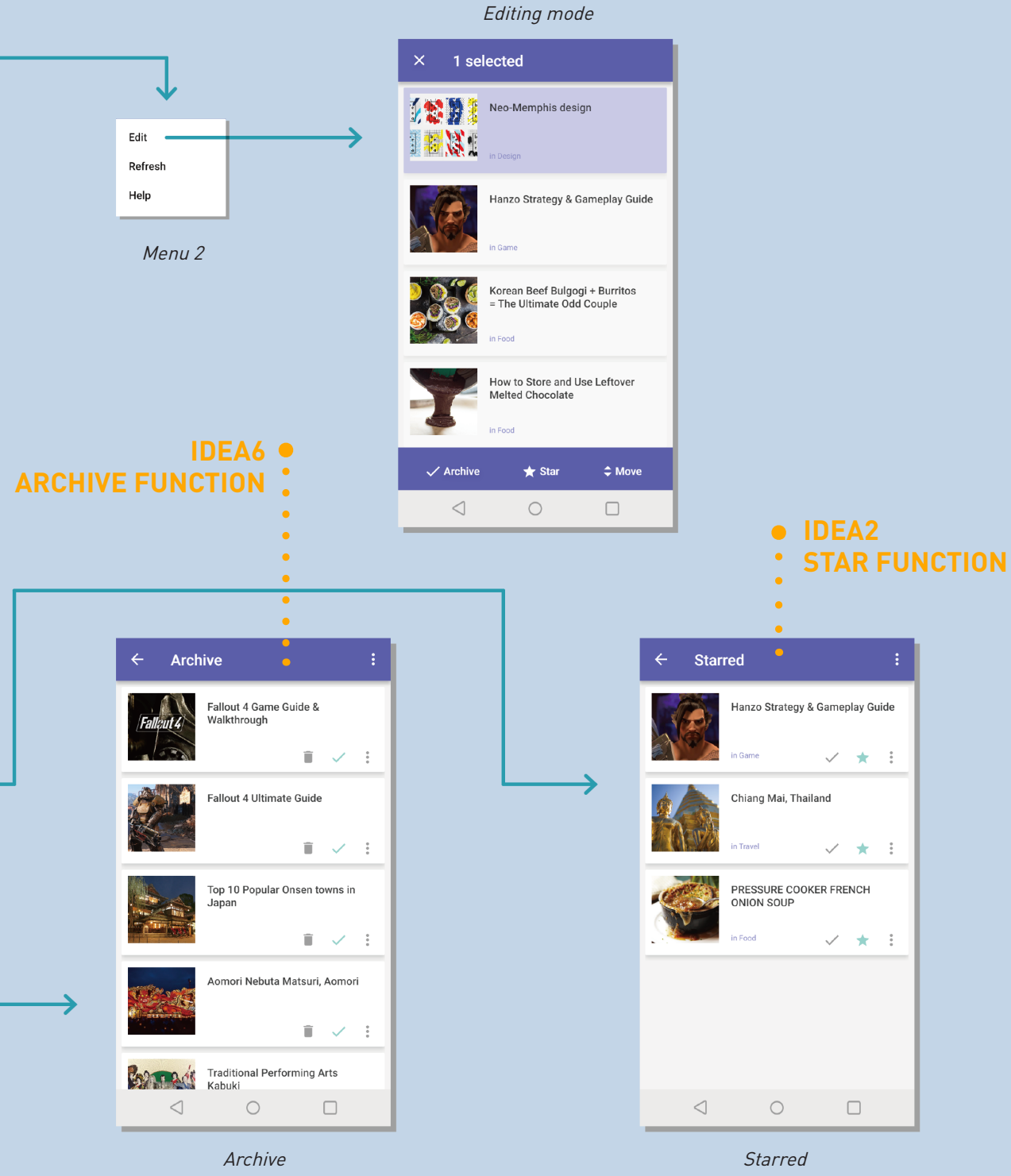
Auto Folder Succeed



Home Page

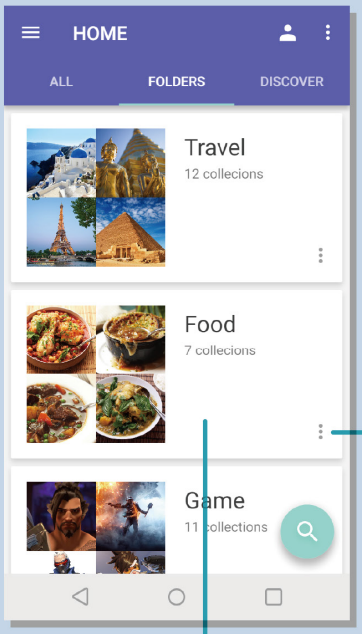
IDEA9
AUTO FOLDER FUNCTION


IDEA5
FOLDER FUNCTION
Folders Page
Home Page
HOME
ALL
FOLDERS
DISCOVER
Travel
12 collecions
Food
7 collecions
Game
11 collections
Neo-Memphis design
in Design
Hanzo Strategy & Gameplay Guide
in Game
Korean Beef Bulgogi + Burritos = The Ultimate Odd Couple
in Food
How to Store and Use Leftover Melted Chocolate
in Food
IDEA8
SUGGESTION
FUNCTION
Elon Musk launches Neuralink, a venture to merge the human brain with AI
theverge.com
MARKED
Starred
ALL
Game
Travel
Design
Food
Archive
Settings
Suggestion Page
Menu 1

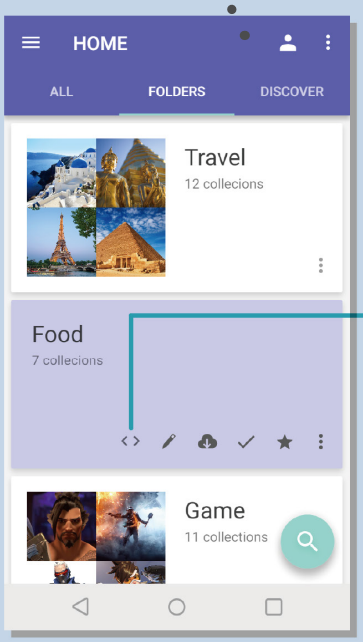

Editing mode
Edit
Refresh
Help
Menu 2
1 selected
Neo-Memphis design
in Design
Hanzo Strategy & Gameplay Guide
in Game
Korean Beef Bulgogi + Burritos = The Ultimate Odd Couple
in Food
How to Store and Use Leftover Melted Chocolate
in Food
Archive
Star
Move
IDEA6
ARCHIVE FUNCTION
IDEA2
STAR FUNCTION
Archive
Fallout 4 Game Guide & Walkthrough
Fallout 4 Ultimate Guide
Top 10 Popular Onsen towns in Japan
Aomori Nebuta Matsuri, Aomori
Traditional Performing Arts Kabuki
Starred
Hanzo Strategy & Gameplay Guide
in Game
Chiang Mai, Thailand
in Travel
PRESSURE COOKER FRENCH ONION SOUP
in Food
Archive
Starred

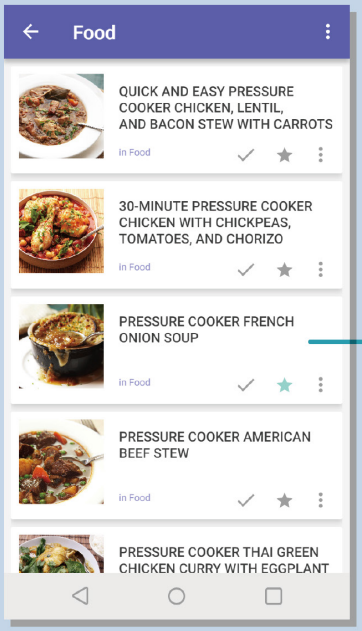
IDEA FROM PROTOTYPE EVALUATION
AUTO SPLIT FOLDER

Folders Page

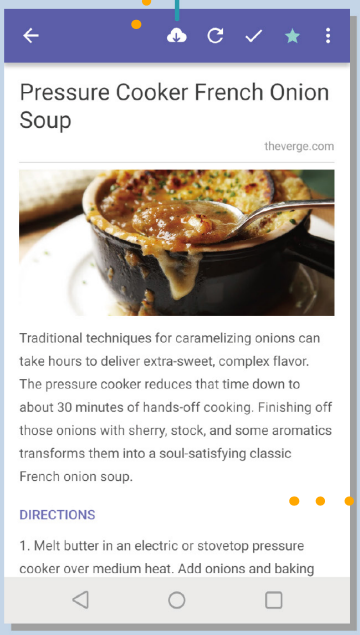


Folder Settings



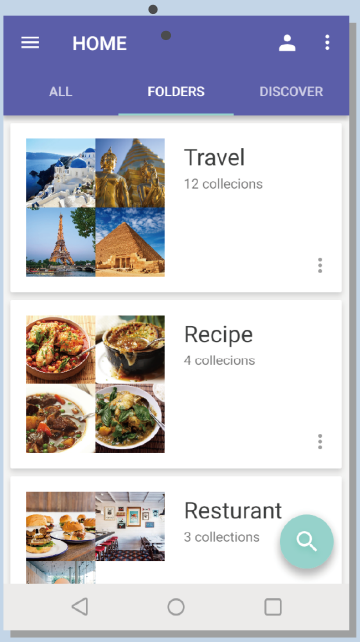


Food Page

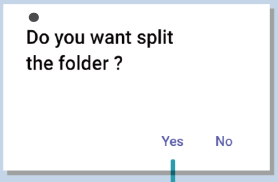


Item Page

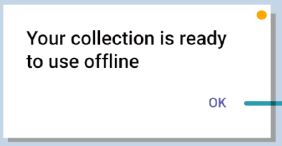
Folder Splited



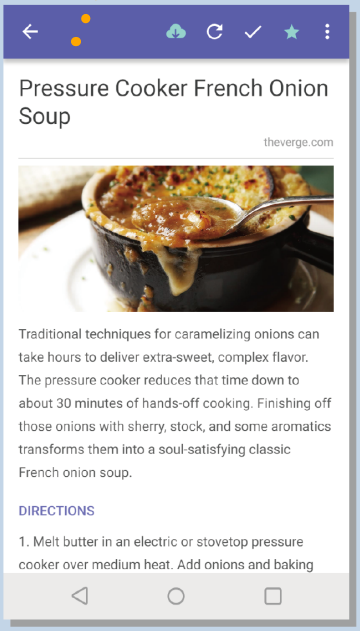
Split folder?



IDEA10 OFFLINE FUNCTION



Offline Succeed

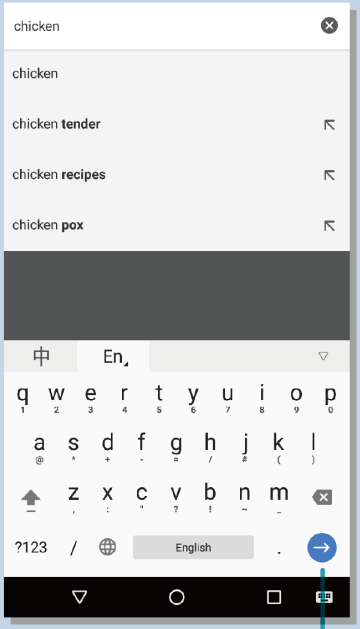


Offlined Item Page

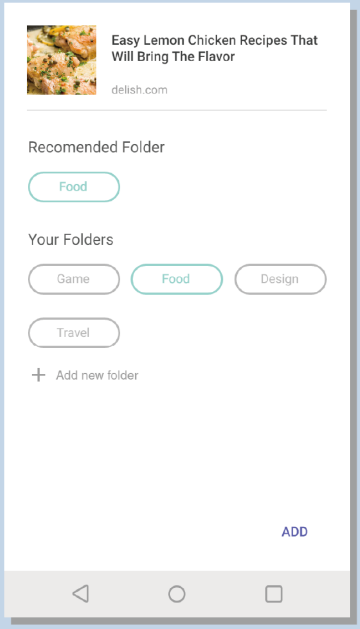
IDEA7 READ MODE

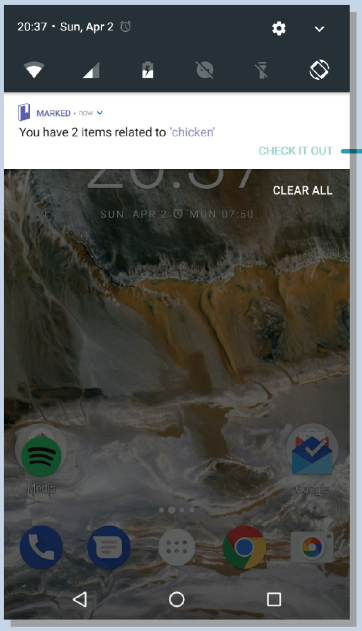
IDEA3
REMIND FUNCTION

Searching in Chrome

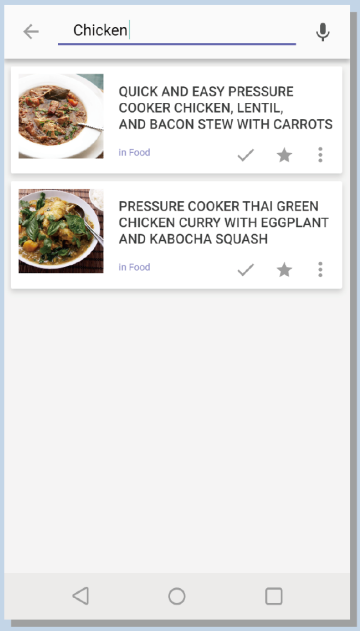


Adding Page





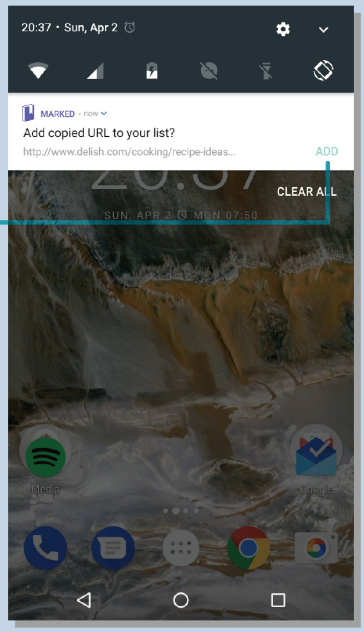
Notification 1



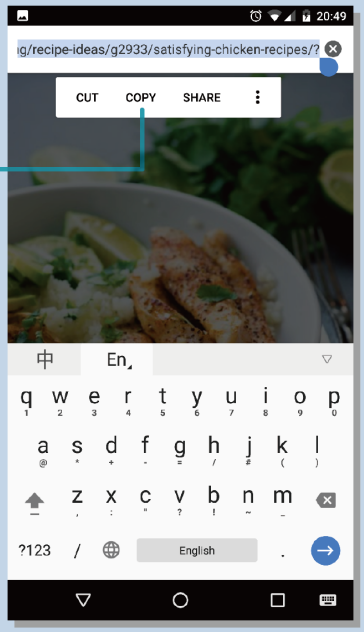
Search Page in 'Marked'

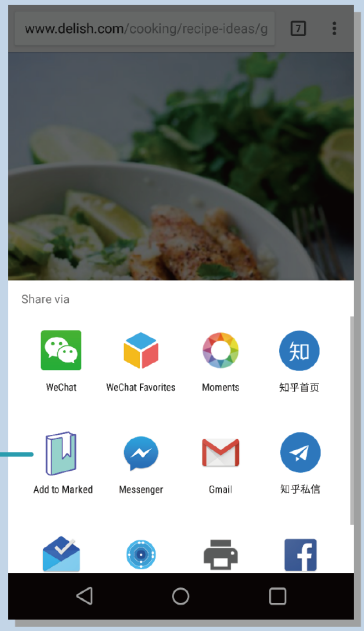
HOW TO ADD NEW ITEM

Notification 2

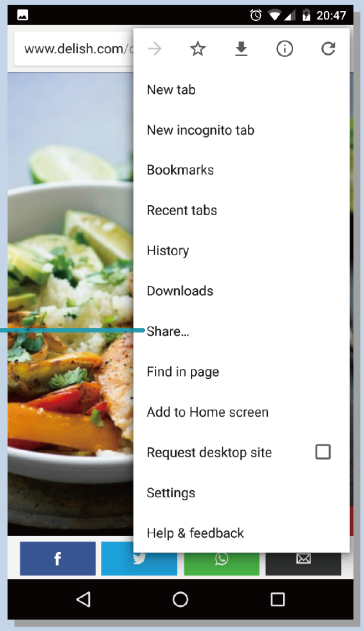


Copy URL





Share to 'Marked'



Share

PROTOTYPE EVALUATION

EVALUATION PROCESS

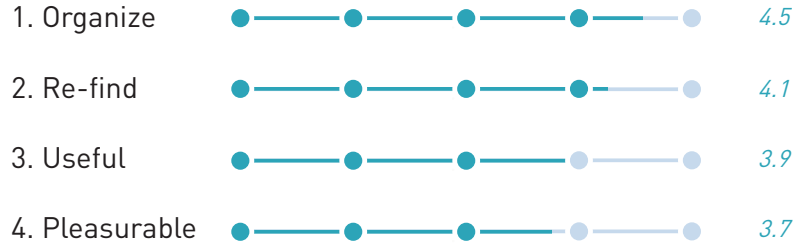
After finishing the design of the prototype, the researcher conducted five evaluation sessions for the prototype. First, the researcher explains the prototype to the participant, and takes them through the prototype screen by screen. Then, the researcher uses the four criteria (first four criteria form Criteria Evaluation method, feasibility is not evaluated) to ask participants to evaluate this packaged solution prototype. Also, other feedback and opinions are gathered from participants.

In the evaluation sessions:

- 5 participants (same participants from Card sorting and Criteria Evaluation, one is not able to come again) participated in 5 one-on-one sessions.
- Each evaluation takes about 20 minutes
- 4 sessions are conducted face to face - either in their home or a private room. 1 session is conducted online by using Hangout.
- Chinese is used as the main communication language (language of the prototype is English)
- The documentation methods are note-taking

By conducting these evaluation sessions, the Marked prototype received considerable positive feedback. The average ratings from the four criteria are fairly high:

PROTOTYPE MARKED



Valuable feedback and suggestions were received from the session. Some of the suggestions are included in iterations of the prototype. For example, one participant mentioned that "it will be good if the Auto folder function had the option to further split folders since right now auto categories of the folders are at a very high level (like food, design, game). This suggestion is very reasonable. Data from the research phase shows that interested topics for a user is very concentrated. For example, if a user likes food then the items he saved could be restaurants he wants to go to, recipes, and food related travel notes. These items could be a very large part of his PCL. Therefore, it is not enough if the auto folder function can only put them all in food.

CONCLUSION

CONCLUSION

Through the whole design process, a solution app called Marked is created to improve user experience in using personal collection functions in social apps. Although not all problems are solved, most questions are answered and most objectives are achieved. The main research question is 'How might addressing user needs for personal collection functions in social apps improve user experience with those apps?' The solution 'Marked' could be the answer to this question. By going through this design thinking process, all functions are generated by users and addressing problems collected from users.

To answer the sub-questions of this thesis:

Who is using personal collection functions in social apps?
Three typical types of users are shown in the three personas.

Why are they using personal collection functions?
The three main reasons for using PCF are: save for later use, save to read later, and collection of things liked.

What are their problems and frustrations when using personal collection functions in an individual app and among several apps?
Organizing problems, re-finding problems, and never used items are three problem areas for PCF users. (Details can be seen in the Journey map section.)

What personal information management methods are preferred by social media app users?
Searching is a necessary method for personal information management. Secondly, folder and tag are equally preferred. Each of them has their own advantages. Folder is easier to manage while Tag has more possibilities.

All objectives in this thesis are achieved

- ✓ Create personas for personal collection function users
- ✓ Identify how users use personal collection function
- ✓ Identify why users use these functions and what their needs are for this function
- ✓ Identify current challenges and problems in using collection functions
- ✓ Develop solutions for current problems.

With further refinements and iterations, this solution could be taken into implementing phases outside this thesis. By testing and implementing this solution in the real world, the user experience in using PCF will see significant improvement.

DISCUSSION

BOOKMARKS IN BROWSERS

In an interview, one participant shared his experience in using the bookmark in Chrome. From his sharing, the researcher finds out that the behavior and using reasons for saving activity in bookmark are very similar to PCL. In his case, the situation in his bookmark is almost the same with the situation in his PCL. He is facing the same problems in using bookmark functions. He saved too many items, he feels frustration with organization, and he can't remember what he has in his bookmark. This phenomenon may indicate that with some adjustments of solutions for PCL in this thesis could be useful in more areas, such as other social apps with PCF or browsers with a bookmark function. Due to the time frame and scope of this thesis, these assumptions can't be proven without further studies.

OPINION CHANGES

In this thesis, another interesting finding is that the opinion of the participant could change dramatically between two participatory research. In an interview, one participant provided an idea and emphasized that this idea would be helpful to his problem. But two weeks later, when this participant was asked to evaluate ideas, that idea was rated very low. The researcher tried to ask reasons for this opinion change, but the answer received was "I don't know, I just don't like this idea anymore." This change of opinion doesn't happen by chance, since it also happens in other research from other projects. The reason behind this behavior could be an interesting topic to research. Many assumptions could be made. It raises questions for design researchers. How can we get more reliable insights and opinions from users in the research? The researcher believes that the reasons for this opinion changing behavior could inform design researchers in how conduct better research.

APPENDIX

GLOSSARY

DESIGN THINKING
Design thinking is a methodology not exclusive for designers, that helps people understand and develop creative ways to solve an specific issue, generally business oriented

HANGOUT
Google Hangouts is a communication platform developed by Google which includes instant messaging, video chat, SMS and VOIP features.

IDEO
IDEO is an international design and consulting firm founded in Palo Alto, California, in 1991. The company uses the design thinking methodology, which it pioneered, to design products, services, environments, and digital experiences

PCF PCL
The term ‘Personal Collection Function’ means the functions in mobile applications and social networks which users use to save items only for themselves and to be seen only by themselves. The ‘Favorites’ function in YouTube and the ‘Saved’ function in Facebook are examples of PCF. 'Personal Collection List' means the list of the Personal Collection Function. In this thesis, they will be abbreviated as 'PCF' and 'PCL.'

PEOPLE-CENTERED DESIGN
People-centered design is a design methodology that makes problem-solving process innovative and reliable. By include people in every stage of the design process, the end solution will always be tailor-made to suit their needs

PERSONAL INFORMATION MANAGEMENT

Personal information management (PIM) is the activities people perform in order to acquire, organize, maintain, retrieve and use personal information items such as documents (paper-based and digital), web pages and email messages for everyday use to complete tasks (work-related or not) and fulfill a person's various roles (as parent, employee, friend, member of community, etc.). In this research the activity how people use personal collection function is also include personal information management

QUALITATIVE RESEARCH

Qualitative Research is primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research.

QZONE

Qzone is a social networking website which was created by Tencent in 2005. It allows users to write blogs, keep diaries, send photos, listen to music, and watch videos. Users can set their Qzone background and select accessories based on their preferences so that every Qzone is customized to the individual member's taste.

REALTIMEBOARD

RealtimeBoard is an online whiteboard for visual team collaboration. Add pictures, mockups, drawings, videos and sticky notes are main features for this tool, and it allows real-time visual collaboration.

SIMPLEX

Simplex is an innovation process that harnesses creativity. It consists of deliberately finding and solving valuable problems, and implementing workable solutions that yield changes in the form of new and better products, services and procedures

SINA WEIBO
Sina Weibo is a Chinese microblogging website. Akin to a hybrid of Twitter and Facebook, it is one of the most popular sites in China, in use by well over 30% of Internet users, with a market penetration similar to the United States' Twitter.

SKYPE
Skype is an instant messaging app that provides online text message and video chat services. Users may transmit both text and video messages and may exchange digital documents such as images, text, and video. Skype allows video conference calls

SOCIAL APP
A social mobile application is defined as social software that runs on mobile devices such as smartphones and tablets.

SOCIAL NETWORK
A social networking service (also social networking site, SNS or social media) are computer-mediated technologies that allow individuals, companies, NGOs, governments, and other organizations to view, create and share information, ideas, career interests, and other forms of expression via virtual communities and networks. The variety of stand-alone and built-in social media services currently available introduces challenges of definition

WECHAT
WeChat is a cross-platform instant messaging service developed by Tencent in China, It is one of the largest standalone messaging apps by monthly active users. As of May 2016, WeChat has over a billion created accounts, 700 million active users; with more than 70 million outside of China (as of December 2015)

ZHIHU

Zhihu is a Chinese question-and-answer website where questions are created, answered, edited and organized by the community of its users. In Classical Chinese, "Zhīhū" means "Do you know?". Chinese-language internet users nowadays increasingly resort to Zhihu for expert knowledge and insights into various topics.

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THE BEATLES