

UX RESEARCH PORTFOLIO

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A brief introduction of my background and experience



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Identifying newly-hired engineers' experience in the socialization process



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I am a new Ph.D. in Human-Computer Interaction graduate from Iowa State University. I was also trained in Industrial Design and Sustainable Design during my undergraduate and master studies. I have conducted and led both academic and practical projects. Based on my background and experience, I would identify myself as a UX researcher and designer.

As a UX researcher, I am specializing in analyzing user behaviors, building empathy with users, evaluating user reactions, and communicating with users. For me, exploring users' needs and experience is fascinating. The process of doing UX research is like reading an interesting book that guides you to stories of different people and their life.

ABOUT ME

RESEARCH TOOL-BOX



As a researcher, I would choose appropriate research methods from my UX tool-box based on research questions, goals, and limitations of time and budget. The followings are the tools, skills or methods that I frequently used in my previous learning and research experience.

Interviews

Focus Groups

Observation

Survey

Open Coding

Co-Design Sprints

Building Empathy

Quantitative Analysis

Storyboard

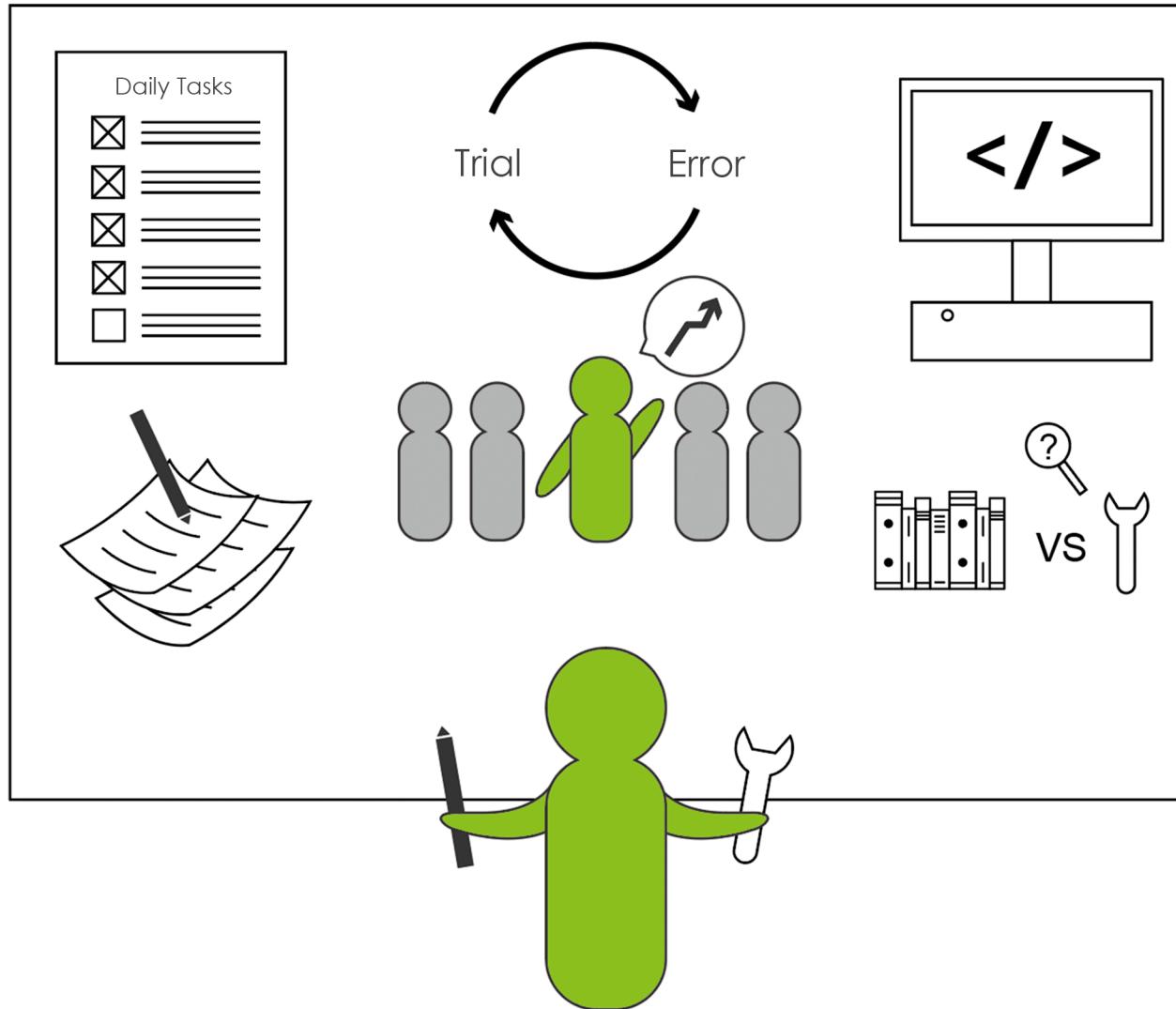
Card-Sorting

Journey Map

Personas

NEW ENGINEERS' SOCIALIZATION EXPERIENCE

UX research on the organizational socialization process in the Aerospace Industry



CASE 1

Superior Student Paper Award in ASEE 2022

Meritorious Student Paper Award in ASEE 2021

Funded by National Science Foundation (#1826388)

Research Case Overview

Research Goals

- New engineers' proactive actions and process
- New engineers' challenges and self-solutions
- New engineers' self-studied skills and knowledge
- Support from managers

Research Questions

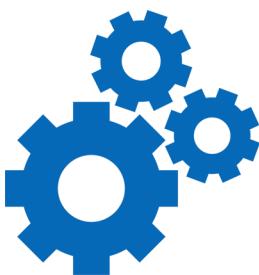
- What are the specific actions and processes taken by new engineers in socialization?
- What challenges do new engineers meet in socialization? And how they figure out the self-solutions?
- What are the necessary engineering skills and knowledge identified by new engineers?

Methods

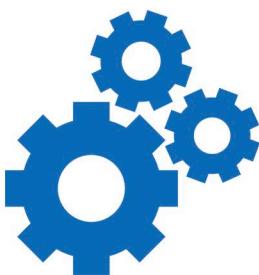
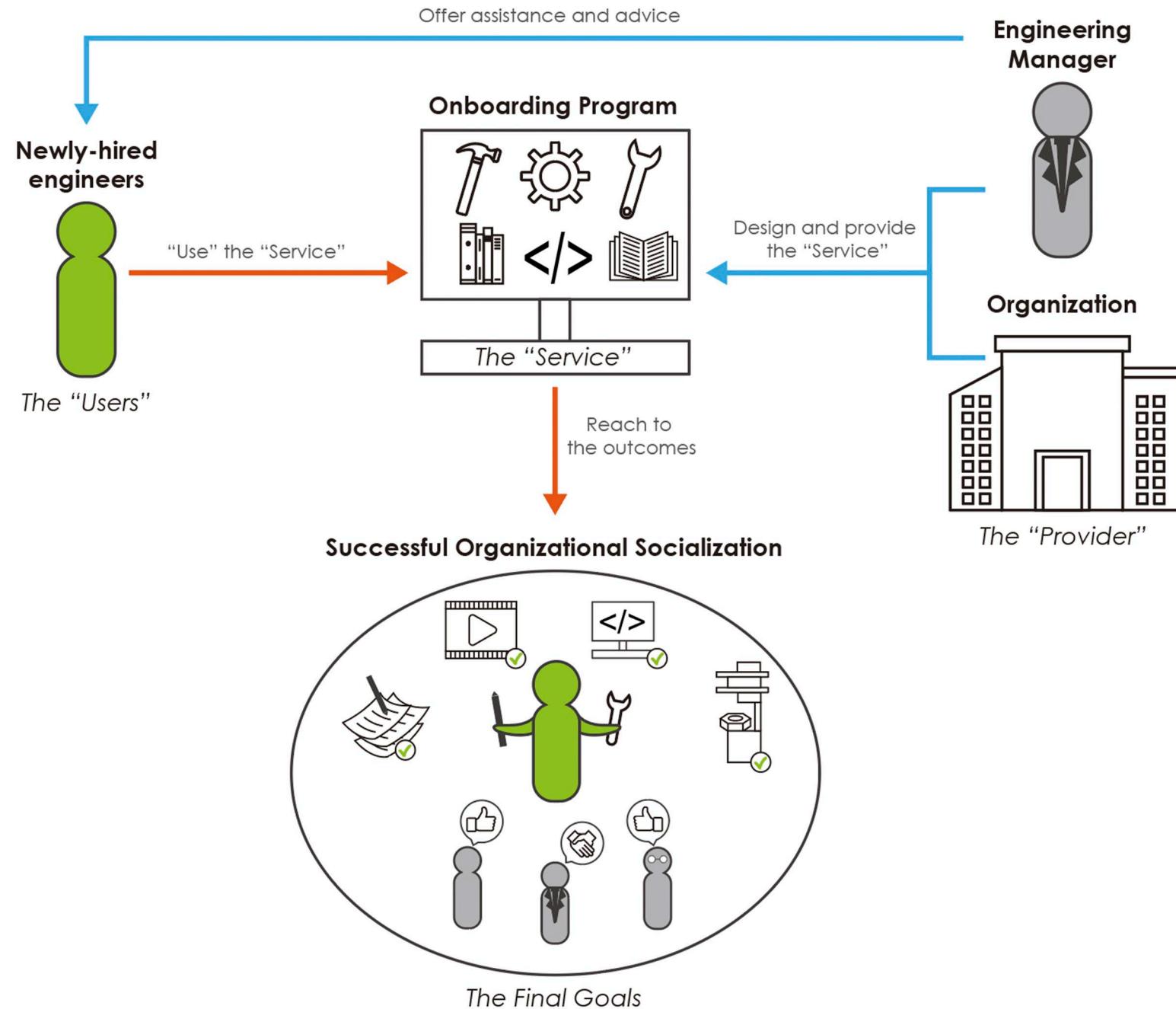
- Qualitative Study
- In-depth semistructured interviews
- Open coding process
- Cohen's Kappa Value

Findings

- 17 new engineers' proactive actions
- 9 managers' supportive actions
- 15 major challenges and solutions
- 4 types of major knowledge
- 6 important skills

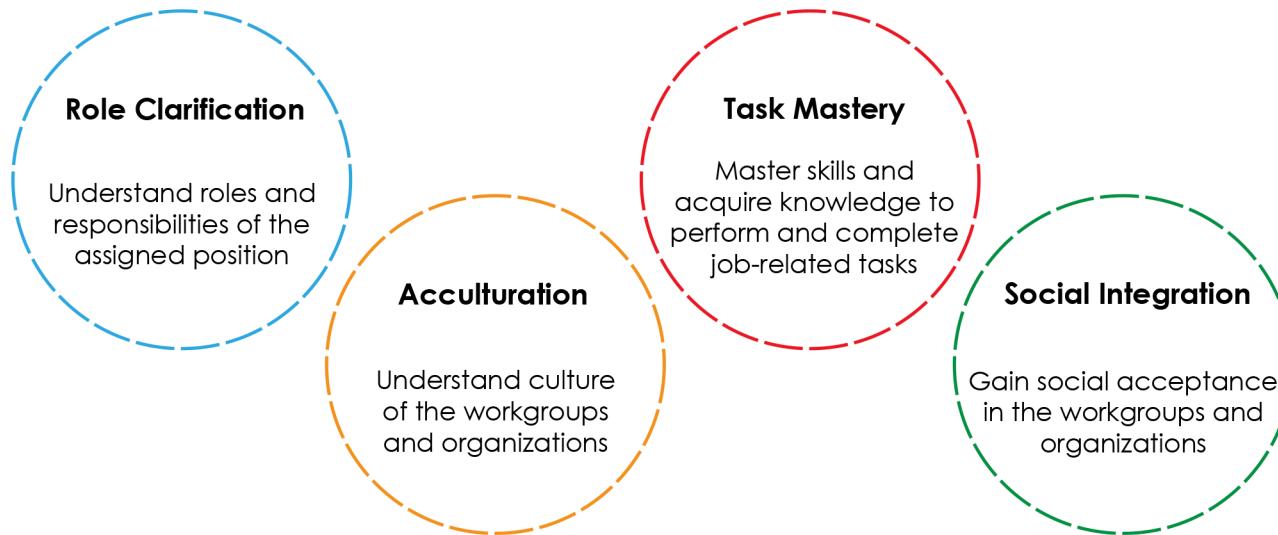


Connection to UX Research

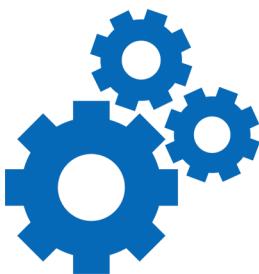


Theoretical Framework and Interview Design

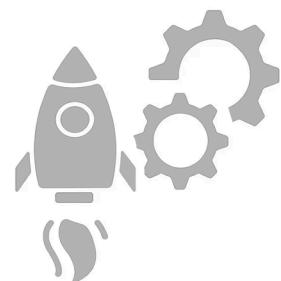
Four Domains of Organizational Socialization



Interview Protocol Design and Key Questions

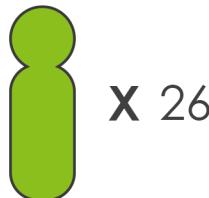


Research Settings and Process



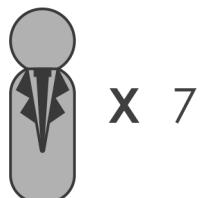
Context

Aerospace organization was chosen as the context for involving engineering new graduates from diverse backgrounds.



Invitation criteria

Must have less than 2 years working experience
Must have at least 1 bachelor degree in engineering majors
Must entered an Aerospace Engineering organization since graduation



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Must have at least 1 bachelor degree in engineering majors
Must entered an Aerospace Engineering organization since graduation



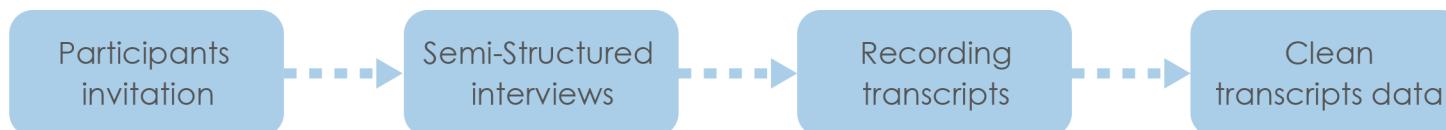
Time and compensation

The average time of an interview was 60 mins

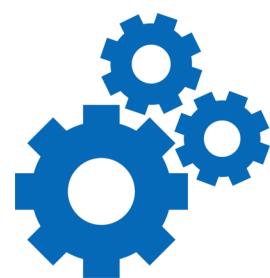
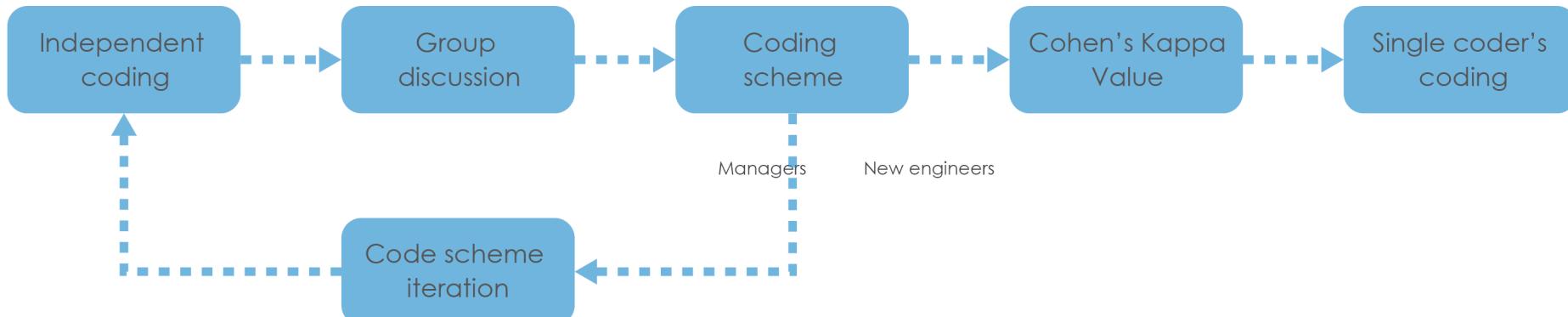


Each participant was compensated with an online shopping giftcard valued \$99.

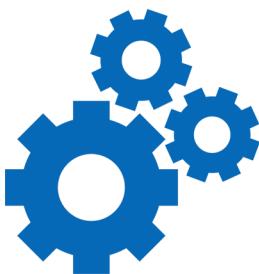
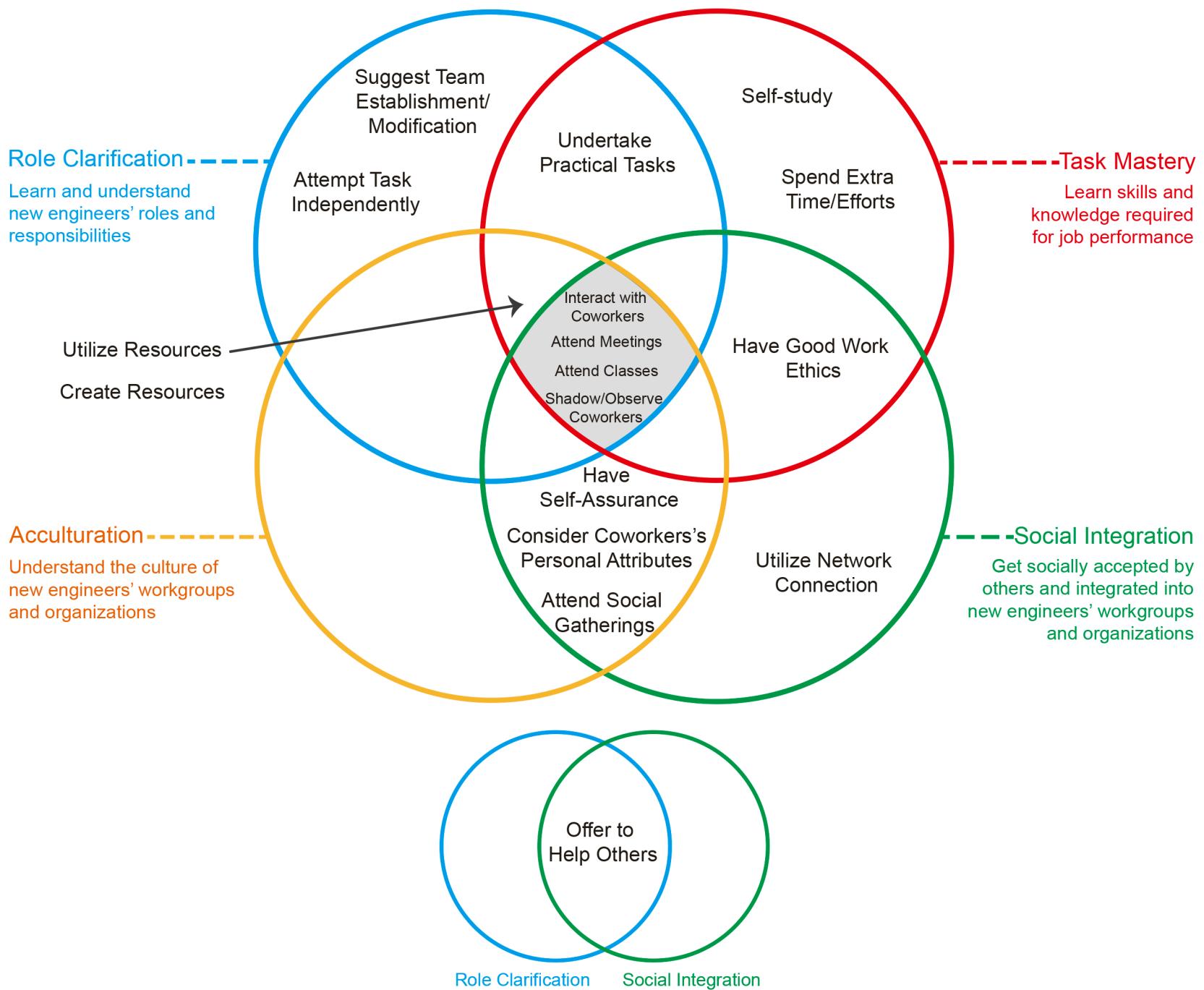
Data Collection



Data Analysis

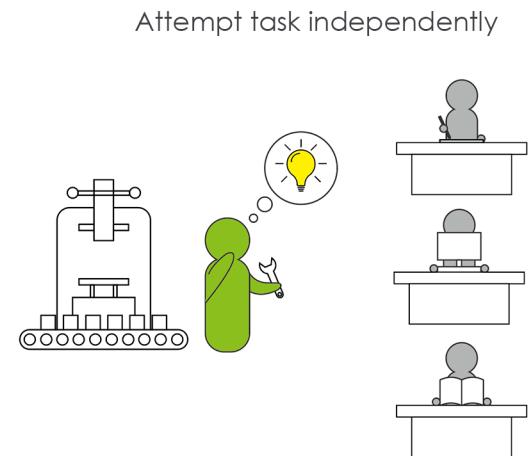
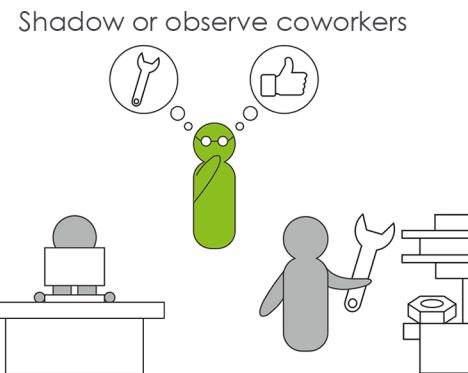
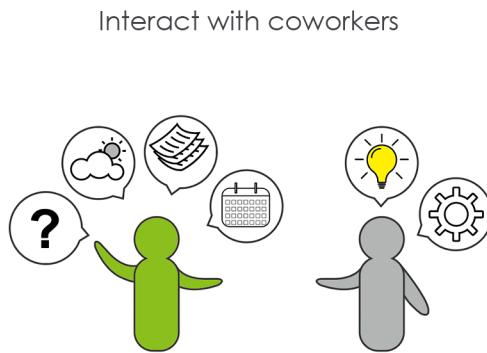


Research Finding: User Behavior Model

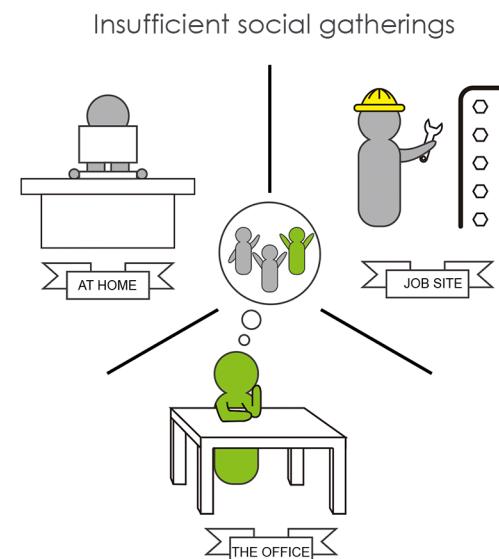
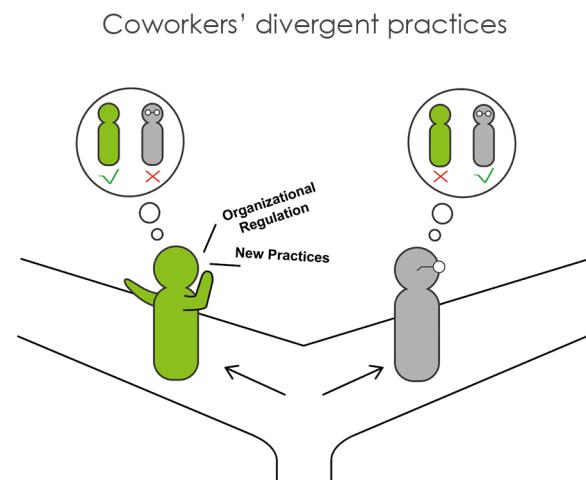


Examples of User Behaviors and Challenges

Visualized Proactive Actions



Visualized Challenges



For more research findings, please visit: aere.iastate.edu/aeworkforce/



Limitations and Implications

Limitations and future improvement

Participants diversity:

- Race and gender
- Number of participants
- Organizations

Demographic background:

- Race and gender
- Internship experience
- Different engineering majors

Context comparison:

- Engineering and non-engineering
- Full-time and part-time

Implications of Assisting UX Design

Clarify target users

Define user needs

Define functions

Identify difficulties

Create user personas

Reveal users' journey map

Repeat users' behaviors

Build empathy

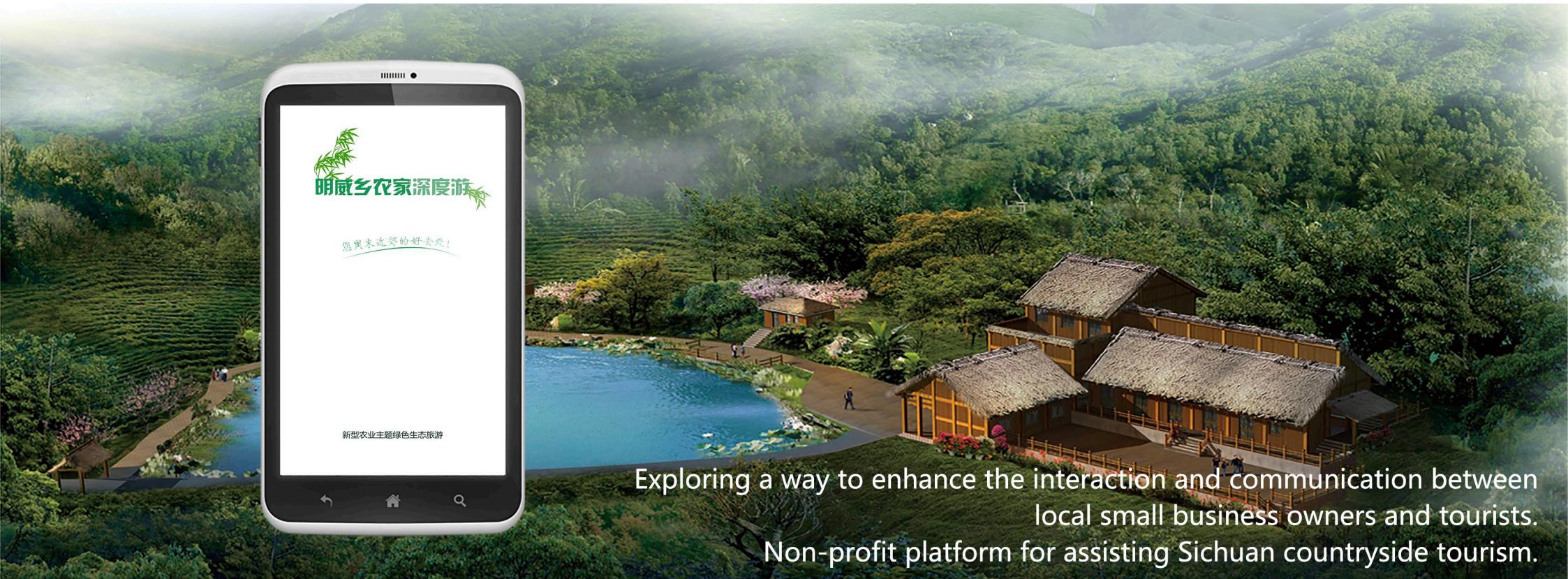
Examples:

- Create virtual onboarding system
- Improve organizational support
- Improve undergraduate education



TOUR GUIDE IN MINGWEI COUNTRY

The processes of user research and app development for countryside tourism



Exploring a way to enhance the interaction and communication between
local small business owners and tourists.
Non-profit platform for assisting Sichuan countryside tourism.

The project was funded by Graduate Student Innovation & Practice Project
Southwest Jiaotong University (China)



CASE 2

Research Case Overview

Research Goals

- Identify tourists' needs and habits
- Identify local small business owners' needs and habits
- Define functions of the APP
- Usability test for the APP using process

Research Questions

- What are the tourists' and local small business owners' needs in country-side tourism.
- What functions do tourists and owners expect most?
- What difficulties owners may face when using the APP?

Methods

- Mixed methods study
- Survey for different user groups
- In-depth semistructured interviews
- Cohort Analysis
- Open coding process

Findings

- The aspects that visitors mostly focus on when visiting rural areas
- The functions expected by customers and local small business owners
- The working process among customers, small business owners, and local government
- The difficulties business owners face when using the APP.



Research Settings and Process



Context

Mingwei country is a small rural town in the southwestern China. The main local income depends on tourism, especially family-provided tours and activities. But because of its location, there are few tourists. The local government hopes to enhance the experience of tourists in local tourism projects by designing an information system, help tourists to communicate better with local small business owners, and thus increase local residents' income.



X 149

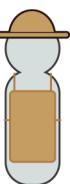
Sampling Survey

153 participants invited

149 valid questionnaires

100 questionnaires responded online

49 responded by urban residents near Mingwei.



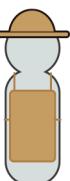
X 76

80 participants invited

76 valid questionnaires

40 were responded by local residents in Mingwei

36 from other similar countries or villages nearby.



X 2

In-Depth Semi-Structured Interviews

2 local small business owners from Mingwei invited

1 male and 1 female

1 owned a small plantation of green orange.

1 ran an agritainment (including accommodation and table games) and a small peanut plantation.



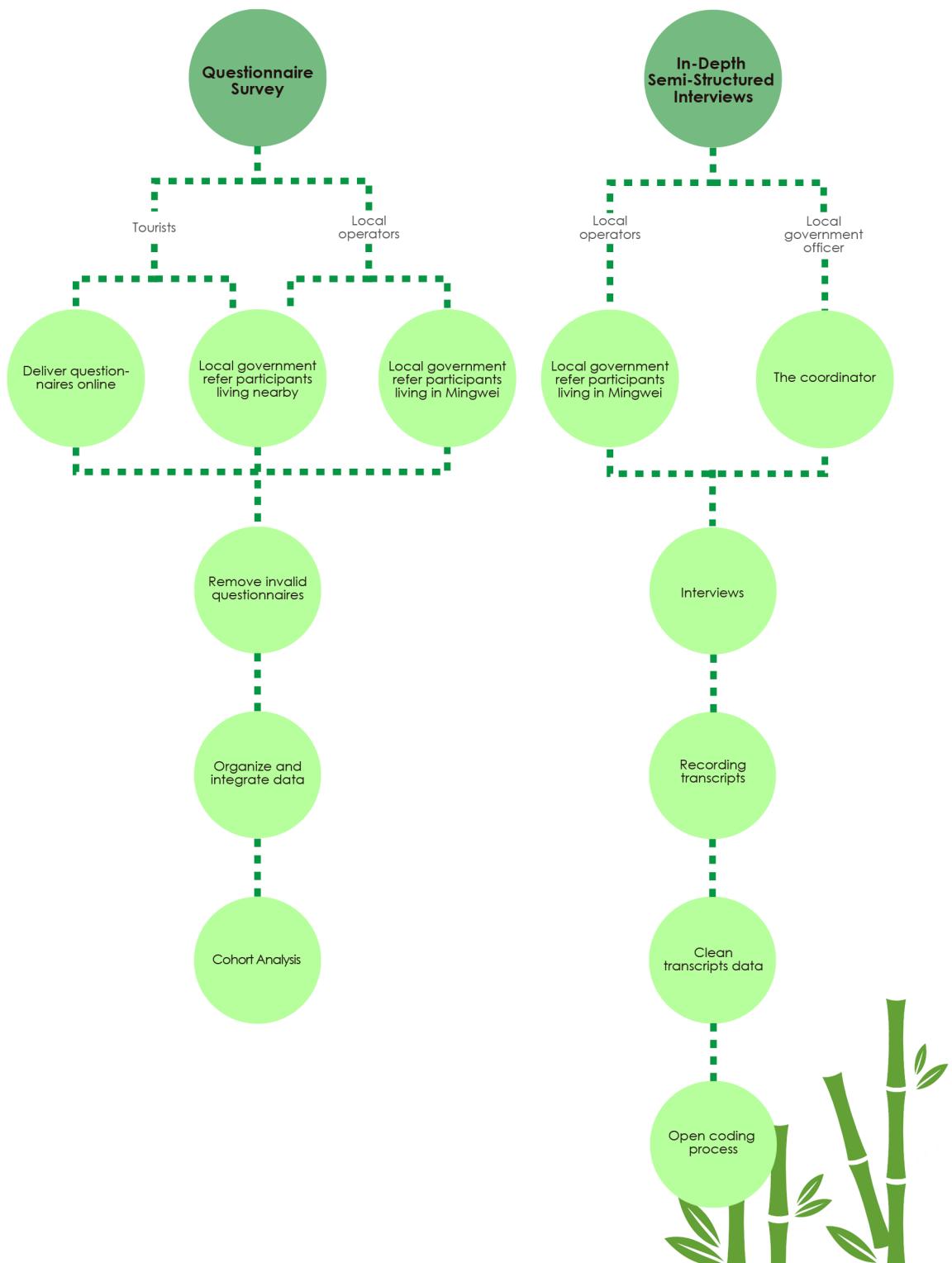
X 1

1 local officer invited

Male

The coordinator of Mingwei's tourism

Responsible for the publicity and promotion work of Mingwei.



Research Findings



Key Questions in the Questionnaires

- ① Items cost most budget on?
- ② Items paid most attention to?
- ③ Expected assistance or service?
- ④ Like to use an APP? If not, reason(s)?

①	Aaccommodation (94.12%)	②	Aaccommodation (74.51%)	③	Reservation (61.07%)	④	Yes (55.70%)
	Meals (88.42%)		Meals (64.71%)		Route navigation (27.52%)		No (44.30%)
	Tour and Entertainment (47.06%)		Unique local experience (56.86%)		Intro of tour and activities (58.39%)		Unwilling to download
					Intro of attractions (less than 20%)		
					Experience sharing (less than 20%)		
					Purchase local products (less than 20%)		



Key Questions in the Questionnaires

- ① Main income sources?
- ② Ways of promoting tourism service?
- ③ Like to use an APP? If not, reason(s)?

①	Countryside tourism (86.25%)	②	Chatting with tourists (77.50%)	③	Yes (65%)
	Selling homemade products (68.75%)		Proactively find customers (71.25%)		No (35%)
	Local employment (48.75%)		Collaborating with other families (57.50%)		Worrying about difficulty to learn
			Offering discounts (20.40%)		

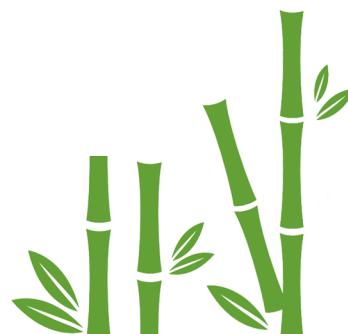


Key Questions in the Interview

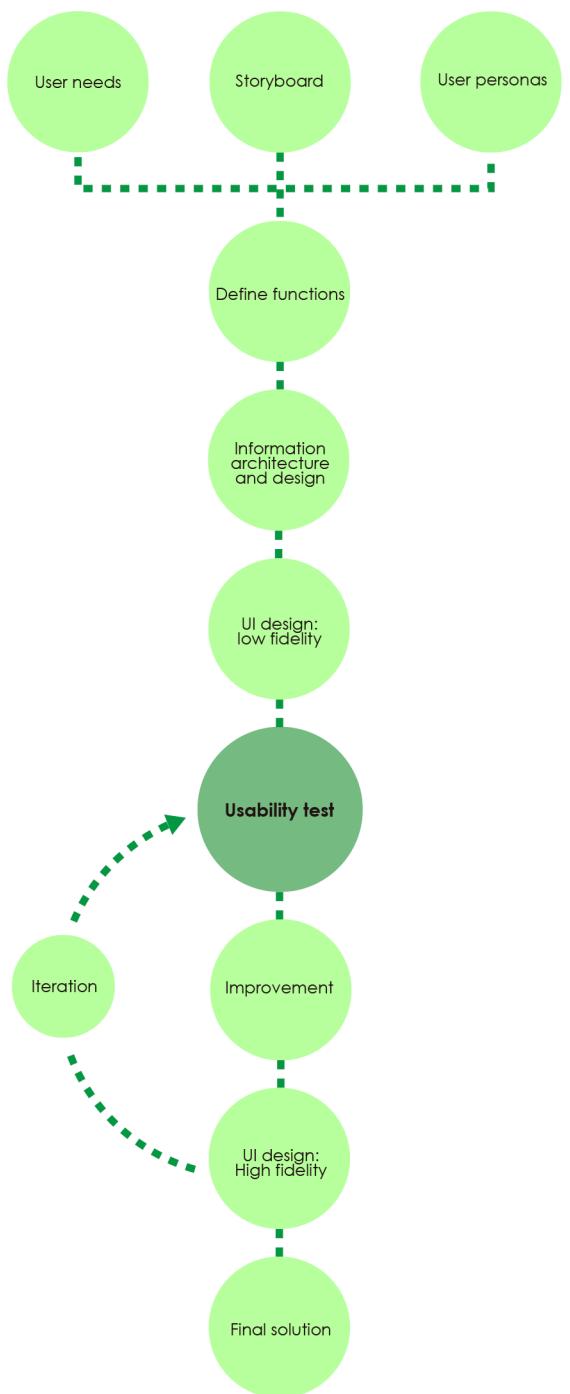
- ① Service or products provided?
- ② Frequently update service or not? Why?
- ③ Expected functions for an APP?

①	Accommodations and meals	②	No (35%)	③	Advertisement
	Selling self-planted and homemade products		Not convenience and few tourists		Purchasing (A-end) and selling (B-end)
	Farm-relevant tours or activities		Small production for sale		Initiating and managing tours or events

Notifications and news
Intro of attractions



UX Design Process and Usability Test



Usability Test Settings:

Method:
Observation and quick interviews

Number of participants:
10 (5 customers and 5 owners)

Tasks:

5 customers (test A-End):

- Find the list of restaurants, and make a reservation
- Find, comment and like tours posted by others

5 local (test B-End):

- Create a new small group tour
- Check the current number of visitors to the restaurant

Prototype 1: Life in Mingwei

Issue: Too many buttons on the homepage.

Recommended solution: Integrate some buttons with overlapping info.

Prototype 2: Restaurant

Issue: Too many buttons on the homepage. The bottom menu bar doesn't have to appear on every step.

Recommended solution: Remove bottom bar and keep the UI concise and clear.

Prototype 3: Hotel

Issue: There are too many ways of displaying the searching results in orders, which confused users.

Recommended solution: Reduce the order methods into three or fewer.

Prototype 4: Tourism Manager

Issue: Overlapping info and buttons for the selling function.

Recommended solution: Remove the bottom one. Users can directly go the detailed pages of the products by touching the product bars.

Prototype 5: Restaurant A

Issue: The "Edit" button confused users that whether it works for the images or the text.

Recommended solution: Remove the button, and integrate the function of editing with creating new items together to the top right corner of the page.

Prototype 6: Add New Item

Issue: Different types of service should have their unique info. Direct contact info is missing.

Recommended solution: Create separate menus for the mail types of services, and add contact info bar.

Examples, Limitations, and Future Studies

Tour Guide of Mingwei Village

- SPOTS**
- FOOD**
- PRODUCTS**
- EVENTS**
- HOTELS**
- MAP**

Recommendations

- Three days tour for picking fruits
- One day tour for farmhouse
- Cultural tour for tea-tasting
- One day tour for picking up tea

Home **Sharing** **Me**

Restaurants

All Areas | All Categories | Display Order

- 茶房私房菜**
人气 ★★★★★ 10 条评论
农家菜 川菜 湘西菜
距离你 2.9km
人均 ¥15.00
- 茶水铺子**
人气 ★★★★★ 10 条评论
品类 小吃
距离你 2.9km
人均 ¥15.00
- 休闲酒家**
人气 ★★★★★ 10 条评论
地道宜宾菜
距离你 2.9km
人均 ¥50.00
- 来顺饭庄**
人气 ★★★★★ 10 条评论
京菜连锁
距离你 2.9km
人均 ¥30.00
- 麦当劳**
人气 ★★★★★ 10 条评论
炸鸡快餐
距离你 2.9km
人均 ¥35.00

Make an Appointment

Restaurant Details



Name 茶房私房菜
Location 白塔村 83 号
Type 特色菜 茶饮
Contact 158xxxx8951
Popularity ★★★★★ 10 Comments >>>
Waiting List 15 In 0 Waiting 35 Seat Left
Description 廖老板的私房菜馆回归了南宁久违的家庭味道。极受食客追捧的马蹄酿土鲮，先是将鲮鱼起骨，保留完好的鱼头与鱼皮。把鱼肉打成鱼胶，拌入马蹄粒等原材料，搅拌均匀后酿入鱼皮内，使之与原来的鱼身一般大小。

Make an Appointment

Country Tour Manager

New Notice

- You have 3 new orders **Details**
- You have received 9 complaints **Details**

Quick to Enter

- Restaurants**
- Hotels**
- Events**
- Products**

News and Notifications **More >**

- 【Notice】第二届中国（北京）物联网感知创新大赛 >
- 【Notice】2015年第二届物联网感知创新大赛启动 >
- 【Notice】北京举办物联网创新大赛 重点关注智慧城市 >
- 【News】彻底解决农村电子商务的“最后一公里” >
- 【News】微视两会：农村电商发展瓶颈有哪些？ >
- 【News】四川省农业相关部门助推“互联网+农业” >

Home **Guidance** **Me**

Add a New Event

Description
Please enter the description of the event.

+

Name

Schedule

Location

Price

Contact

Key words

DONE

Limitations:

Needs of diverse customer groups

Usability tests diverse experienced owners

The role of a third-party supervision

Future studies:

Needs of customers with different incomes

Users with different tourism experience

Apply the results in similar areas



Product Design and Life Details

Emergency Trousers

"Friendly Angles" Bookshelf

"No-Touch" Package

Two-Hole Drinking Box



EMERGENCY TROUSERS



Close



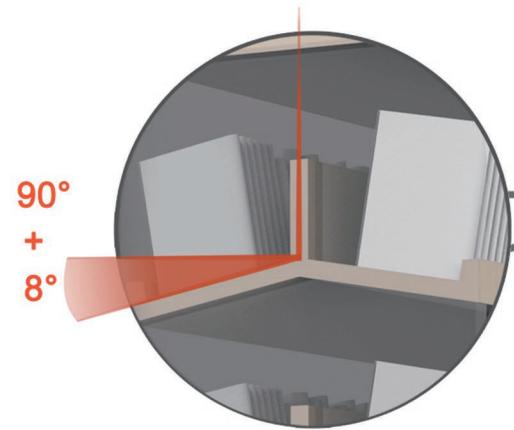
Open



When getting stuck in traffic on highways, people who have to use a restroom frequently due to health issues may have trouble finding a restroom immediately.

This design applies waterproof cloth. The trousers can be opened at the front with a hook and loop fastener. An adult diaper is attached to the crotch. People can change diapers easily by opening the trousers at the front, then using the elastic belt to send the diaper back to position. The design assists the groups who have emergency issues and brings them convenience and comfort.



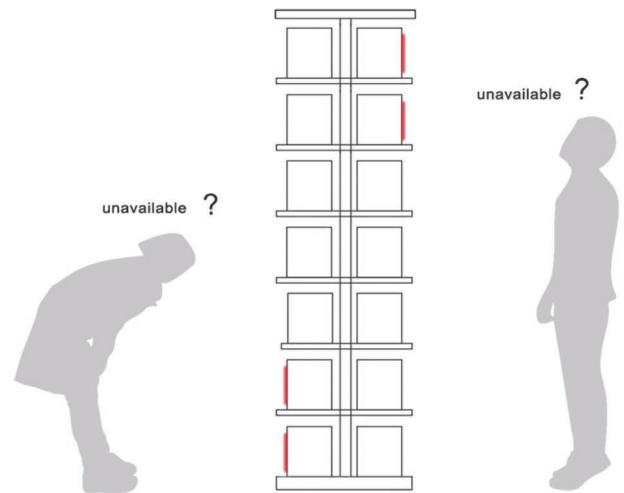


“Friendly Angles” BOOKSHELF

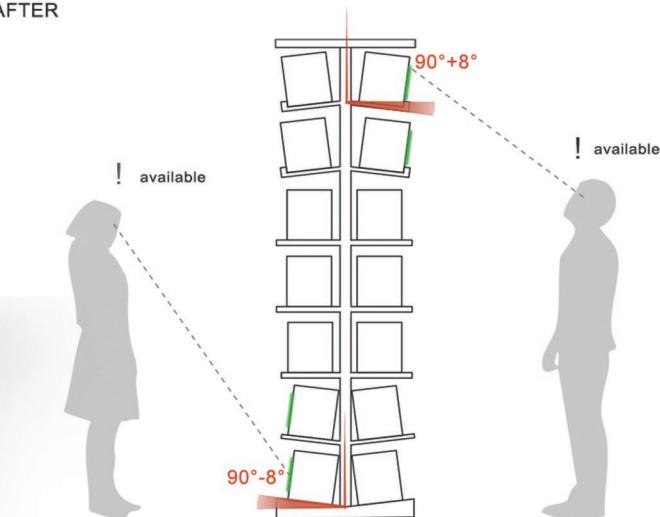
Usually, it is difficult to check the books on the top and bottom shelves. Friendly Angles is an improved bookshelf design for solving this issue. The top and bottom shelves are rotated 8° to make it easier for readers to find books



BEFORE



AFTER



The design has been selected into the final judgement of Red Dot Design Award in 2015.



NO-TOUCH | The Chips Package Design

Before:



The hands are dirty.



Touch the chips directly.

After:

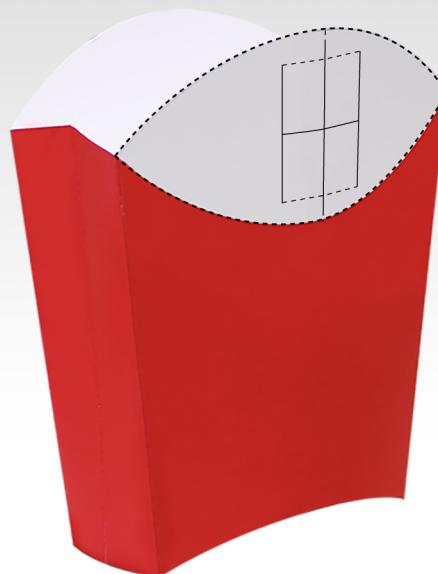


The hands are dirty.



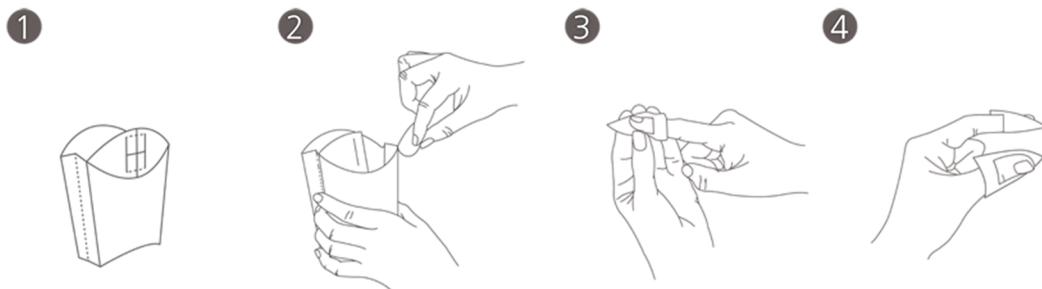
Use the finger covers.

Flat package:



Customers can rip the two pieces off as finger covers,
then their fingers won't touch the chips directly.

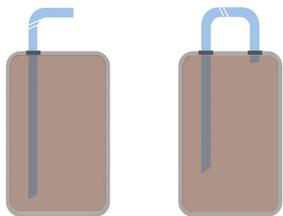
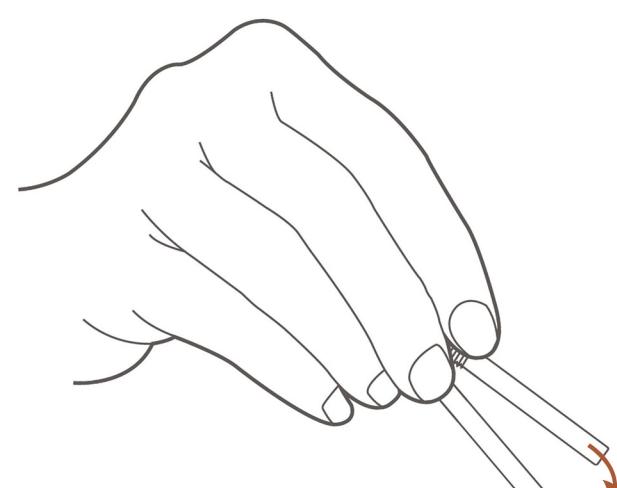
How to Use:



The design has been selected into the final judgement of iF Award in 2014.



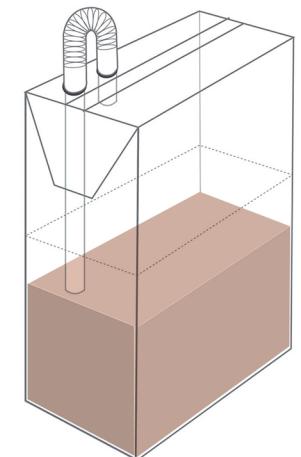
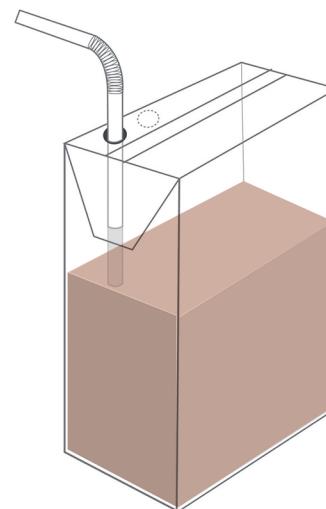
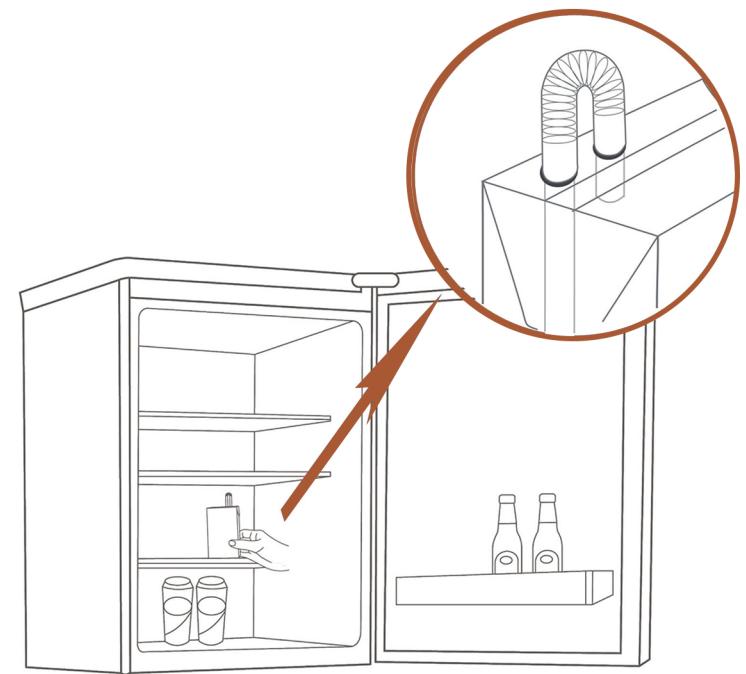
Two-Hole Drinking Box



The Two-Hole Drinking Box can save the beverage temporarily when users don't want to drink it up. By folding the straw and sticking in in another hole on the box, the box will be turned into a sealed one.

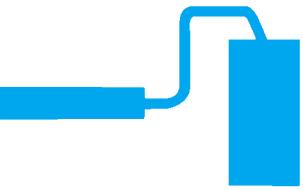


- Keep fresh
- Keep the straw clean
- Easy to take away



The design has been selected into the final judgement of iF Award in 2014.





The End



Thank you for your time!