

UX RESEARCH PORTFOLIO

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DESIGN FOR LIFE DETAILS

Concept design projects for improving the daily life experience





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's 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

CROSS-CULTURAL ADVENTURE

To build connections among people, encourage people to communicate with others from different backgrounds



What does it address?

The design is expected to address the gap in the communication among people from different cultural backgrounds. It provides a platform which improves the social communication. The design is intended to help people enhance their self-identity in the current society, and bring them the sense of equity and belongingness, and help them learn knowing diversity.



CASE 1

Research Case Overview

Research Goals

- Identify the challenges faced by minority groups in cross-cultural communication
- Identify personas of minority groups
- Define the working process of the platform

Research Questions

- What may be the reason(s) that some minority groups lack connections to mainstream society?
- What do people want to express when building their cultural self-identity during communication with other ethnicities or races?

Methods

- Mixed methods study
- Survey for different user groups
- Focus Group
- Cohort Analysis
- Open coding process

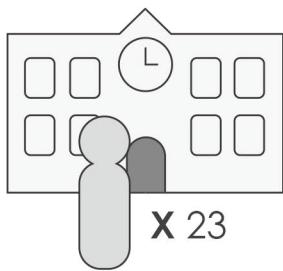
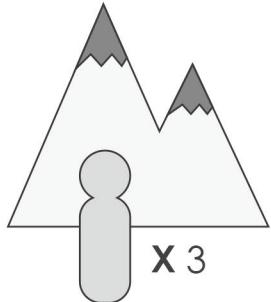
Findings

- Challenges for minorities:
 - Language
 - Fewer chances to be exposed
 - Various life styles
 - Lack of motivation
- What they want to display:
 - Their own languages and letters
 - Traditions and life style
 - Hometown scenery

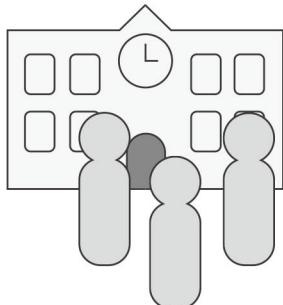


User Personas

Sampling Survey



Focus Group



Persona 1: Minority College Student



Nijiu
College student
Han majority university
Name & Location

- Talk about cultural differences
- Talk mother tongue
- Bring cultural unique gifts
- Share custom photos

Culture-related Behaviors

Demographic Details

Industrial Design
Minor in Folk Art

Dali (Hometown)
Chengdu (Living at)
Southwest China
Miao Ethnicity (Hmong)
One sister and one brother
21 year-old

Pain Points & Needs

Difficult to describe to family
Misunderstood traditions
Preserve language
Others have little knowledge about Miao (others)
Opportunities of showing culture
Communicate with other ethnicities
Few opportunities use mother tongue

Persona 2: Minority Elderly



Shan
Farmer
Hani Ethnicity Autonomous County
Name & Location

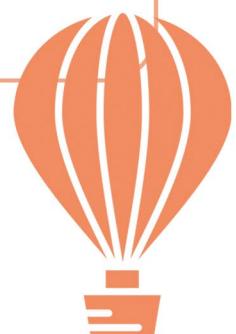
Demographic Details

Mountainous area
Less than \$1000/yr

Mojiang Town (Living at)
Tea planter
Southwest China
Hani Ethnicity
Four adult children
67 year-old

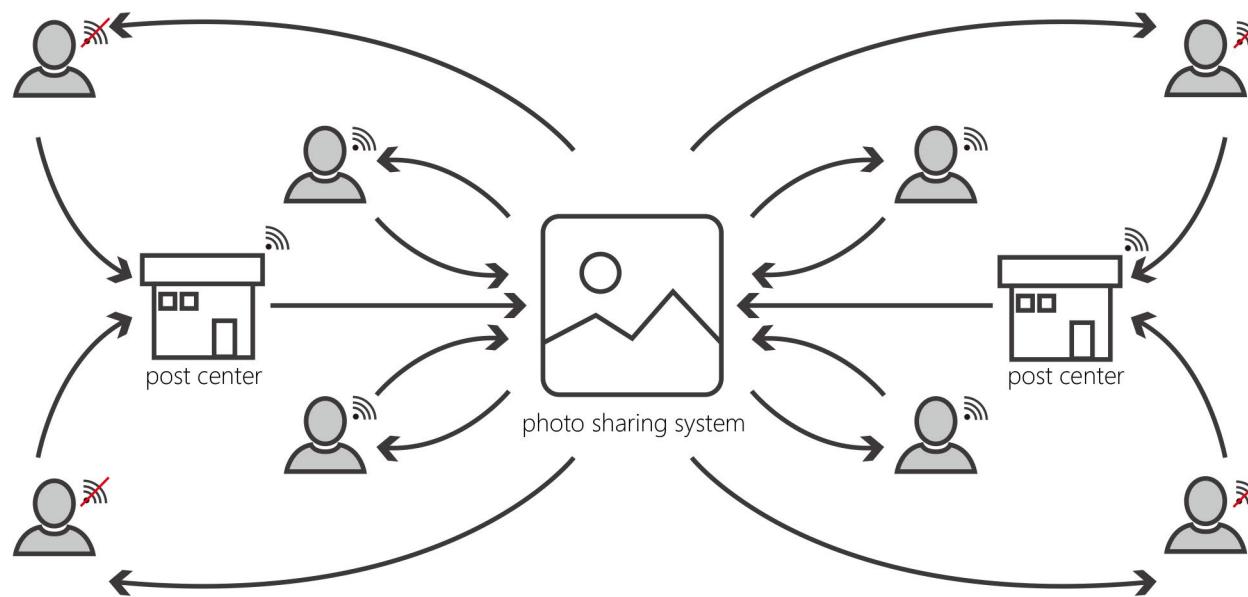
Pain Points & Needs

Barely meet other ethnicities
Difficult to communicate in Mandarin
Traditional methods
Not familiar with the internet and smart devices
Translation
Communicate with other ethnicities



Flow Model

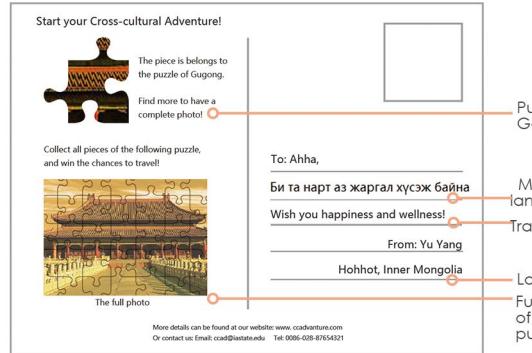
Flow Model and Working Process



Post Card Design



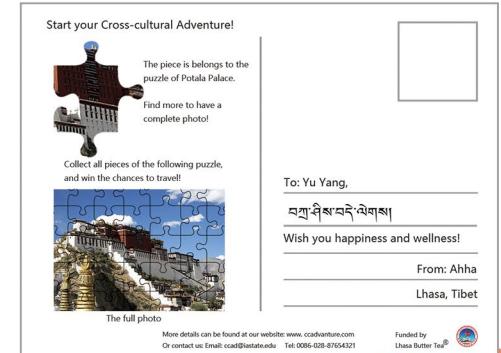
Front



Back



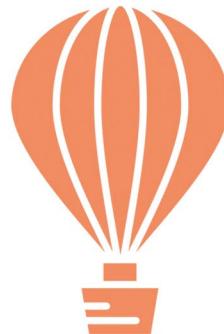
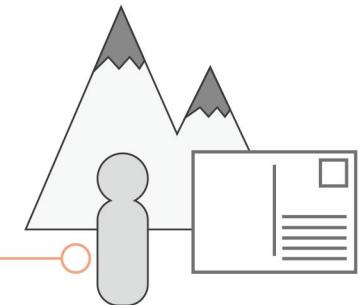
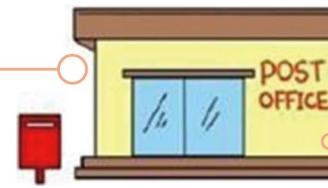
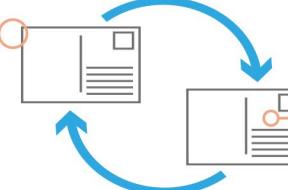
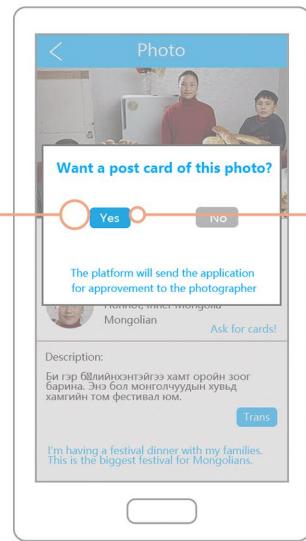
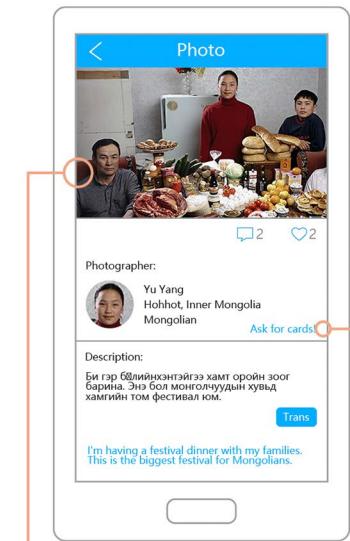
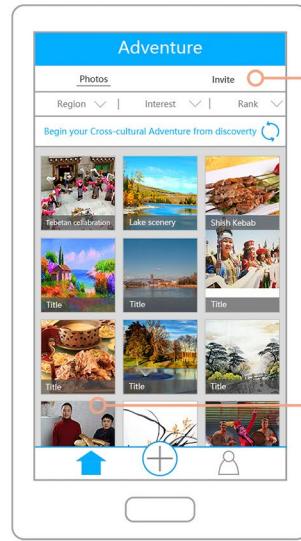
Front



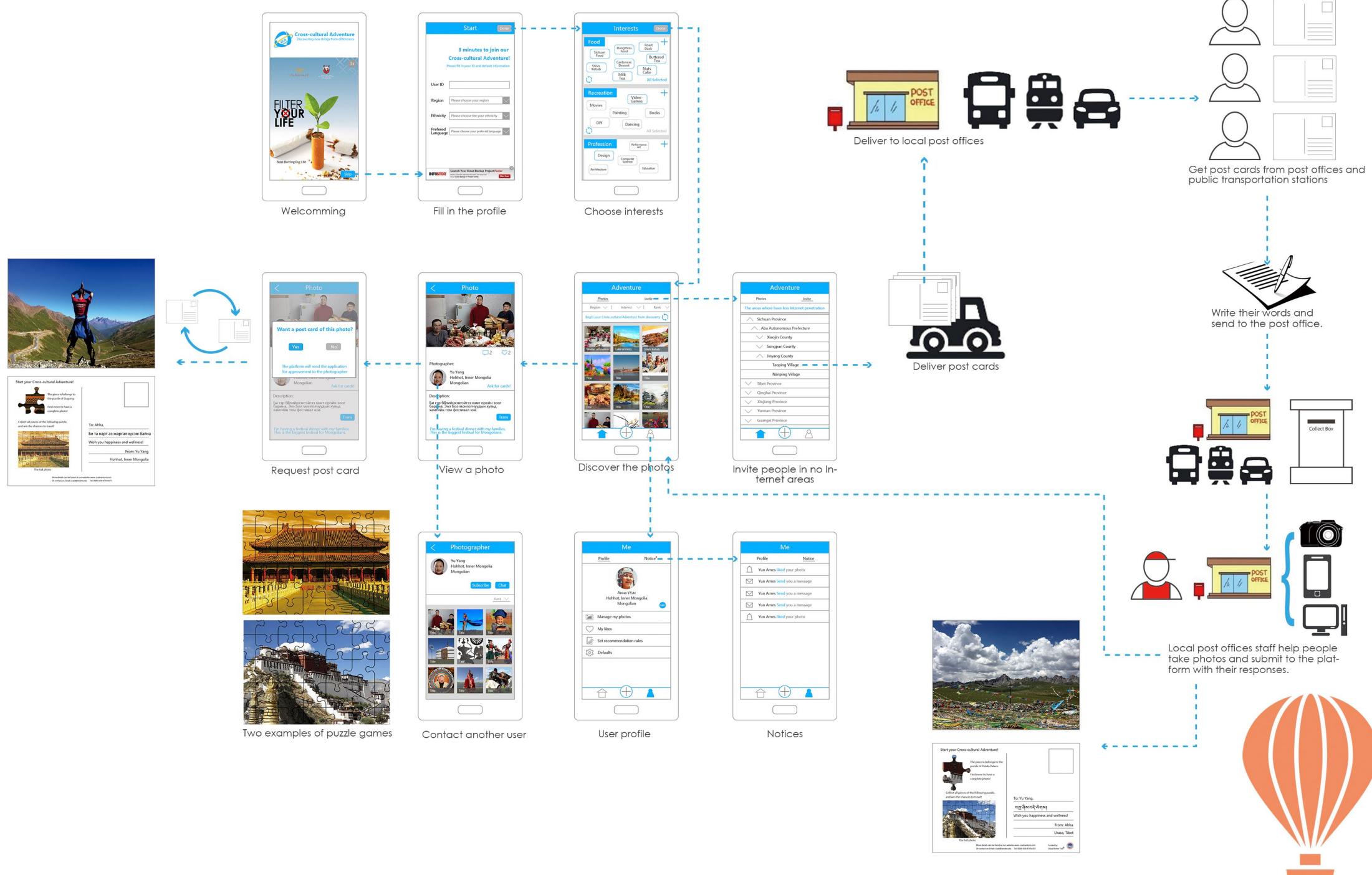
Back



User Experience Process

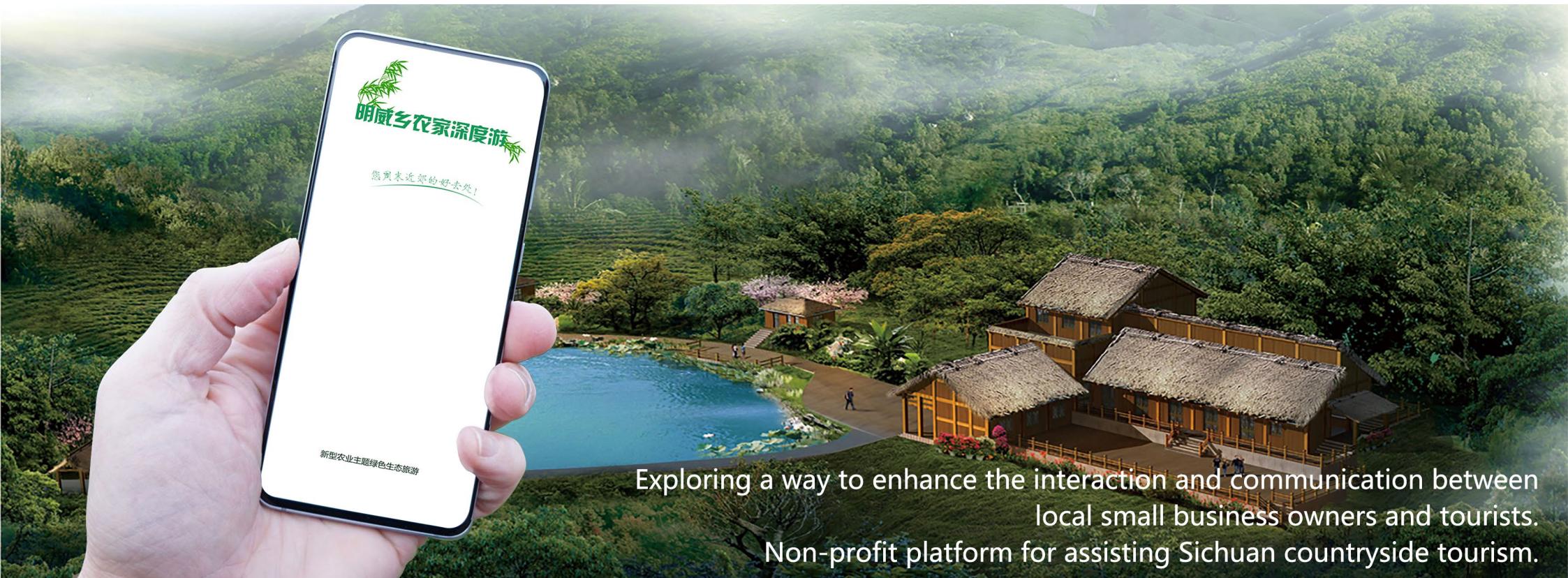


The Overall Working Process



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)



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.

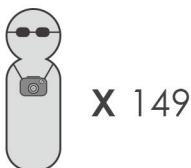


Research Settings and Process



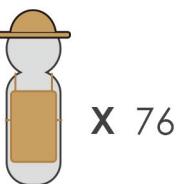
Context

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.

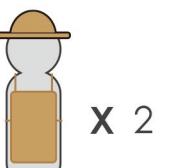


Sampling Survey

153 participants invited
149 valid questionnaires
100 questionnaires responded online
49 responded by urban residents near Mingwei.

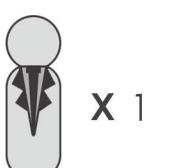


80 participants invited
76 valid questionnaires
40 were responded by local residents in Mingwei
36 from other similar countries or villages nearby.

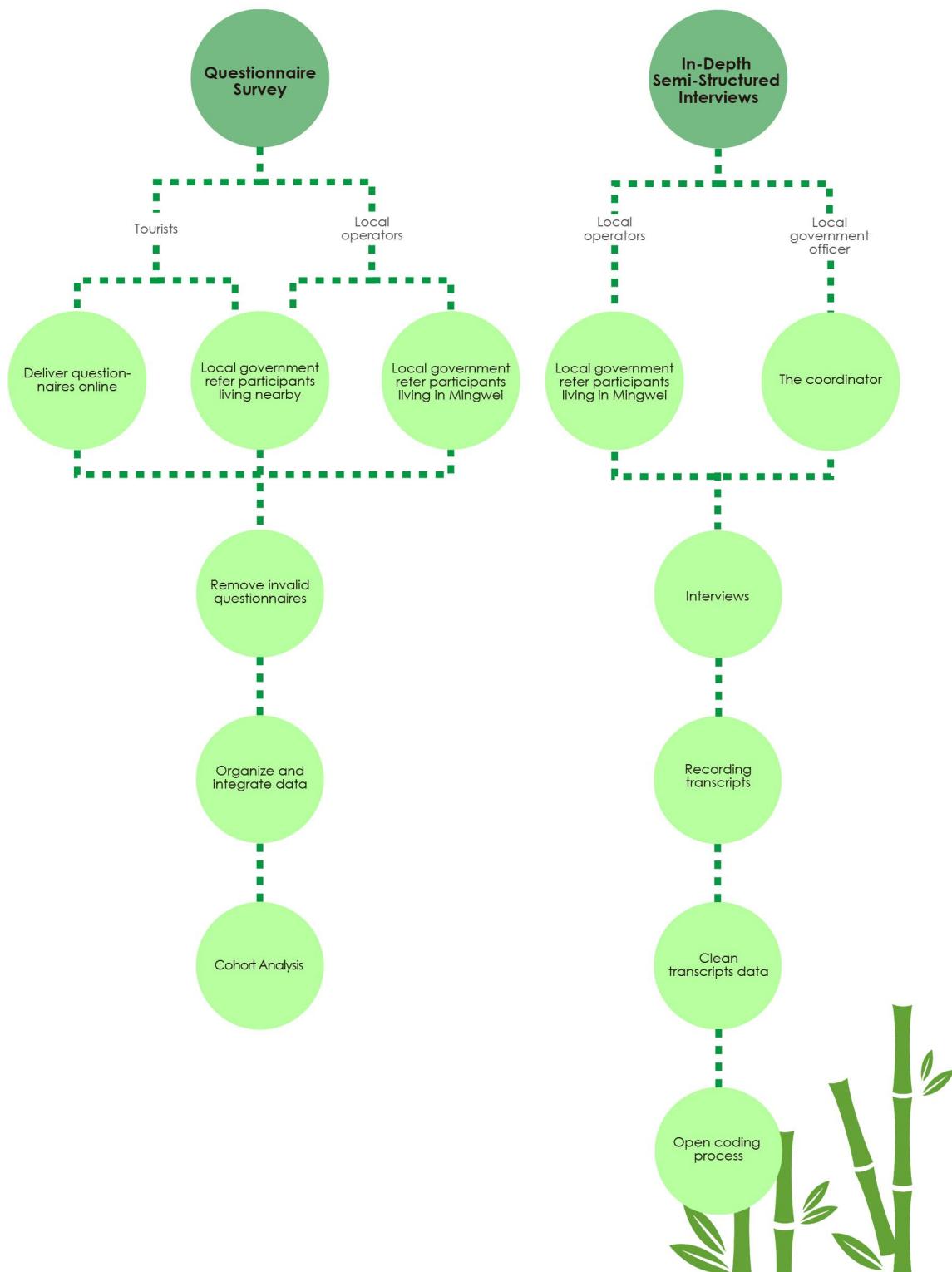


In-Depth Semi-Structured Interviews

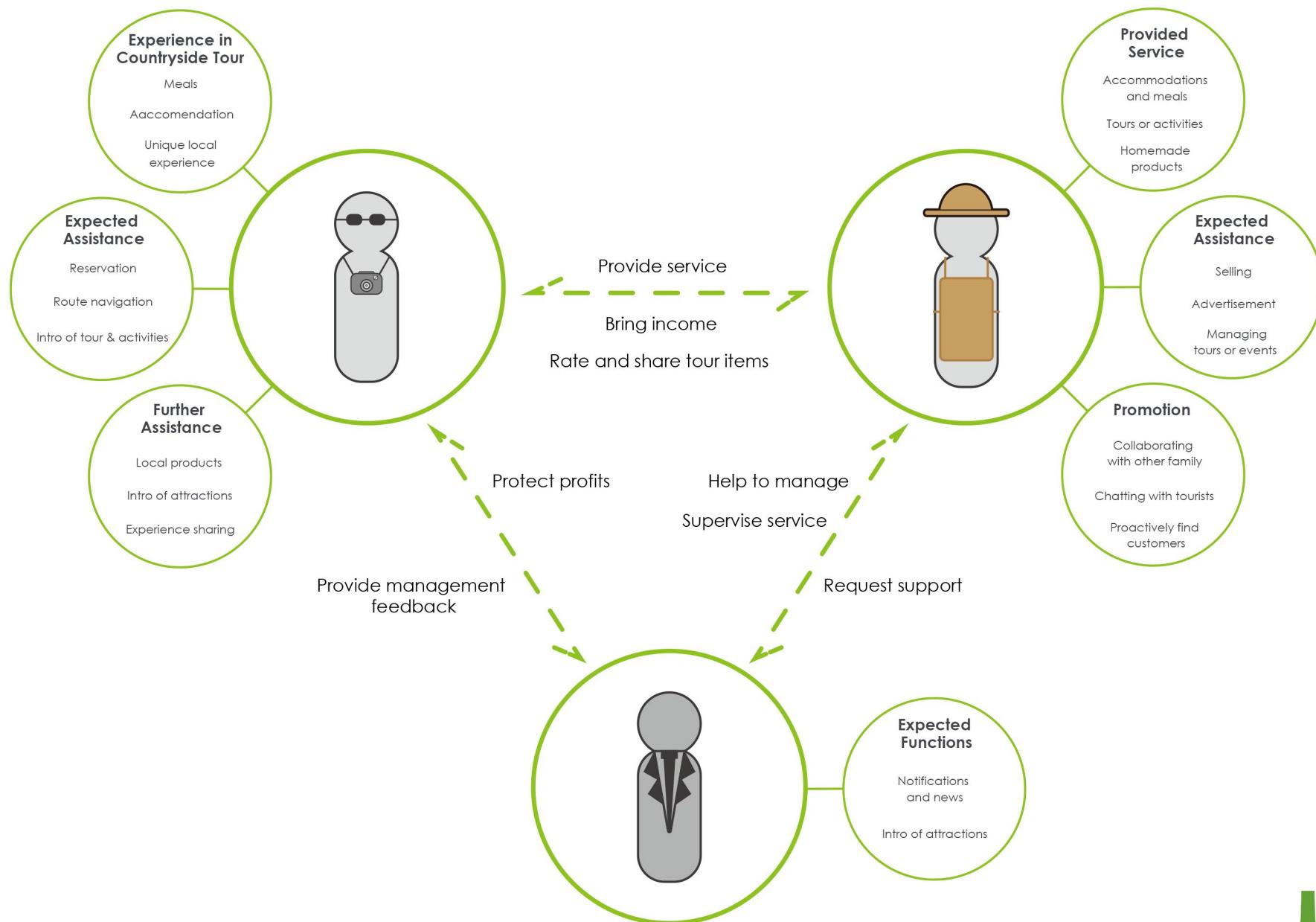
2 local small business owners from Mingwei invited
1 male and 1 female
1 owned a small plantation of green orange.
1 ran an agritainment (including accommodation and table games) and a small peanut plantation.



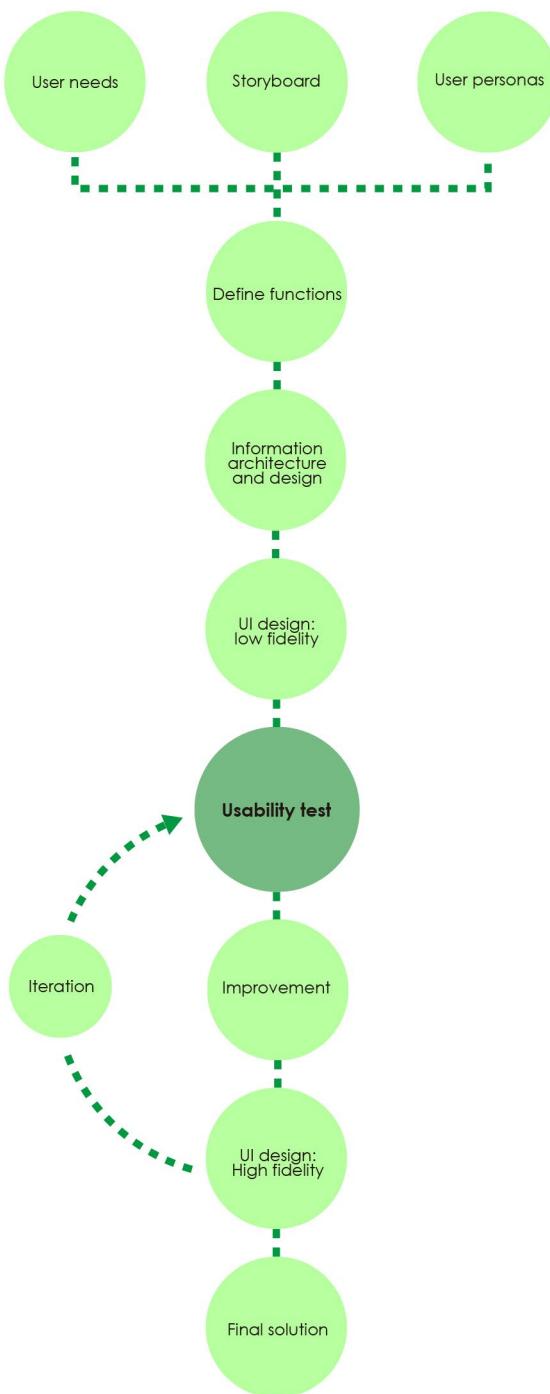
1 local officer invited
Male
The coordinator of Mingwei's tourism
Responsible for the publicity and promotion work of Mingwei.



Research Findings



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

Issue: Too many buttons on the homepage.
Recommended solution: Integrate some buttons with overlapping info.

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 clean.

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.

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.

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.

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

- Attractions
- 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 (人均 ¥15.00)
- 茶铺子 (人均 ¥15.00)
- 休闲酒家 (人均 ¥50.00)
- 来顺饭庄 (人均 ¥30.00)
- 麦当劳 (人均 ¥35.00)

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人久违的家庭味道。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】微弱两会：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

Please Note: Some parts of the menu have been translated into English. The original version was in Chinese.

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

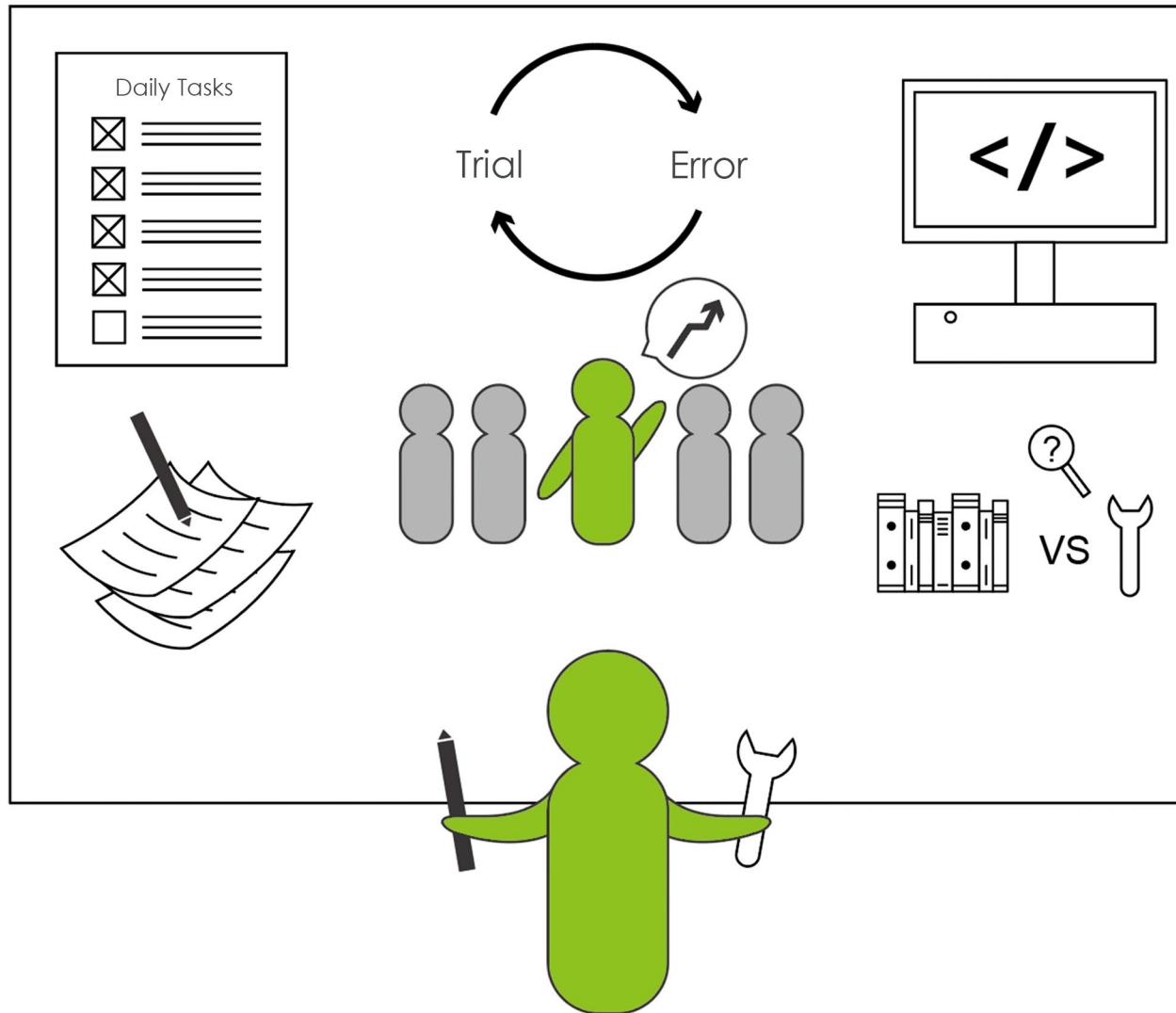
Users with different tourism experience

Apply the results in similar areas



NEW ENGINEERS' SOCIALIZATION EXPERIENCE

UX research on the organizational socialization process in the Aerospace Industry



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

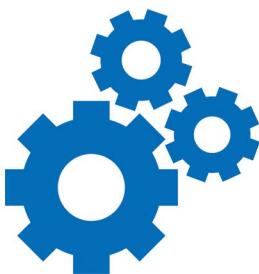
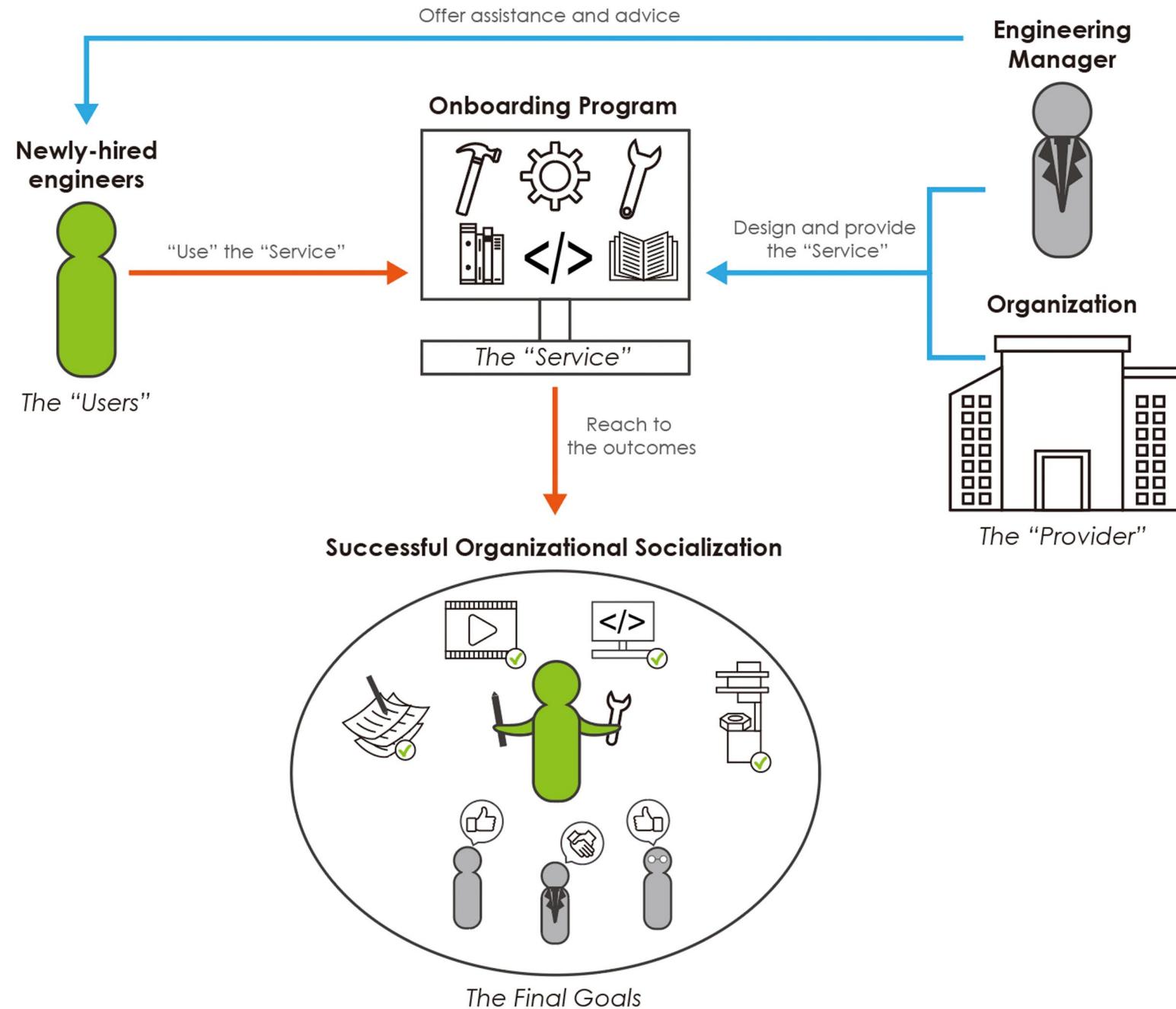
- Qualitative Study
- In-depth semistructured interviews
- Open coding process
- Cohen's Kappa Value

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

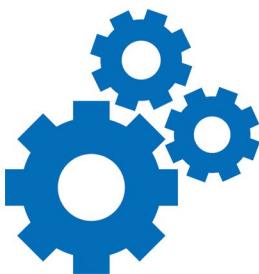
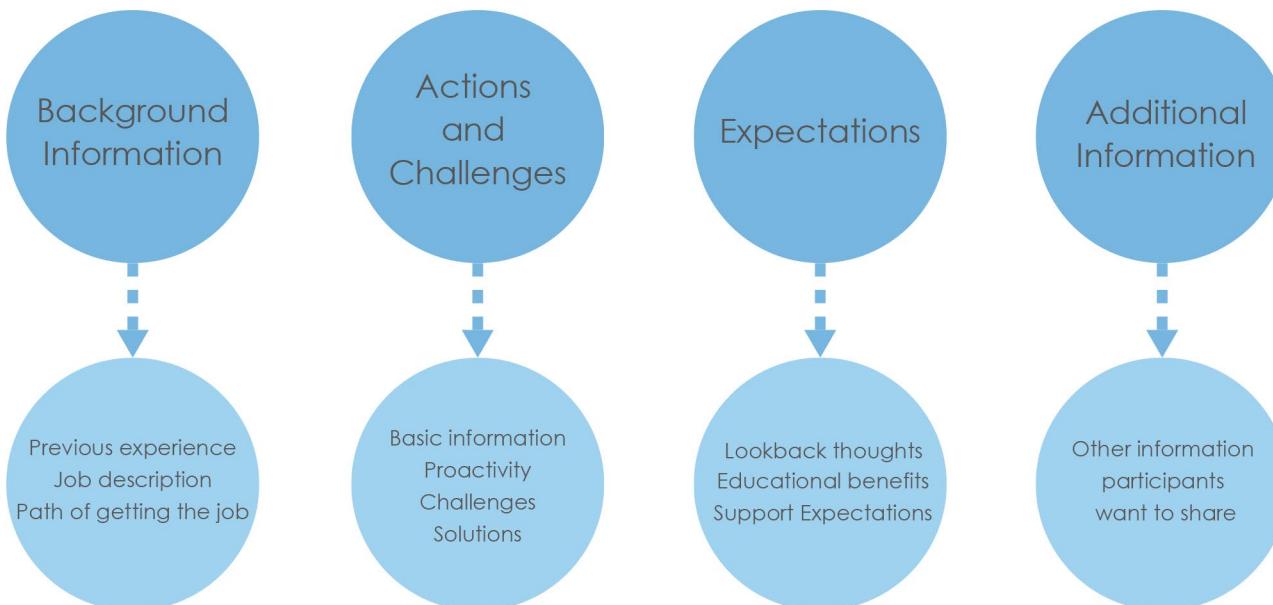


Theoretical Framework and Interview Design

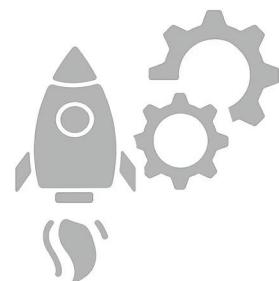
Four Domains of Organizational Socialization



Interview Protocol Design and Key Questions

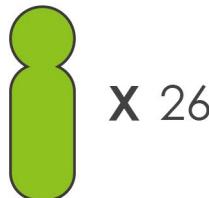


Research Settings and Process



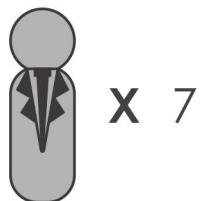
Context

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



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



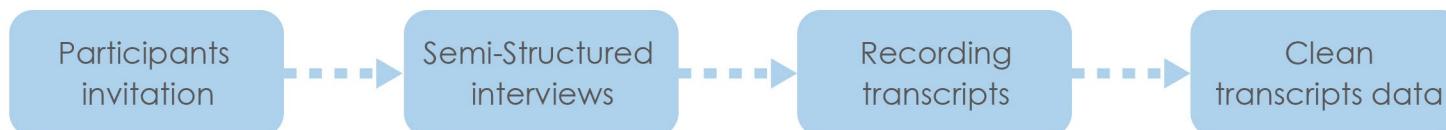
Time and compensation

The average time of an interview was 60 mins

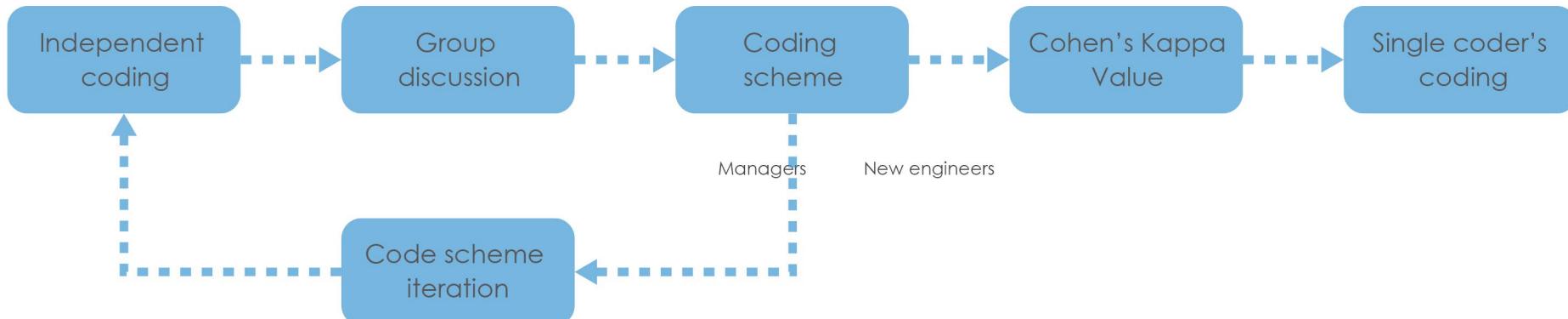


Each participant was compensated with an online shopping giftcard valued \$99.

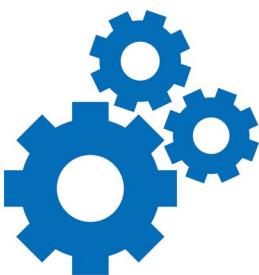
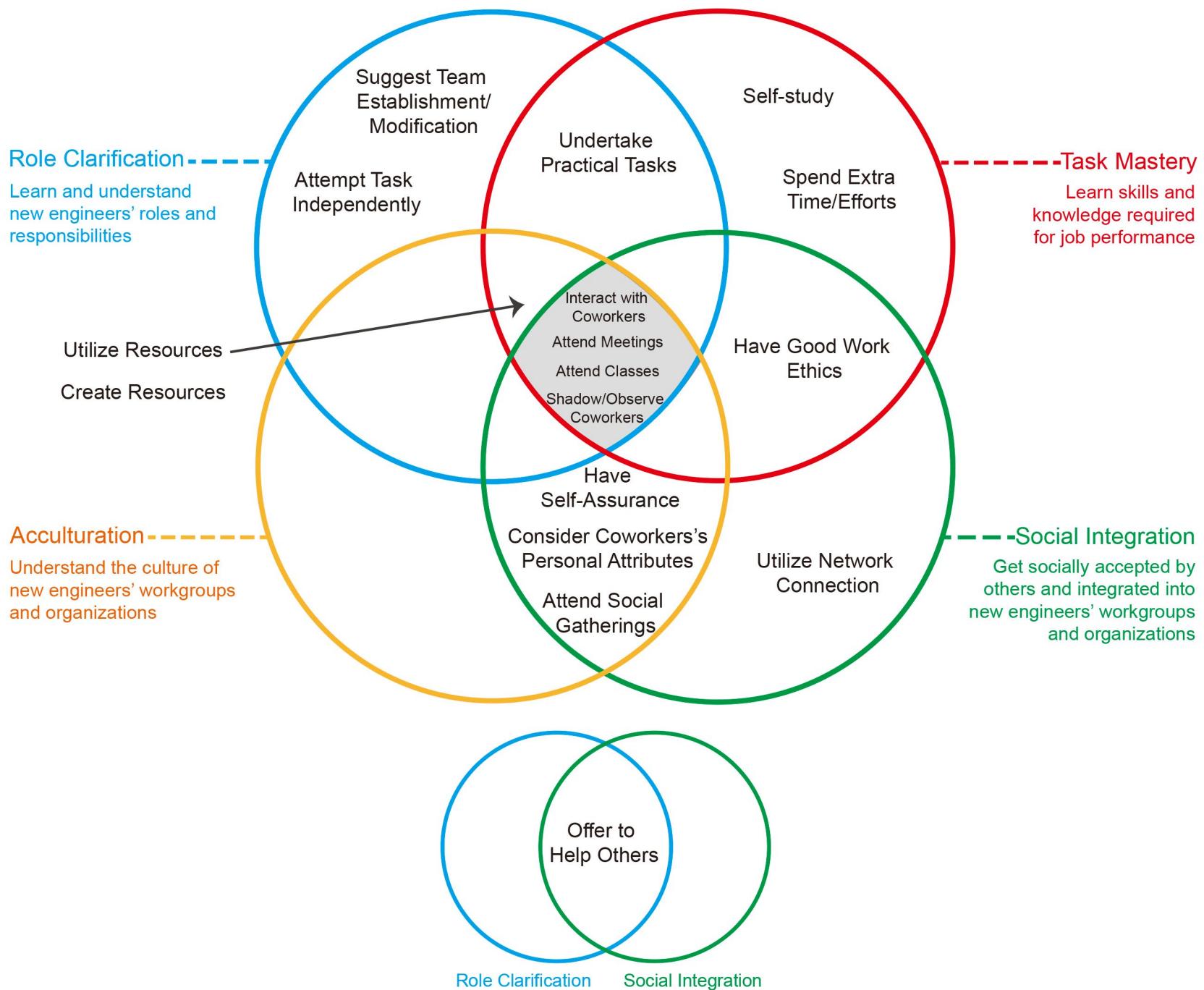
Data Collection



Data Analysis

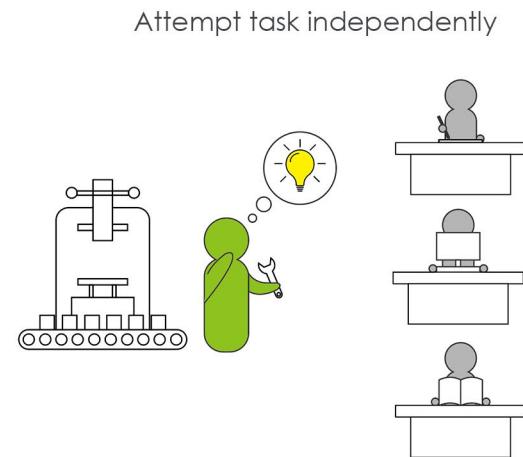
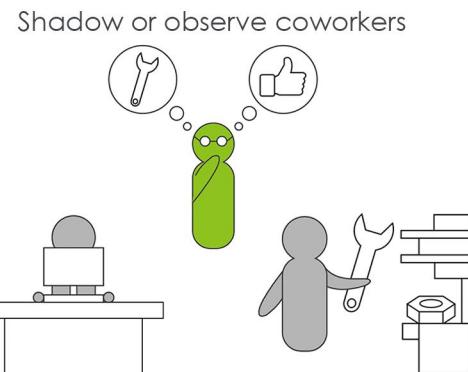
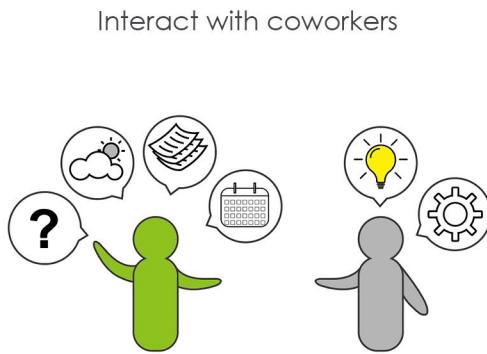


Research Finding: User Behavior Model

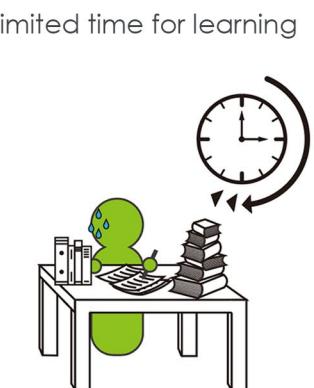
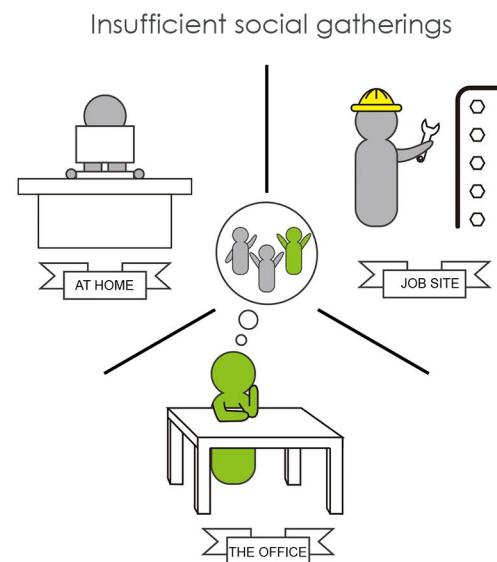
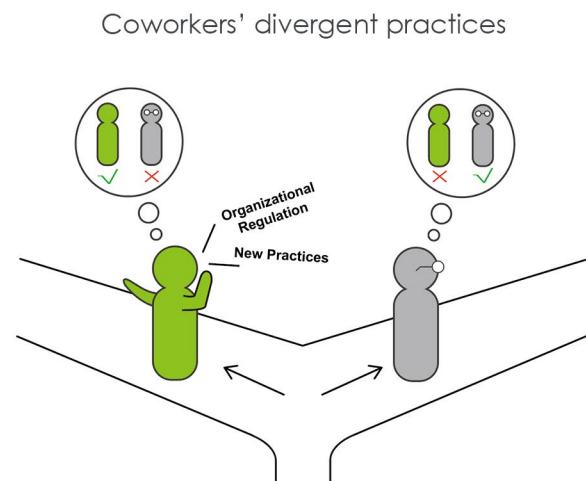


Examples of User Behaviors and Challenges

Visualized Proactive Actions



Visualized Challenges



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



Product Design and Life Details

Emergency Trousers

"Friendly Angles" Bookshelf

"No-Touch" Package

Two-Hole Drinking Box



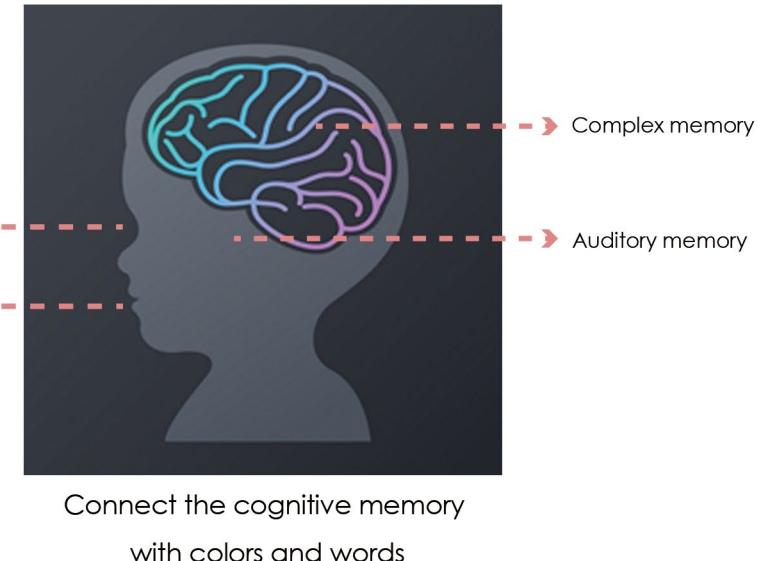
Colorful Daily Life

A game design for 0-5 year-old kids' early education
based on Augmented Reality tech

Design Objectives

Function	Connect color learning and life stuff
Content	Contain sufficient content
Interaction	Require simple operation
Experience	Offer experience of fun

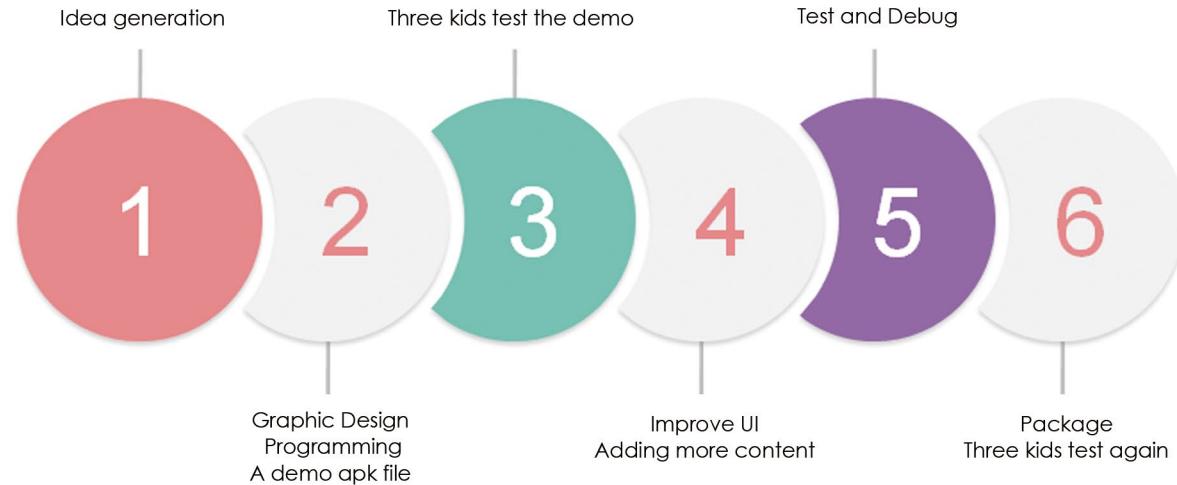
Working Principles



Tools



Development Process

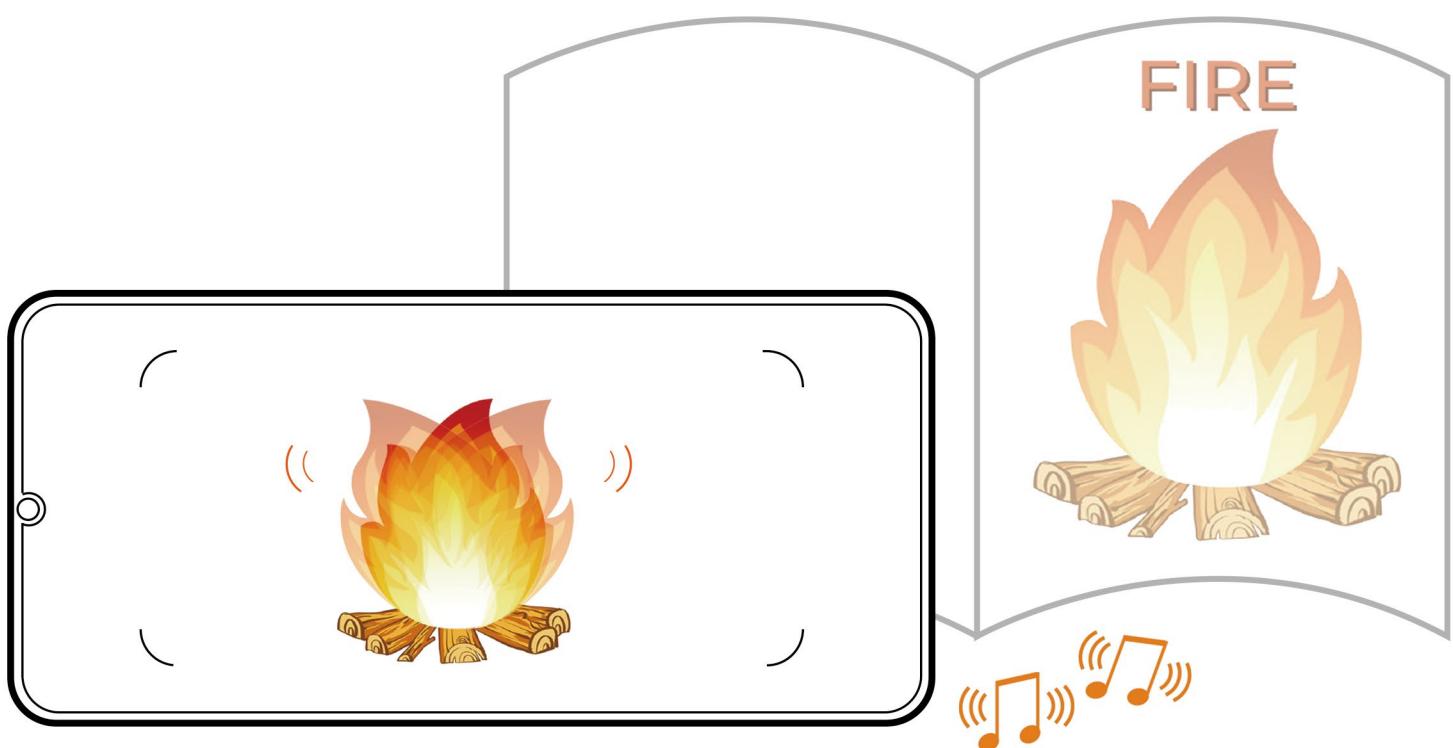


Colorful Daily Life

Function Description

When scanning a pre-prepared coloring book with a mobile phone, the still images in the book are animated on the phone screen, accompanied by sound.

Each image in the book have unique animations and sounds. This way can stimulate children's curiosity and enhance their memory of colors and words.



Final Test Feedback



- Liked the animation displayed with sounds

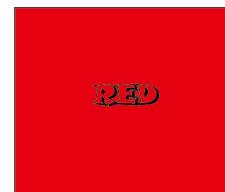


- Seemed to expect to see more animations
- Repeated the words of colors or daily stuff spoken by the parent

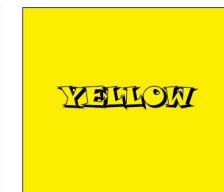


- Wanted to scan by herself after finishing the whole test process

Four Color Domains



RED



YELLOW



GREEN



BLUE



MAPLE LEAF



CHICKEN



BROCCOLI



BLUE BERRY

For downloading the demo files, please [click here](#)



EMERGENCY TROUSERS



The project has won the Red Dot Design Award (Concept Design) in 2015.

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.



NO-TOUCH

The Chips Package Design

Before:



The hands are dirty.



Touch the chips directly.

After:

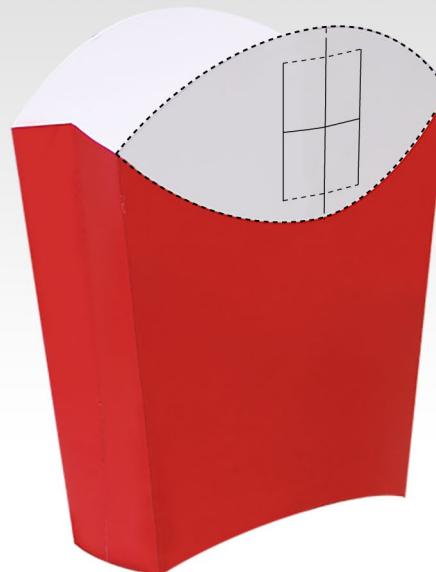


The hands are dirty.



Use the finger covers.

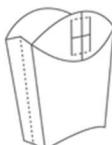
Flat package:



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

How to Use:

①



②



③



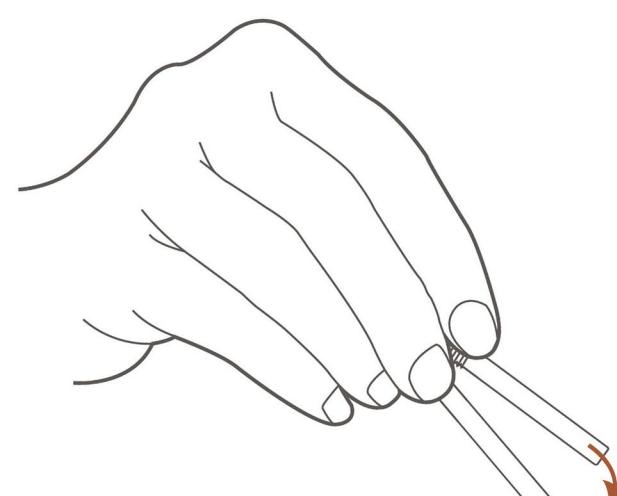
④



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



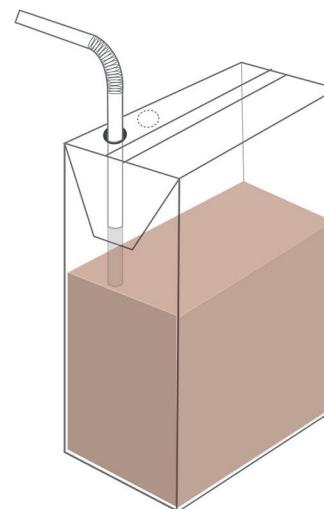
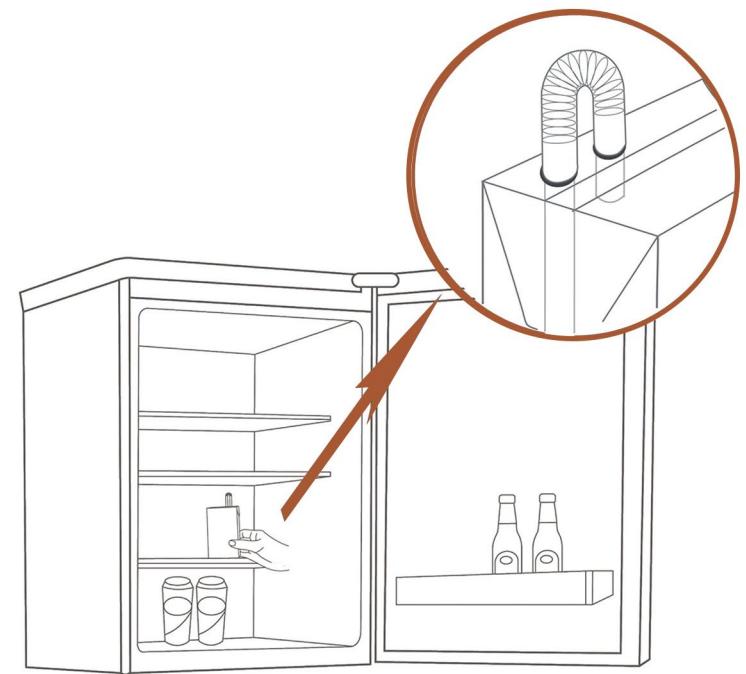
Two-Hole Drinking Box



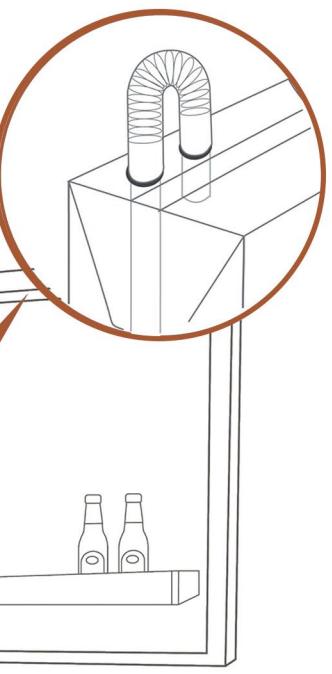
The Two-Hole Drinking Box can save the beverage temporarily when users don't want to drink it up. By folding the straw and sticking it in another hole on the box, the box will be turned into a sealed one.



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



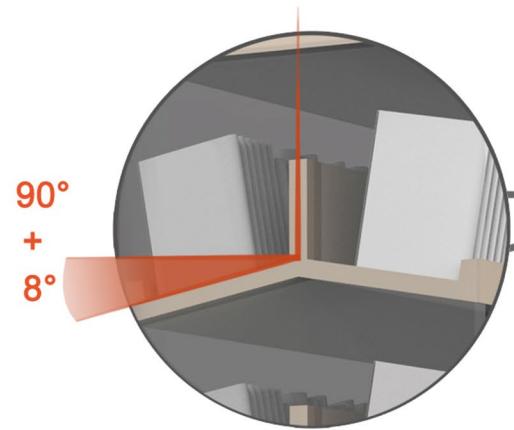
Drink



Keep and Store

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



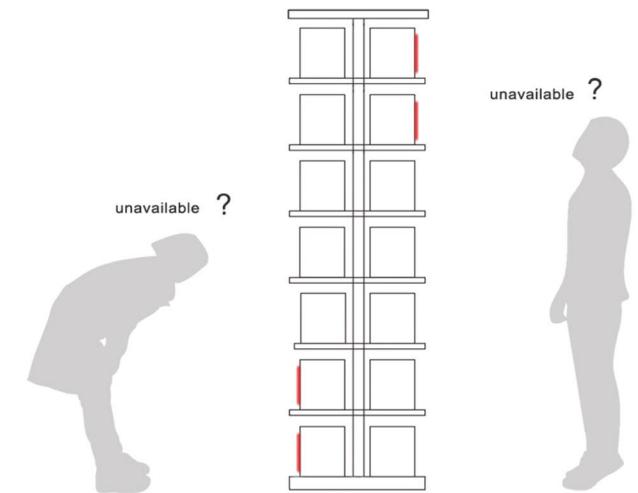


“Friendly Angles” BOOKSHELF

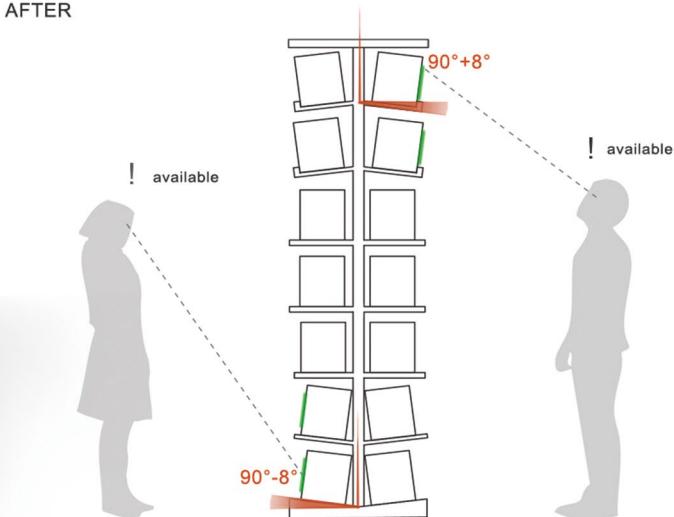
Usually, it is difficult to check the books on the top and bottom shelves. Friendly Angles is an improved bookshelf design for solving this issue. The top and bottom shelves are rotated 8° to make it easier for readers to find books.



BEFORE



AFTER



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





The End



Thank you for your time!