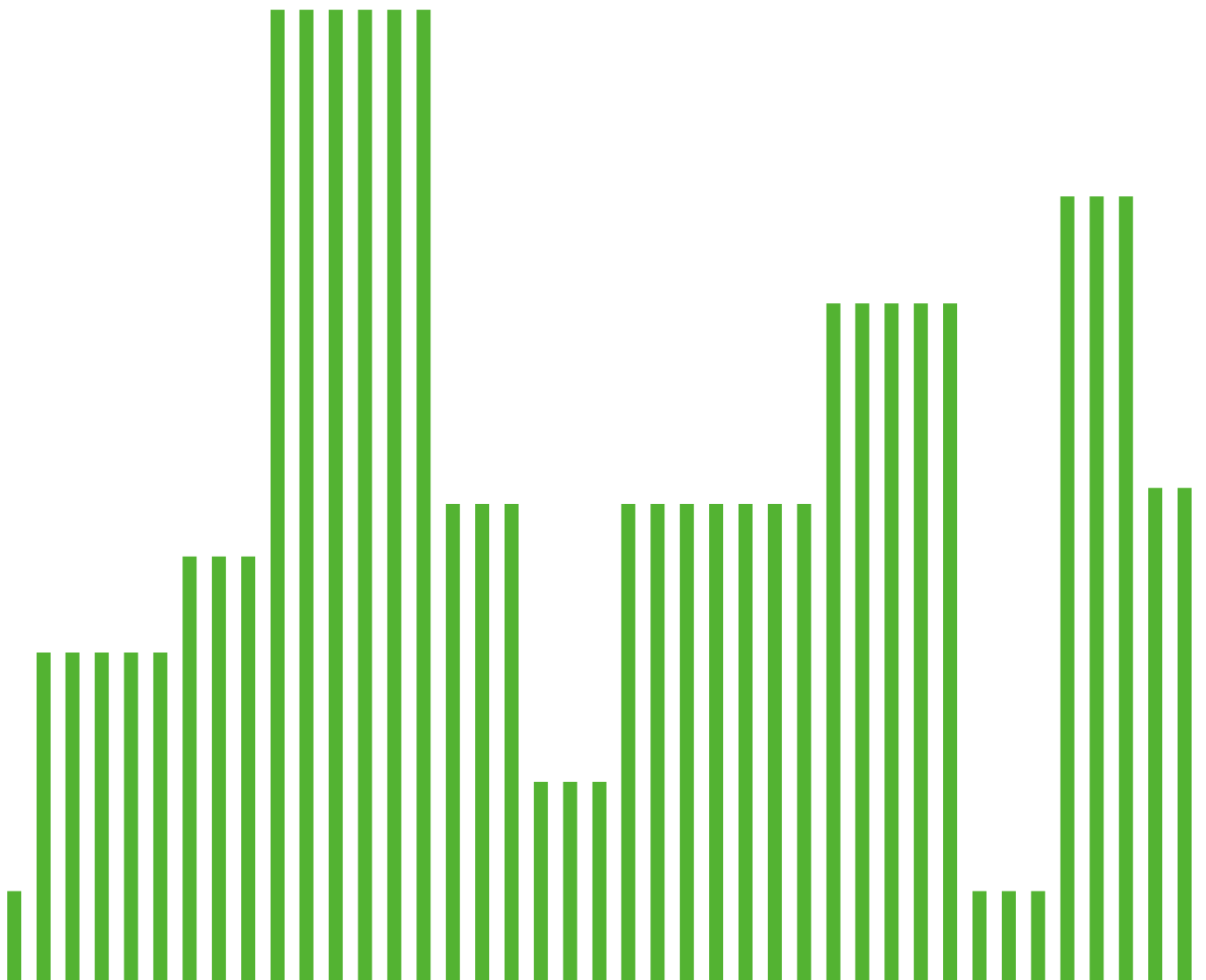


Ranger:

A service design proposal:
Reconnecting nature with the
younger generation in China

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Summary

This report documents the process of a Service Design project that examines the disconnection between the younger generation and nature prevalent in mega cities of China.

The purpose is to create a fun and an interactive way which will impact on the younger generation to better experience nature, understand the relationship between nature and environmental issues and respond meaningfully.

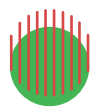
Nature in this context refers to the general realm of living plants and animals. The connection with Nature is not only about the view of appreciation but it is also about the attitude of human beings. The perspective is more of the importance of the connection between nature to human well-being and the development of children brought by experience in nature.

The project outcome is a service focusing on providing an interactive game as the informal educational approach which will build involvement amongst key stakeholders resulting in co-creation of value.

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Context

- 8 | Background
- 10 | Relevance
- 12 | Intent and Aim

• Nature in Mega-Cities of urbanized China

In recent decades, China is experiencing rapid urbanization and there are more than 100 cities with a population of more than 1 million which is predicted to be doubled in next ten years.

"Due to urbanization, China was forced to reconsider its urban landscapes and address environmental issues to preserve natural resources. China and its citizens are still dealing with the repercussions of their rapid modernization through natural land loss, biodiversity loss, and pollution, now common in all parts of the land." (Marks, 2012)

• Construction

City construction not only impacts on the increase of time consumption on commuting but also leads to the fragmentation of natural environment. And that caused less time and place for children to interact with nature like parks in cities.

• Lifestyle

Mega citizens have a high degree of acceptance of technologies. There is a lot of daily life dependency on mobile phones including young students. High techs such as Augmented Reality are applied in more and more games and exhibitions targeting the younger generation. These more exciting new attractions make nature less attractive to children.

• Environment

Environment pollution is one of the most serious issues citizens and government are facing. Therefore, in this context, nature and environmental education are becoming more and more crucial in China, especially among the younger generation.

- **Children in Mega-cities**

“City kids in China became cave-dwellers in an urban jungle long ago. Children lose the ability to experience nature. They can talk at length about whales or cheetahs, but not describe a flower at their feet.”(Liu Xinyan, 2014)



• **Children's Disconnection with nature**

There are two dimensions can be used to describe the disconnection between children and nature. From behaviour side, children are losing intense experience and feeling of nature;

The other is from the intellectual side, they are becoming lack of knowledge and attention about it.

• **Why Does It Matter?**

To individual: physical and intellectual development

Nature-deficit disorder, is a phrase coined by Richard Louv in his 2005 book "Last Child in the Woods" meaning that human beings, especially children, are spending less time outdoors resulting in a wide range of behaviours problems. And in a rapidly modernising and urbanising China, this phenomenon is spreading quickly. And the Impact of from the nature-deficit disorder are followings:

- Lack of interests and respect to nature;
- Lack of natural knowledge;
- Retrogress of five senses;
- Decrease of creativity and imagination;
- Inattention;
- Physical health;
- Mental illness;

To society: sustainable and development

Children's feelings and knowledge about the nature are also connected to their attitudes and actions about the environment issues which Chinese government and citizens are facing right now.



• Intent and Aim

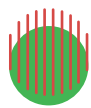
I am interested in the relationship between nature in the broad sense and human. I want to bring people especially children in cities back to natural landscape and accept better nature education before everything will be totally digitalized as we've seen it in many scientific fictions. The book "from animals into gods a brief history of humankind" describes how human have been changed their roles and attitudes towards animals in humankind history. Even so, we still have a yarn of coming back to nature that's why we place plants in our rooms, build natural landscape in our backyard. Not only that, children still keep the nature of always keen on animals. However, urbanization has been shown to be one of the most threat in terms of numbers of species lost and decrease.

"If cities are to support a burgeoning human population, the maintenance of functioning urban ecosystems and the plethora of services they provide will be imperative for human health and well-being." Says Mark Goddard, a biologist at the University of Leeds.

This is also connected with to research for nature-deficit disorder in children. For the appeal of hottest technology like augmented reality, from my previous experiment and interviews in global design future, there are some concerns that mainly is animated things cannot be replaced by technology, especially if we have seen the real one before. And if the next generation has less opportunity to access the real one, do they still care it since the lack of impression and memory might make them hardly feel empathy about live's extinctions.

My aims in this project would be:

- Provoke children's awareness and concerns about environmental issues
- Increase children's interests to nature and improve nature education
- Engage more children in natural environment and provide better interaction



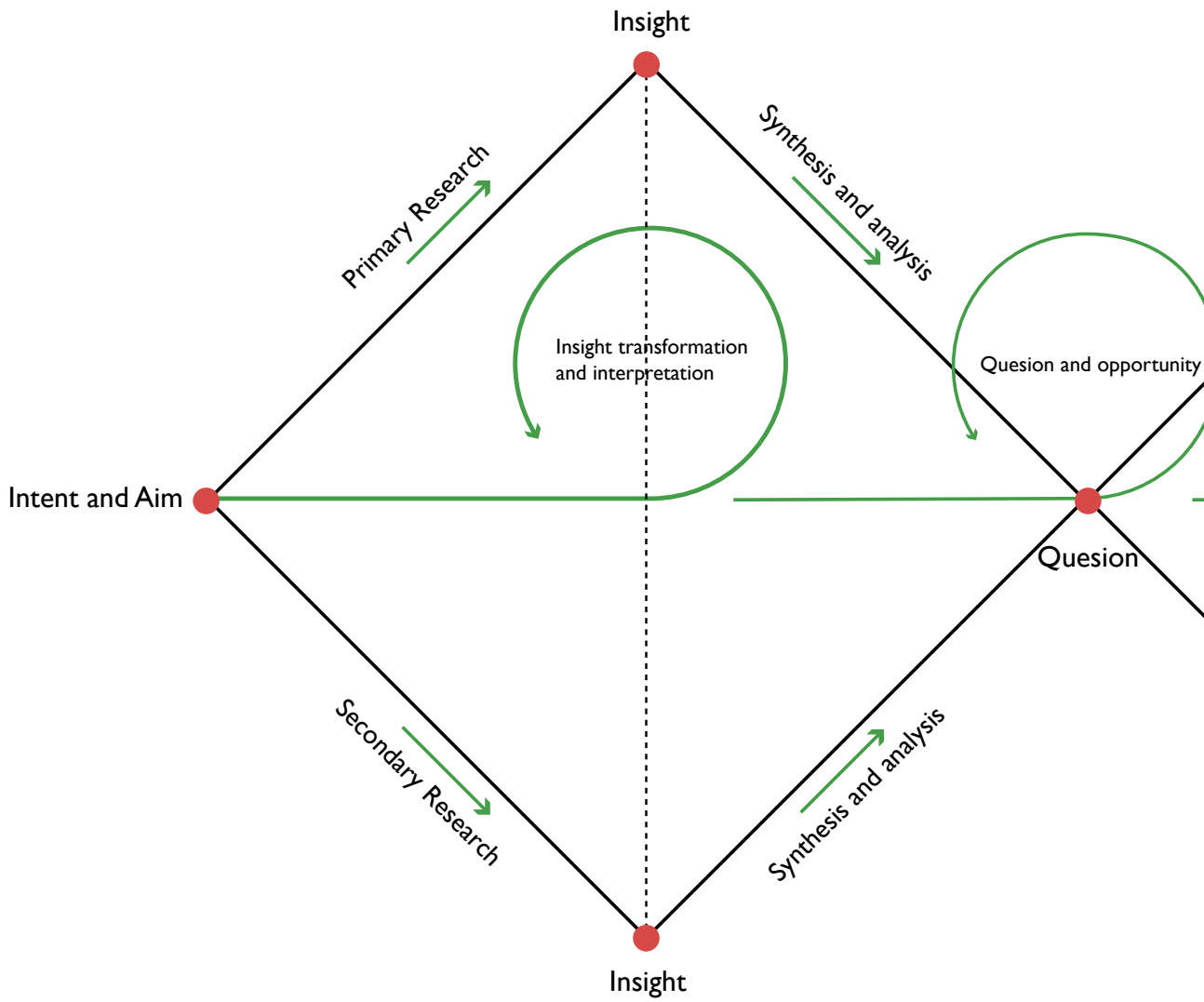
Methodology

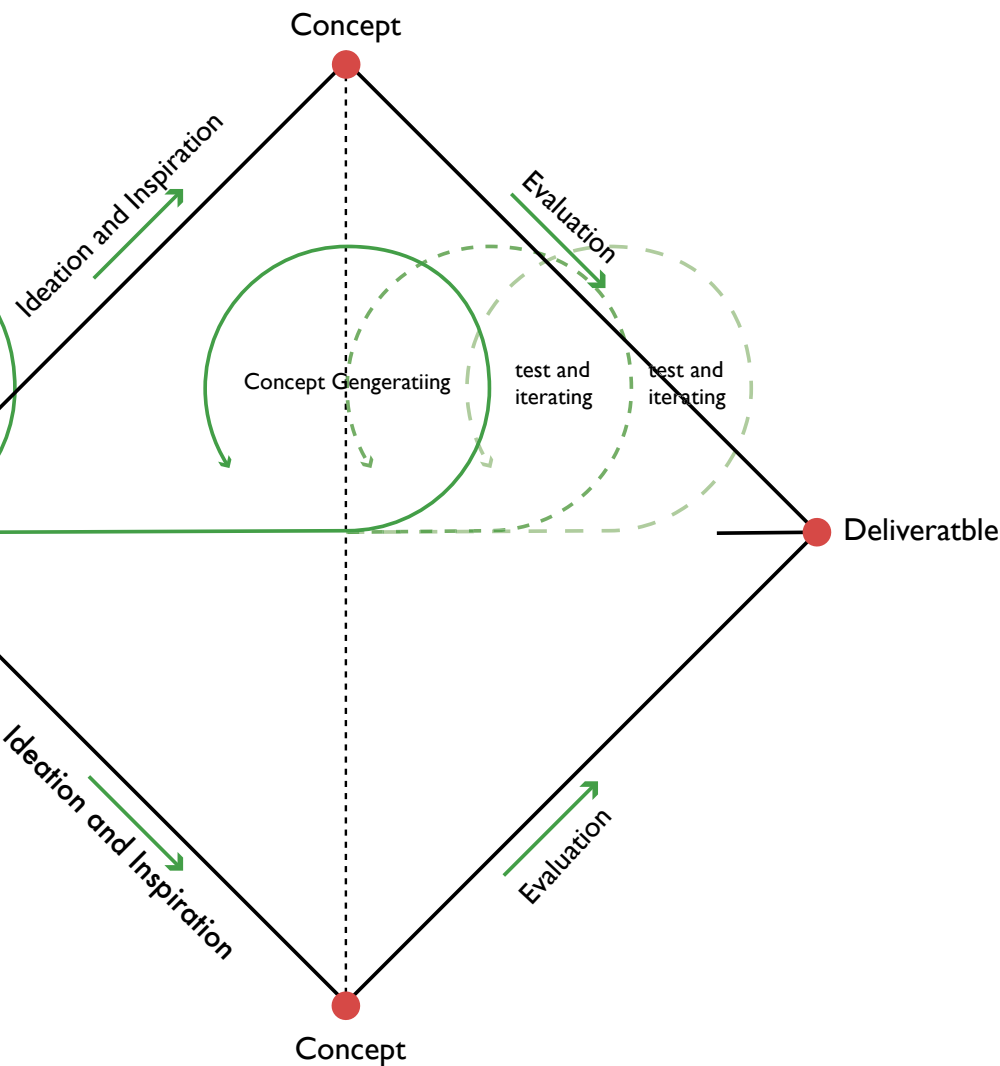
- 16 | Service Design
- 18 | Double Diamond Model

- **Service design**

Service Design has a macro scope. City has a complex social collaborative network in every aspect of life, especially in Mega-cities. Nature estrangement in this context is not only associated with individual development but are more becoming a social phenomenon rapidly spreading in China with urbanization. At the same time, Natural experience and education is a complex system of networks since it includes daily spontaneous behaviour, passive behaviour and service.

Through service mindset and tool, we do quantitative research to figure out all stakeholders' roles, and their relationships and analysed drivers and challenges to them. Meanwhile, we also conduct qualitative research like conducting focus group interviews to develop persona and user journey mapping. A good service design contributes to access customers' needs and drivers more deeply and precisely and will come to a balance of social and individual needs.

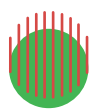




This is an iterative Double Diamond Model (Design Council ,2007) used through the whole project process. The green arrows near the double diamond describe which tool and methodology used for expanding and synthesizing the scope. It's not a linear time-line but has the iterative part in each stage illustrating by the curved arrow. Insight transformation and interpretation has been repeated with the collecting and organizing process which is also same as me with the question and opportunity, concept generation.



Collect cluster topics and map out all stakeholders associated with nature experience service children can access



Discover

- 22 | Territory Map
- 24 | Primary Research
- 40 | Secondary Research
- 44 | Problem Synthesis

Mapping territories associated with nature service to list the observation locations and key people for further research. It has two main parts: nature environments and potential stakeholders.

The red dots are key characters who have a connection with children associating with nature experience and education.

The green dots illustrate the natural environments within the city and the external natural environment like forests, where is out of the city



Museum

Dinosaur models in nature museum



School

A primary school in city centre of Beijing



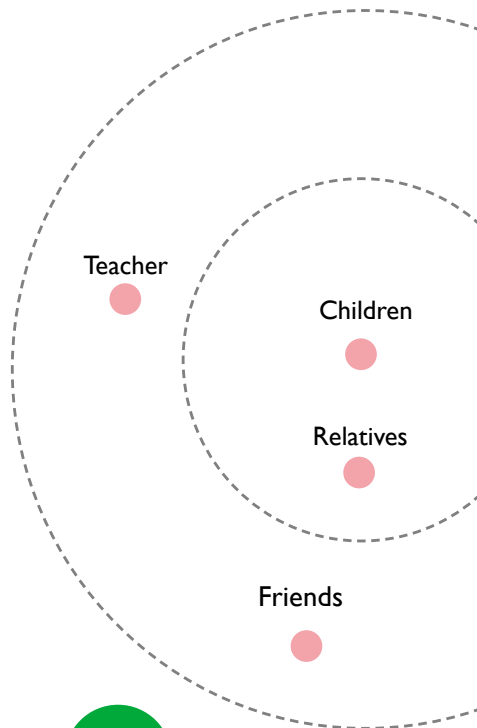
Road

Pedestrians in Chaoyang District of Beijing

Home



Balcony with plants





Parks

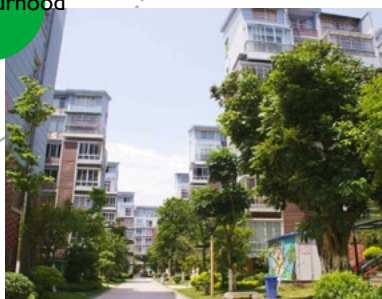
A park with some entertainment equipment for children

NGO

Camp Provider

City

Neighbourhood



A neighbourhood with some trees and plants

External natural environment



A corner of nature camp provider "Dang Di School"

- Potential Stakeholders
- Nature Environment

Research activities and Tools

My primary research activities includes:

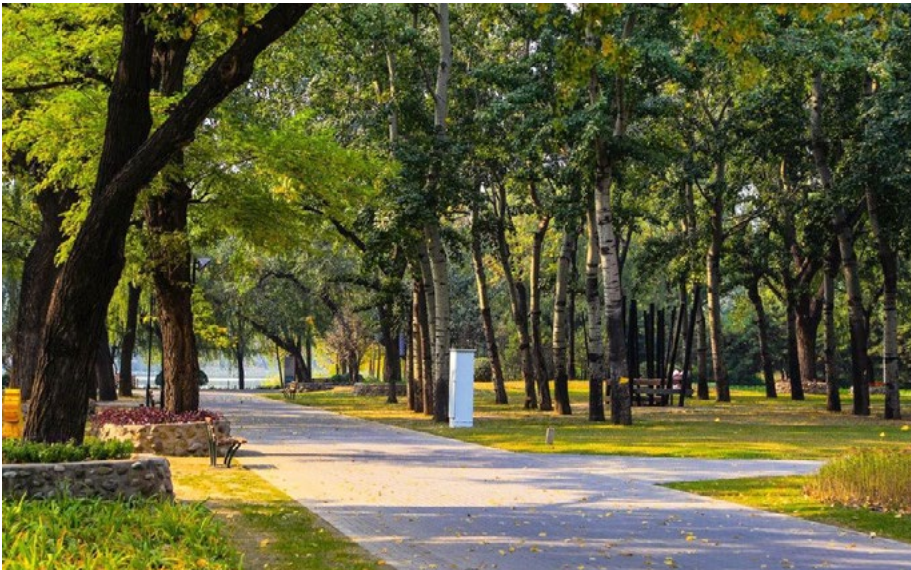
- 10 General observation about more than parks and neighbourhood.
- Shadowing of 3 children's one day life
- 1 participation observation
- Volunteer and co-discovery
- In-depth Interview with:
 - 10 school teacher,
 - 12 parents and children
 - 3 camp provider
 - 2 NGO staffs in nature field.

Tools:

Photography
Records
Video
Notes

• Observation

The purpose of this research is to observe the preference of place and interesting activities of children which allow me to find some common behaviour and lifestyle of children associating with nature. Another intent is to understand nature environment how to interact and be utilized by citizens.



A road in Chaoyang park



The contrast between a park with attraction and a park with only trees.

Two kids and their parent standing in an attraction place in a park; Throw out a bamboo circle and if it covers on any toys, customers can bring back home

Where are other children?

• Participation Observation

The purpose of this activity is to develop an understanding of the culture of the city lifestyle and children's behaviour pattern in this context by immersing myself into the exhibition, listening what they said in a conversation between their parents and sometimes engage their conversations, and observing how they interact with the exhibition equipment.



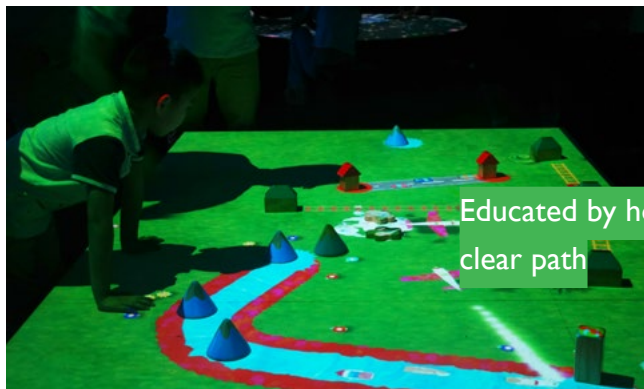
Anon, (2017)

This is a world tour interactive device exhibition located in an art district in the centre of Beijing. The entire installation has been exhibited for six months. every day is in full state. The theme of the children's exhibition hall is interactive "city", "forest" and "ocean". It utilizes two trendy technology: holographic projection and interactive facilities.

Sketch aquarium and it will show on the screen as 3D version



An instruction on the wall



A child is playing a city constructing education game by arranging the position of infrastructure to keep mobility of a train



A kid is interacting with a fish he just drew

Inspiration:

- Immerse and instant feedback
- Interactive technology
- Parent's enjoyment
- Education tool

• Safari in Science Centre Pilke of Rovaniemi

Science Centre Pilke of Rovaniemi in Finland is a museum used for nature education especially forest education. There are lots of educational tools including model, experiments, movies, games and etc.

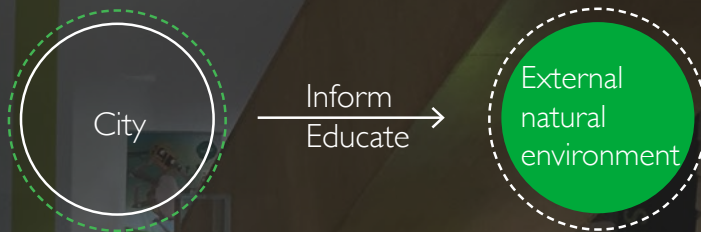
The purpose of this activity is to know what educative tools they are applying and to observe the interaction between children and the tools inside the museum. Then identifying its advantages and strengths for inspirations collection.



Safari in Science Centre Pilke of Rovaniemi in Finland



Recognize the difference of tissues in terms of resources



Utilize city infrastructure to inform and educate children about nature



Check the heavy load to make a swing for children

• Volunteer

I volunteered for camp service provider “Dang Di” for 3 days to help them organize and plan a course about forest and craft. It’s a great opportunity to know the following goals.

Goals:

- Priority of consideration
- Camp forms of activities
- Children’s needs and satisfaction
- Business situation



An equipment in the school

荣棣自然学校	
2017年4-10月主要活动计划	
活动时间	活动主题
4月2-3日	清明节活动：《十里桃花的季节，相约自然学校》
4月30-5月1日	五一活动：《自然学校里的搭建课，HIGH FUN劳动节》
5月29-30日	端午节活动：《粽叶飘香话端午》
6月1日	六一儿童节活动：《自然学校里的山野PARTY》
7月17-23日	夏令营：《项目式学习之蜂巢建筑》
7月29-8月13日	夏令营：《疯狂科学：英语语言与文化与自然探索与任务式学习》
8月13-17日	夏令营：《蜜蜂养成记：跟随脚下，自然学校里的夏令营》
8月20-24日	夏令营：《蜜蜂养成记：跟随脚下，自然学校里的夏令营》
10月2-4日	秋游：《秋游自然学校》

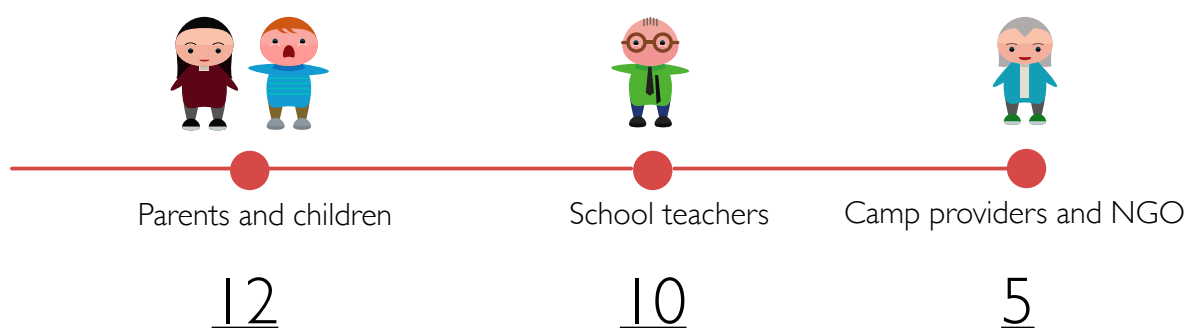
欢迎莅临荣棣自然学校的课程活动和夏令营，也可以提前预约定制活动。

联系人：杨阳
微信：heyen2001 电话 13501103485

Curriculum

- **In-depth interview**

These interviews were to find the connections and interactions between different crucial stakeholders. I conducted the interviews with children, parents, kindergarten, primary school, camp providers and NGO.



Interview aim

- To parents and children:

Comprehend in which ways can attract and allow children to back to nature or urban landscape by interviews with stakeholder.

Understand the parents' role and the barriers in terms of children's interaction with nature

- To school teacher:

Get comprehensive understanding the opportunity for children to access nature in school and their school life

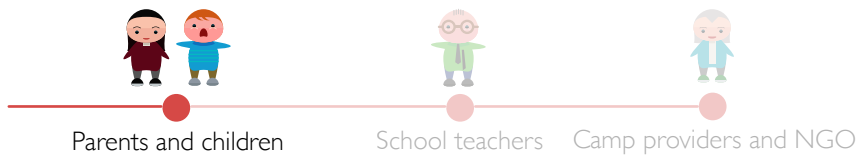
Access to school value criteria and concerns about nature and nature course

- To nature camp providers and NGO:

Comprehend their business model and value measurement

Access to the service process they provide to children.

Understanding their concerns and needs



“ I didn’t arrange special time for this, I prefer the time and place are more fixable, so that I won’t be too stressful for accompanying my kid”

Lu, working for airplane company

”I was born in a village between mountains, I remember how happy I was when I was young. However, I have been losing the thought to bring her because I am too busy to create a special environment for my kid”

Lu, working for airplane company

“For me, I think the time while I am playing my children at home is an good opportunity to your design which will also contribute to our communication”

Zhang, a mother with two children

“ The sensitivity of children to nature is different in terms of their age”

Tian, works as in English teacher

“Sometimes, I was shocked by my children’s brutal to insects and animals”

Li Ai, has a 6 years old daughter

“ My parents help me to pick up my children after school and they spoil him a lot”

Wang Min, has a 7 years old daughter

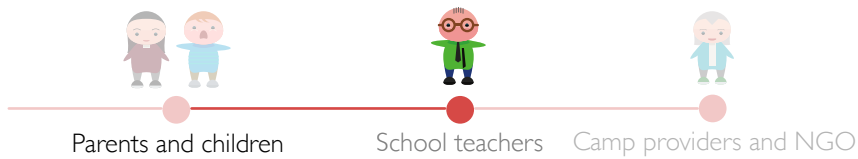
**“Walking dog every day, except the day
I can’t finish my work”**

11 years old, a boy was playing kite

**“I like to have a camp with my friend a lot! But my par-
ents don’t have enough time for this”**

8 years old, a quiet and friendly girl

Through interviews, many parents mentioned that time a barrier. On weekdays, they have less time for their children. On weekends, their plans are very fixable. Another finding is that parents are realizing the importance of accessing nature. So they will empower their children to do outdoor activities like running. There is another fact that a lot of children will stay longer with their grandparents than parents since grandparents have more time to take care of them and have willingness to do that



"We almost don't bring our students outdoors, because we need to ensure that the children are very safe in a square wall built school, We cannot afford the risk and responsibility, as my point of view, I think they need more"

Mrs Zhou, kindergarten teacher in Beijing

"I think they are attracted by children's attraction equipment in shopping mall"

"There is a serious shortage of urban green space planning, unlike some countries like Japan, you can see more pastures, gardens"

Ms Huang, primary school teacher in Beijing

"I teach them nature course once a week, and we won't go out. Mostly, we have it in classroom with some video, experiments, or do some observation in school garden"

"We have planting area in school backyard, normally it is organized by gardener who plants something there"

Mr Hu, nature course teacher in primary school

“I wish nature education can be the core part of basic criteria of basic education in China”

Mrs Li Dan, nature course teacher

Through the interviews with the primary teachers and kinder-garden teachers, there are opposite situations. For kindergarten, they provide average one hour per day for children to access nature within the school. For example, they have planting area. On the contrary, primary school teachers mentioned that nature education cannot be the primary main objectives in the existent education system in China, and for their students, they have “nature course” once a week and it’s the only opportunity for them to do nature education. But the opportunity let children go out is almost impossible as a result of responsibility for safety and school regulation. The above interviews are valuable for me to both identify my potential users and figure out the connection between teacher and students in the context of my project



Parents and children



School teachers



Camp providers and NGO



“Some children are brutal to plants and animals, that’s why we want to the concept of being empathy to nature”

Mrs Dao, Dang Di Nature Camp Manager

“Parents require an absolutely safe environment and as my point of view, some of parents have nature-deficit disorder”

Mr Li, Gaya Camp Teacher

“Children like something can be touched. On the contrary, don’t ask they sit and watch”

Mr Tao, CC Insects Nature School Manager

“We can provide them very nice experience with nature and they feel it’s impressive. But after they go back to city. The impact will reduce and disappear”

Mr Zhao, Manager of Da Di NGO

In generally, camp providers are proud and enjoy their works for children and nature. But they are concern that the impact and stimulation from the camp with reduce with time after children come back to the city and the interaction with new attractions. It’s valuable for me to consider a new approach to make the impact continuous when they stay in cities.

• Finland nature education

The pupils should (National core curriculum for basic education, 2004, p. 39):

- understand the prerequisites for human well-being, the necessity of environmental protection, and relationships between the two;
- learn to observe changes taking place in the environment and human well-being, to clarify the causes and consequences of these changes and to act for the good of the living environment and enhanced well-being;
- learn to evaluate the impacts of their consumption and daily practices, and adopt the courses of action required by sustainable development;
- learn to promote well-being in their own communities and to understand threats to, and potential for, well-being at a global level;
- come to understand that, through their choices, individuals construct both their own futures and our common future; learn to act constructively for a sustainable future.

Criterion	Nature school	Environmental school
Objectives	fosters sustainable way of life, environmental responsibility, and nature knowledge; strengthens interaction skills; supports the belief that an individual can influence and participate.	fosters sustainable way of life, environmental responsibility, and life-long learning; supports the belief that an individual can participate and influence on the solution of environmental problems.
Tasks	supports early childhood and basic education to achieve the objectives presented in the curricula.	supports early childhood and basic education to achieve the objectives presented in the curricula.
Target groups	pupils, teachers and educators in early childhood and basic education.	the rising generation and educators.
Type of action	continuous, concerning the whole area.	continuous, concerning the whole area.
Staff	full-time, professional and informed on EE.	full-time, professional and informed on EE.
Learning environment	mainly nature	practical action in living environments.
Main content	nature and effects of human beings on their environment	relationships between human beings and environments; local and global environmental problems
Methods	knowledge-based and experiential action to create positive environmental attitudes; practical action taking into account needs of learners	knowledge-based and experiential action taking into account the needs of learners
Teaching	integrative and holistic	integrative and holistic
Evaluation	gathers feedback and evaluates and develops effectiveness of its activities	gathers feedback and evaluates and develops effectiveness its activities

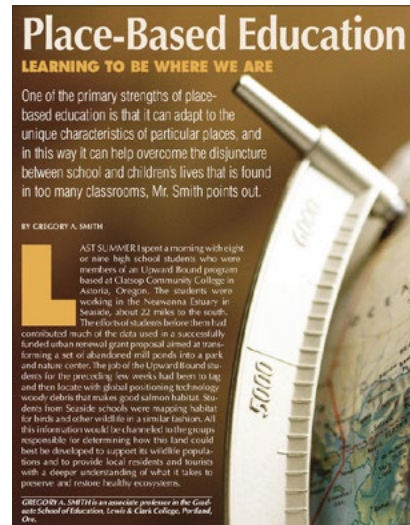
Table 1.

The strong connection between the objective of nature school, national curriculum and society for basic education

• Place-based study

“What we mean by place-based education is always co-evolving collaborative activity that makes salient the cultural, historical, political, economic, environmental, social, and physical aspects of what and how we teach.” Christine A. Coughlin and Susan A. Kirch, Place-Based Education: A Transformative Activist Stance

Place-based education utilizes the local environment and ecosystem as the core of study instruction. like the utilization of school yards, neighbourhood, a contribute to nature appreciation and enthusiasm for learning, etc. And it's becoming a common education approach around the world.



Two kids are observing ants by magnifier

Zoom in the nearby place
It's an opportunity as a result of flexibility of time and location

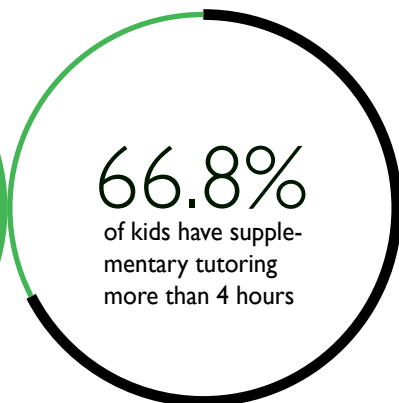
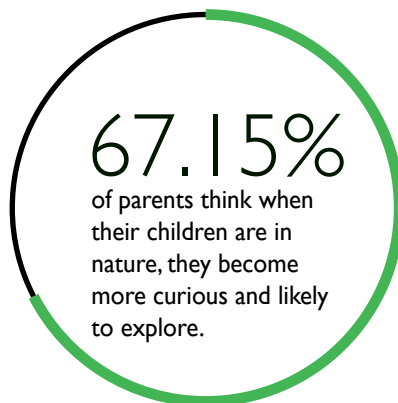
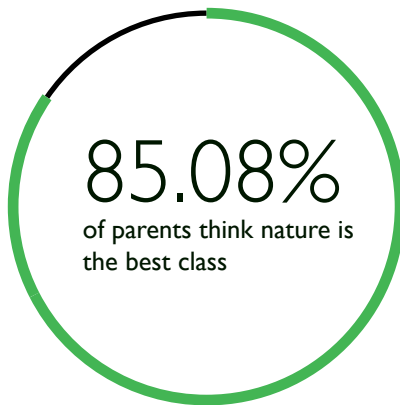
- **Data collection**

The statistics gathered from the open data section to demonstrate various realities: population, parents attitude and children's status.

2.13 million were 0-17 years old in 2010 in Beijing



50 million people is predicated will live in Beijing in 2050



Most parents have awareness about the influence of nature experience to children, but there are gaps caused by safety, tutorials and etc.

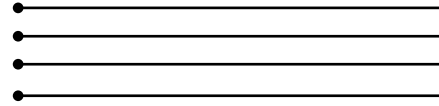
The problems in different perspectives are organized and synthesised into four aspects which will become design consideration. The line shows the connections

Problems:



Children:

Lack of interests to explore nature;
Too many attractions and homework;
No company;



Parents:

Focus on exam-oriented and intelligence education;
Limited leisure time to bring them out;
Worry about safety;



Camp Providers:

Lack of promotion channel;
Lack of continuous impact to children;
Holds events too far;
Less attractive to children;



Education system:

Stress from study;
Too much homework;
Too less practical nature course
Supplementary tutoring ;

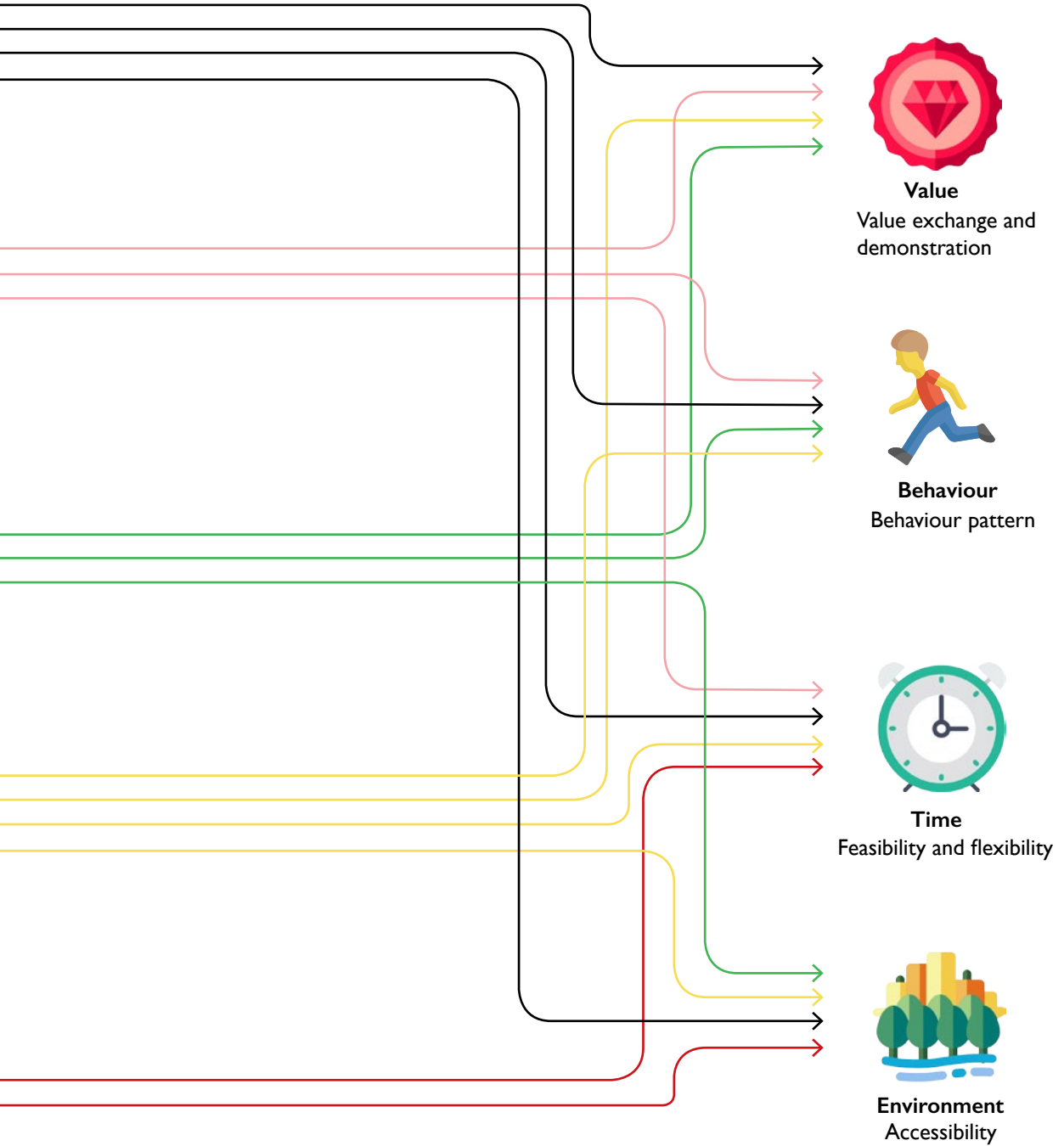


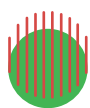
City and politics:

Limited green landscape;
Air pollution;
Travel jam
Don't allow to touch plants



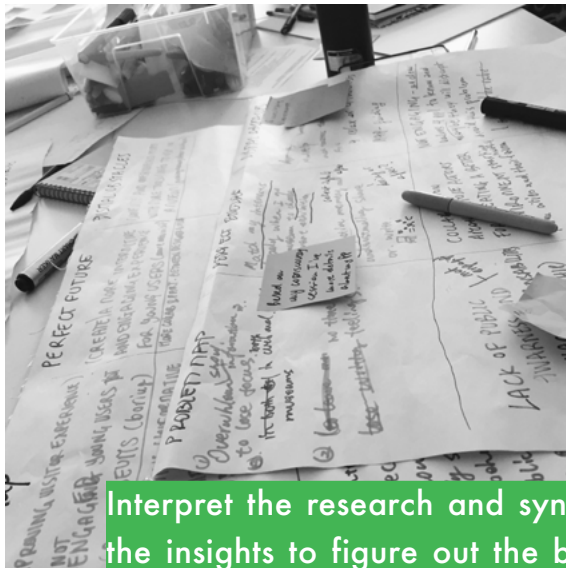
Considerations:





Define

- 48 | Insight
- 50 | Define Users
- 52 | Persona and Journey
- 58 | Opportunity
- 60 | Question



Interpret the research and synthesize the insights to figure out the barriers and opportunity

In this paragraph, the findings from the discovery phase are briefly described in the way of providing a useful forward to the children and potential stakeholders.

- **Utilization of easily accessible nature environment**

The definition of the easily accessible natural environment are the places with plants within cities, including roads, neighbourhood, parks, etc. It makes time and places more fixable for users.

- **Connection with nature course**

Primary school has nature course once a week mostly in the classroom and it is an opportunity to connect with them.

- **Exploration, Gamification and Reward**

Children like things make them feel excited and have a sense of achievements. Moreover, a reward system will contribute the enforcement of interests

- **Utilization interactive technology**

City families have a high degree acceptance of the technology. Interactive technology gives children instant feedback from their gestures and movements which increases their interests and curiosity. Meanwhile, parents also tend to enjoy trendy technology through my participation observation..



- **Contribution of relatives' knowledge in nature education**

The last generation has more knowledge about nature, and it is an opportunity to utilize it as an educational resource which also contributes to their communication.

- **Camp promoting and service evidence design**

Promoting camp and organizing camp information by creating a public platform. Designing service evidence after camp participation to make the impact continuous

- **Utilization children's empathy to nature**

Creating an empathic scene to children for nature education.



Why focus on them?

- **Primary school children(primary)**

They have less opportunity and fixable time during weekdays, and they are spare only after dinner. Most of them will stay at home to look some cartoon, and some of them will go to walk dogs in the neighbourhood with their relatives.

- **Multiple attractions**

Their time are fragmented by attractions in the city like movies, playing games, and so on. These more exciting activities makes nature less attractive

- **Health and Intellectual development**

Primary school children are in one of the most crucial stages of health and intellectual development. However, nature estrangement has intensive negative impact on their developments.

.

- **Camp providers**(potential)

They are providing camp activities in Beijing for city children. However, there are some challenges they are facing.

- **Lack of Promotion.**

Nature camp business is just developing in China. Their promotions are usually based on Wechat(a personal social media). Customers have to look each camp's account to access more information. It may lead their promotions only in a limited connection circle.

- **Lack of continuous impact**

NGO holds many nature camps in the external natural environment, and their main purposes are not only about business but also about the impact and awareness increase. From research, many camp teachers mentioned that the impact would lose after children come back to the city and it's their pain point.

- **Persona**

A persona is a representation of a specific audience group, based on information from research. It includes a person's personalities, needs, wants, relationships and cultural backgrounds. The key features will be taken into account throughout the design process.

- **User Journey**

The user journey map was created to illustrate the general daily life of the persona and to identify some possible touchpoints and opportunities.



Primary school student

"Sometimes, my grandparents will ask me to come with them in parks, but I feel bored except playing with my dog dingding."

Name: Jia **Age:** 8

Education:

- Studies in primary school.
- Has a wealth of knowledge about math
- Has 3 hours supplementary tutorials every week

Personality:

- friendly, caring animals and curious about new things
- is sometimes stressful because of study

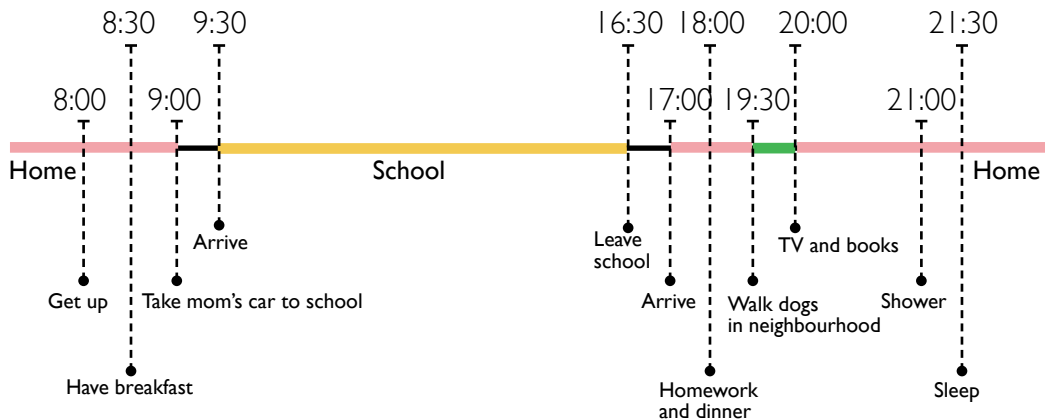
Relationship:

- Sometimes go to parks with family members
- Likes to play with her friends in neighbourhood
- Walks dog every day

Needs/Wants:

- Relax herself
- Share her knowledge
- More time for leisure
- More outdoor activities
- More communication with friends

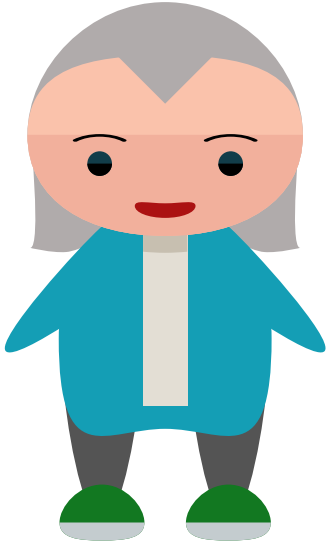
• Journey on weekdays



• Journey on weekends



The first persona developed is Jia, a primary school student who doesn't have too much time to go out on weekdays while she has multiple choice on weekends. She usually goes to the cinema with her parents to see a superhero movie. She has interests in exploring new things and become knowledgeable. Moreover, Jia would like to have more communications with her parents and friends. Speaking of experiencing nature, she doesn't have so many interests now, since for her it is equal to walk.



Manager of camp provider and NGO

"The nature education is developing in China. However, I still don't know how to make children keep their interest and impact after participating my camp."

Name: Jing Dao **Age:** 48

Main work:

- Plans camp activity and promotes camp through we-chat
- Supervises and guides children

Personality:

- Loves nature and kids
- Beliefs nature experience is valuable to children
- Knowledgeable
- Enjoys stay in nature environment

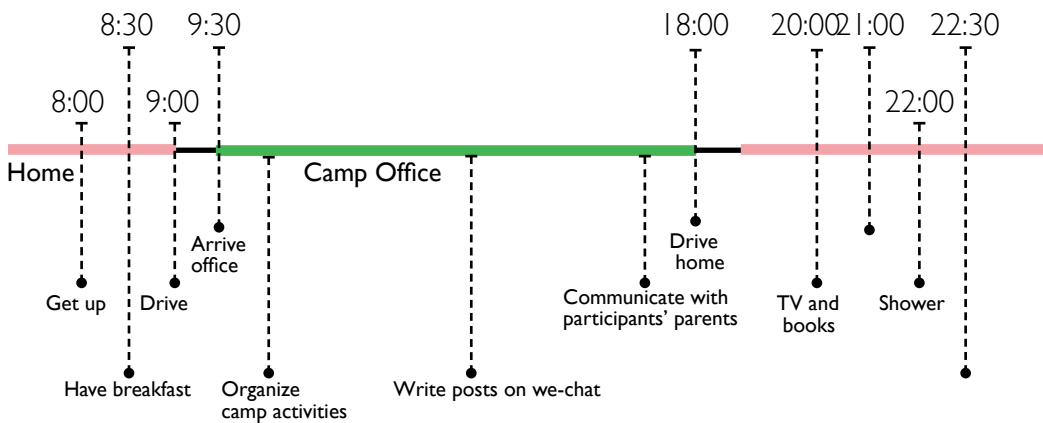
Relationship:

- Builds good relationship with children and their parents
- Has connection with some other NGO
- Has limited connection with schools and government
- Recruits part-time teachers through acquaintances

Needs/Wants:

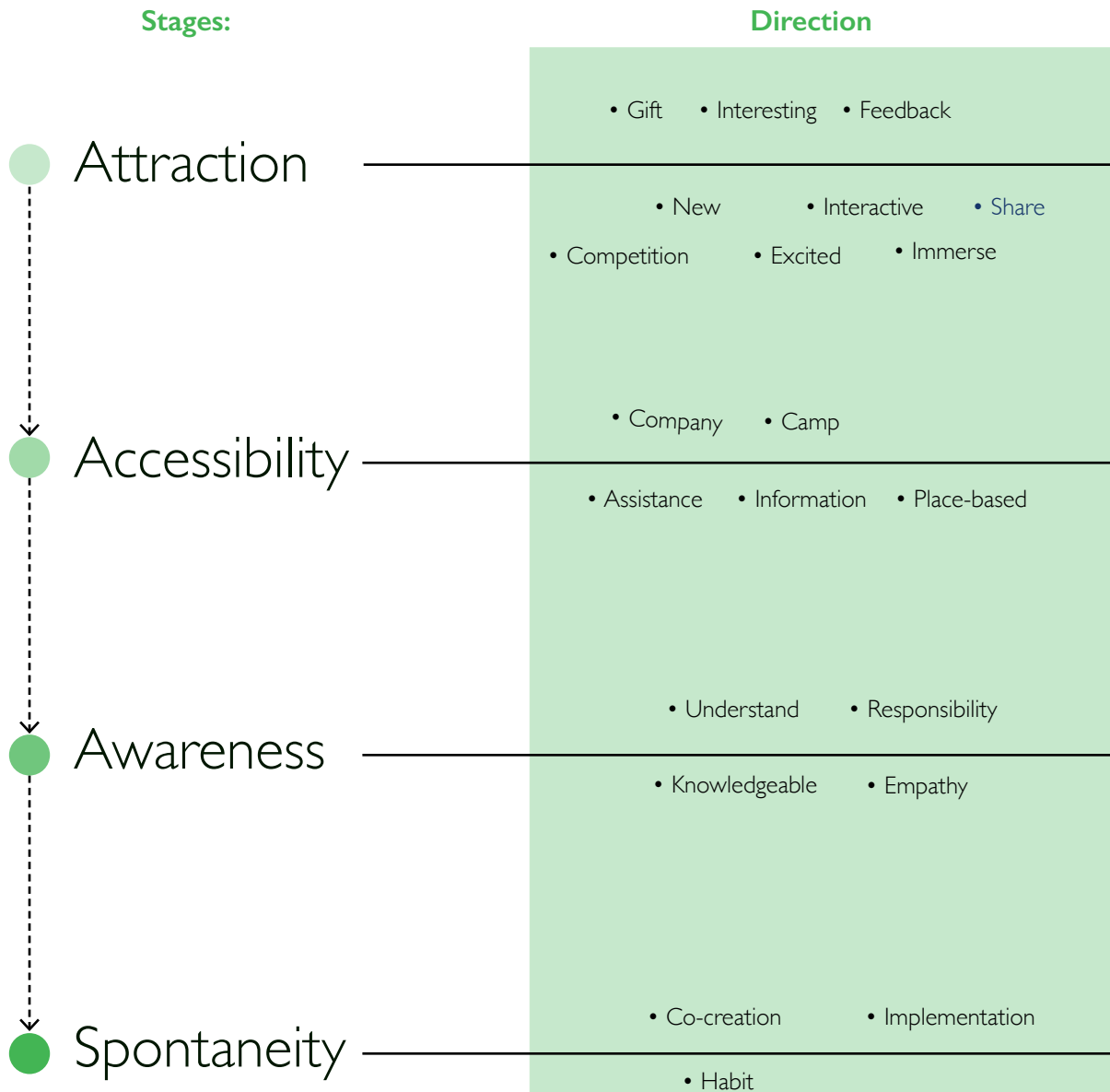
- Provides various activities
- Promoting
- Get parents involved
- Provides children continuous impact

• Journey



Jing Dao is the second persona created, and she synthesizes the experiences of two experienced camp provider managers who are interested in providing children better nature experience and impact on nature education. She believes the value of accessing nature and is trying to promote this concept. Meanwhile, she also wants to promote her camp activities and try to organize it more exciting and meaningful. But her concern is that the impact will disappear when children come back to the city from her camp.

From the above definition process and insights pages, opportunities have been identified regarding four stages: attraction, accessibility, awareness, and spontaneity. The words in the green patch are the directions that contribute to achievements of outcomes. The right side represents the possible outcomes.



Possible outcome

Make it fun!

→ **Get parents and children involved**

Create more opportunity
to join nature activities

→ **Utilize camp and easily accessible nature**

Understanding and feeling

→ **Create awareness about environmental
issue by empathy**

Change

→ **Become spontaneous to accept nature edu-
cation and experience**



How to develop an interactive and interesting way to engage more children to better interact with easily accessible nature and promote camp business?



Develop

- 64 | What if
- 66 | Co-design Workshop
- 70 | Ideation
- 74 | Initial Concept
- 76 | Prototyping
- 78 | Test
- 82 | Iterating
- 84 | Final Concept

Utilize research insights and un-linear inspirations to develop a concept and find the possible new connection to create a service ecosystem

What If:

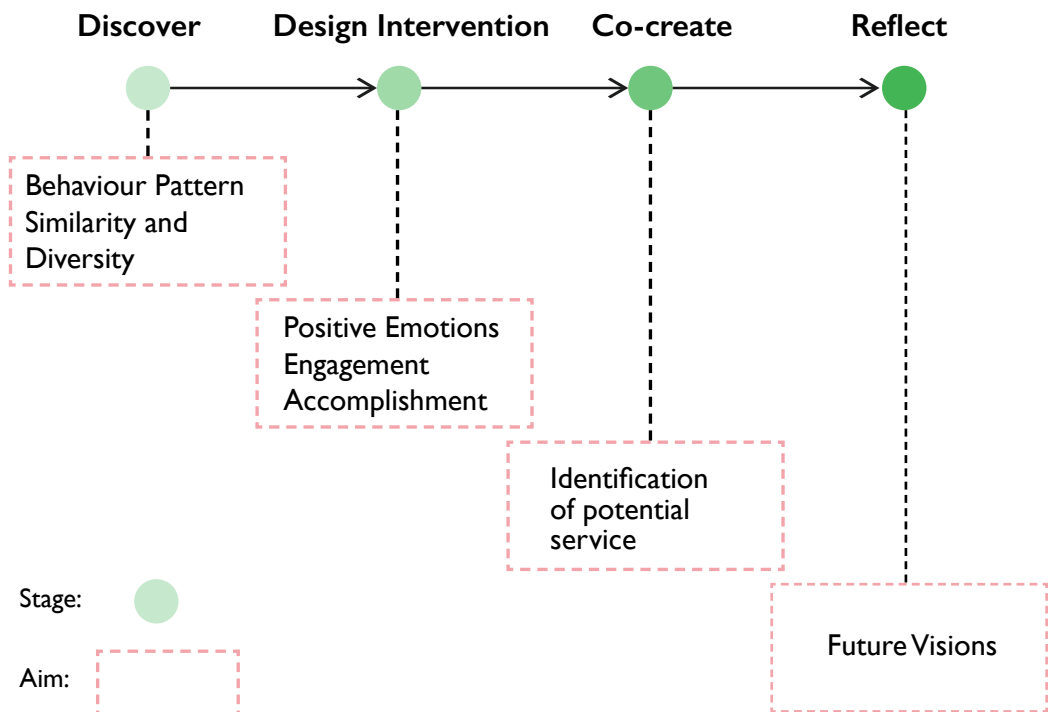
Regard the whole city as a maze and design a plant exploration and identification game for child?

It was an initial idea for this project corresponds to insights and question. To test the possibility of this what if, I designed the below Co-design workshop. Meanwhile, using this game as a container to access more user and co-creation.

"The co-design activities typically aim at searching new potential directions and producing design ideas and solutions. However, they can also be about making sense of the topic or expressing experiences collaboratively." (MattelmKki and Froukje, 2011, pg. 2)

• Aim and stages

The purpose of the co-design activity was to attain further insights from target users about four aspects regarding different stages from discover, design intervention, co-create and reflect as the following map illustrating.





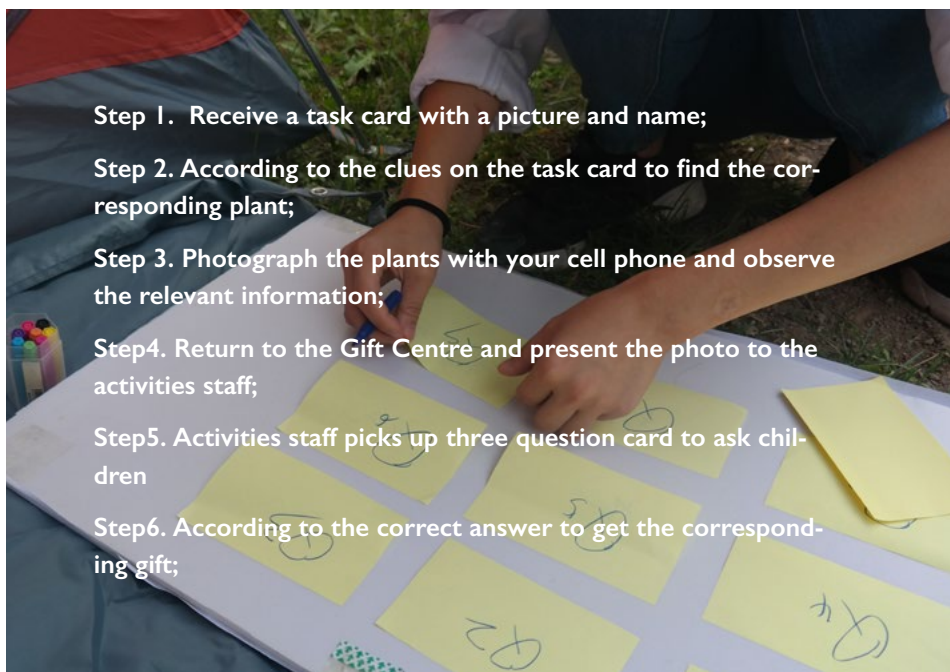
Identification Cards

Tools:

Identification Cards
Google Glass
Video
Interviews
Question Cards
Posters

• Process

The co-design activity invited 10+ children and parents to participate, and it took place at Chaoyang parks, one of the biggest park in Beijing. The main process of the workshop is the following steps of plants exploration game while combining interviews and behaviour recording throughout the process.



Step 1. Receive a task card with a picture and name;

Step 2. According to the clues on the task card to find the corresponding plant;

Step 3. Photograph the plants with your cell phone and observe the relevant information;

Step4. Return to the Gift Centre and present the photo to the activities staff;

Step5. Activities staff picks up three question card to ask children

Step6. According to the correct answer to get the corresponding gift;

Prepare plants question cards

- **Outcome**



Two boys are extracting identification cards

- Entertain, Explore, Share
= Advocate, Influence, Education

This co-design workshop had a great outcome. Both parents and children enjoyed it in the process of exploration plants and answering the questions to get the gift. The following pages are going to describe some deeper insights and how I ideate concept from them.



A boy was showing the cards which he already finds the right plants.

The ideation was based on the outcomes from co-design workshop as a result of its success.

● Regard exploration and plant identification game as a core of concept

From the above co-design workshop, Children tend to enjoy accepting a mission and challenge to find something in the “maze”. Some children even were active to sign in for next workshop. The interesting point is that lots of parents participants also are well engaged in exploring and communicating with their children.

“Hey, Can I ask whether I can participate next week?”

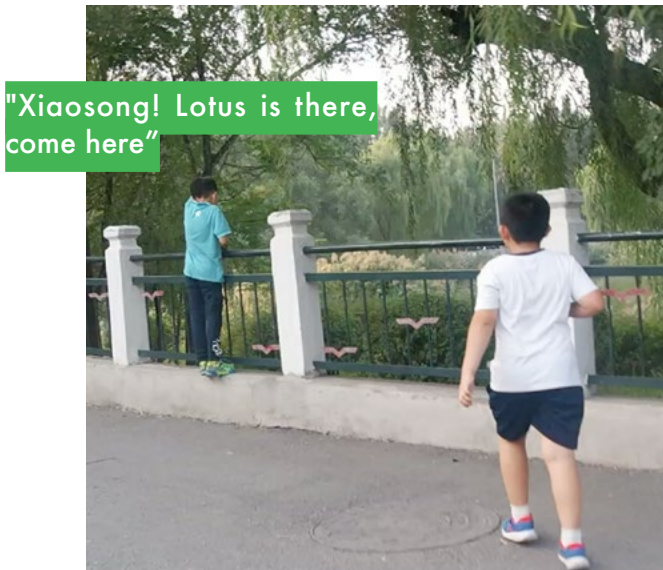


● **Add knowledge exchange and contribution into the process of concept.**

From the in-depth interviews, participants mentioned one of the reasons is that the last generation has more experience and knowledge of nature. The game bring back their interests which were as lost in cities' busy life. If the concept includes a process of knowledge contribution, it will makes children spontaneously find the correlated knowledge by communicating with their parents or read books.



● "Sharing my finding" can be designed as driver.



A boy was showing his findings to his best friend

Sharing and reasonable competition will make them more active about the “game.” It will empower them and facilitate their communication through telling their friends’ their secrete findings. Collaboration is increased.

● Collect or adopt a plant by applying techonology

The collection has different forms: from the physical collection like herbarium, stamps and to a virtual collection of the books in iBook of iPhone. To satisfy the multiple needs, plants collection in this case also can be digitalized which is easy to organize, and interaction is flexible.



herbarium



Card Game

- **High-frequency and short-term stimulation need a system to make interests continued.**

This process of exploration and adoption will engage them to nature environment. However, it may be lack of further interaction with nature. When we were in the workshop, we found that they were more excited when they were exploring and looking for something. On the contrary, they lost a lot of patience during the observation so that they could not recall the information about the target plant to answer the question we prepared. Therefore, it is necessary to start from an interesting exploration game but also make them further interested and understanding in plants. So, based on the above analysis, a virtual planting process is considered, which will connect the children's natural knowledge to the garden level.

Again, challenge and difficulty are also motivations:
In China, there are serious environmental problems such as Beijing's air pollution. So I thought of a possibility:

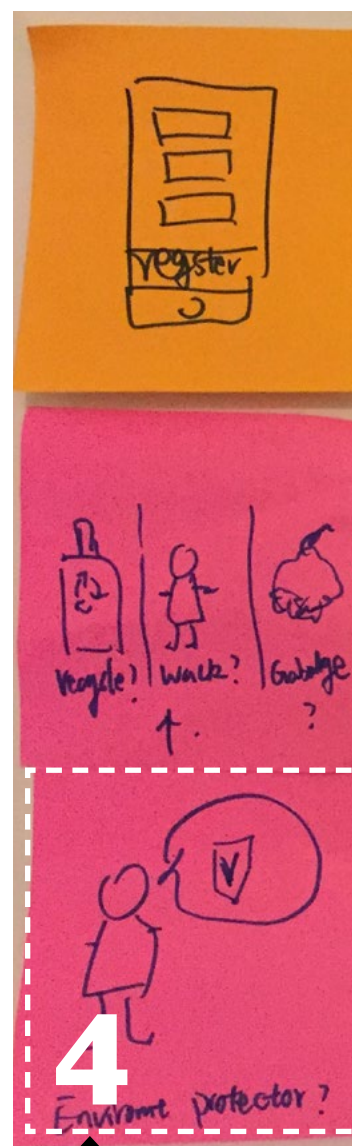
- **Reflect the real world environment issues on their garden to empathy children**

From the ideation process, this is a concept of “Ranger”:

Children regard the city as a maze to find the “treasure”(plant) they want to collect and plant it on the app. Sometimes, they will meet some problems come from the reflection of environmental issues in reality. But they can overcome it by take action and upload a proof.

Prototyping is a stage where one executes basic ideas for testing purposes to see the validity of an idea. Once I have identified a possible solution from my inspirations and insights, brought by research and co-design workshop, it was necessary to test how it works in the user’s perspective. The last co-design workshop had great results which showed the value of exploration and entertainment.

Furthermore, I have combined the interactive technology in the digital application for collecting and planting plants. This is rapid posts mapping to describe the most important four functions in initial concept that need to be prototyped.



Overcome environment problems

Take action and upload a picture to overcome environment problems

● Explore and Scan

Find a tree to scan and answer it the question on app to collect it as virtual plant.

Concept mapping



● Plant it

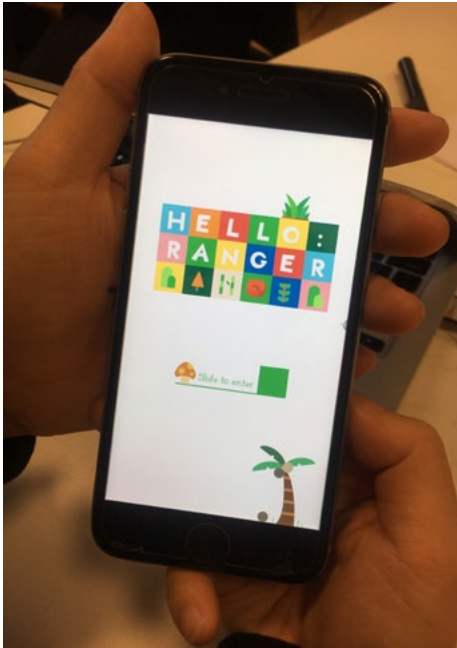
Plant virtual plants on app to Level up by watering, weed out, etc.

● Share

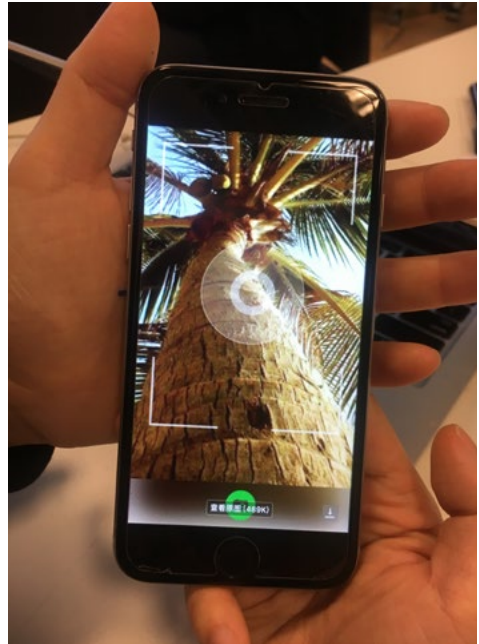
Locate on the map and share to friend

• App Prototype

Digital prototyping is used for evaluating how the idea of using a plants exploration and collection application would create interaction amongst children, thus creating an impact on their nature experience and education. Meanwhile, it is the key service that brings a meaningful experience for the children.



Welcome Page



Scan Page



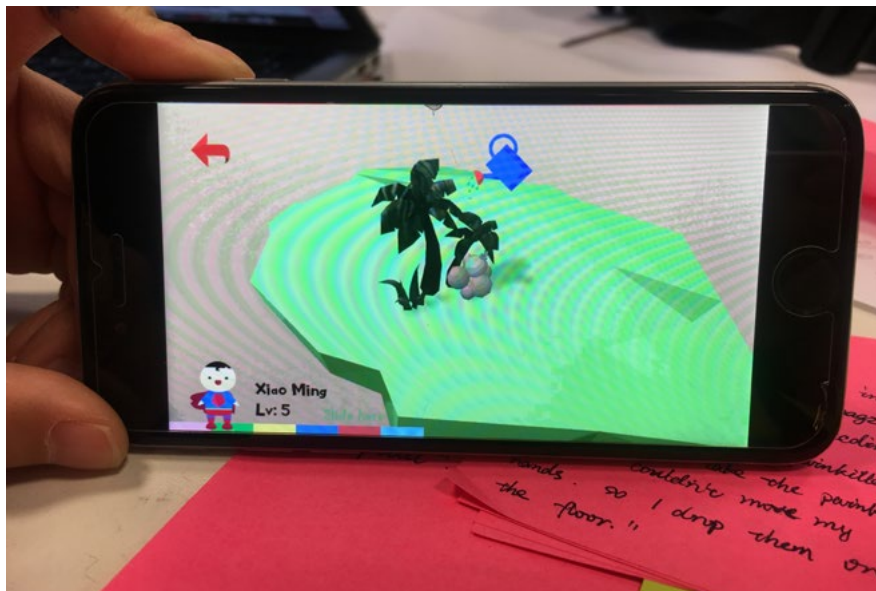
Problems Page

• Garden Paper

Garden paper is not a deliverable, but it is used for testing children's interests about the garden arrangements and their knowledge about basic plants by arranging them into different scenarios.



Garden paper and plant icons



Planting Page

There are three tests conducted with three primary school students.

Users were told about the “Ranger” if they liked it and if they will use it. Then, they were given a phone with app prototype, and explained how the service works. Then they were asked to interact with it step by step (open app-find plant-scan-plant it-make choice for environment problems). Next, they were asked to stick some icons on garden paper as their



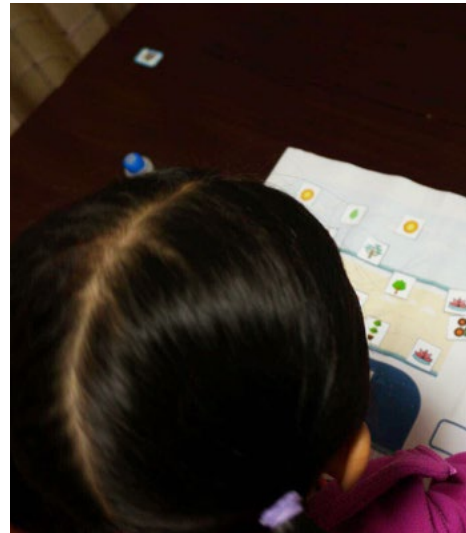
Opening the app



Scanning a plant at home



Checking the environment problems and considering the choice



Sticking "plant" on garden paper



Tester:
Xioxue
6 years old
Primary school student

Positives:
 Very curious about the scan and collect process;
 Parents' opinions are very positive;
 Like the interactive technology since the plant will move according to her gesture;
 Introduce to her friend to do another test;

Negatives:
 She needs a map like where is a plant as a guide. The complexity of plants locations leads her to lose of interests. So the nature information's presentation is necessary for app to guide them have some plants to collect.



Tester:
Meng
8 years old
Primary school student

Positives:
 Like the garden paper a lot;
 has a good understanding about plants;
 can well arrange plants position according to different scenarios;
 feel interesting that the environmental problem comes with air pollution in reality ;
 likes share with friends by phone
 serious about choosing environment problems in the virtual garden

Negatives:
 Environmental action is too hard to understand. She doesn't know which action is environmentally friendly. Moreover, it takes time to understand how the game works;
 Parents worried about the game will occupy too much time.



Tester:
Yu Zhang
10 years old
Primary school student

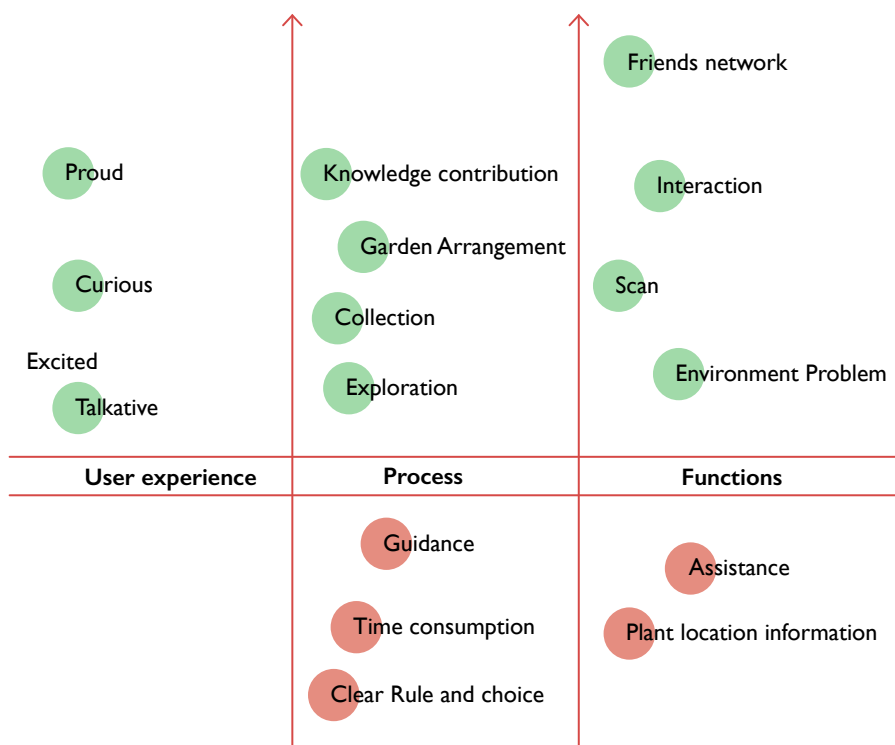
Positives:
Likes to go out with his sisters to
find the plants;
Feel interesting in interactive tech-
nology;
Has a sense of achievement when he
finds the plant he wants;
Likes the interface;

Negatives:
N/A

Opening scan page in a garden of his neighbourhood

• Feedback Analysis

There are feedbacks organized into three aspects. Overall, testers' feedbacks are very positives, and there are some points need to be modified as red dots illustrating on the map. It gives the direction of refining stage.

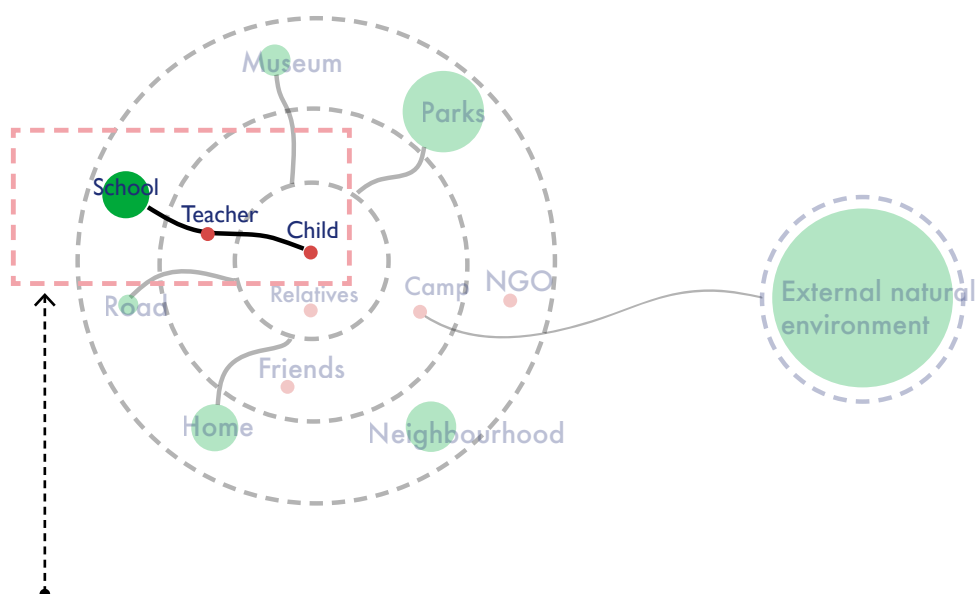


Refine points:

- Simplify environment problem action by giving 3 categories;
- Simplify planting process into once a day;
- Deliver plant instruction in terms of plants children collected;
- Add nature information map page;

• Back to Terriory Map

Aim: Connect with existing service providers and involve other more potential stakeholders to provide more offline activities



Some students were planting trees in arbor day

Nature course hold in primary school weekly and mostly teacher teach nature knowledge and theory by books and some experiments in class. The school has planting area and usually planting by school gardener.

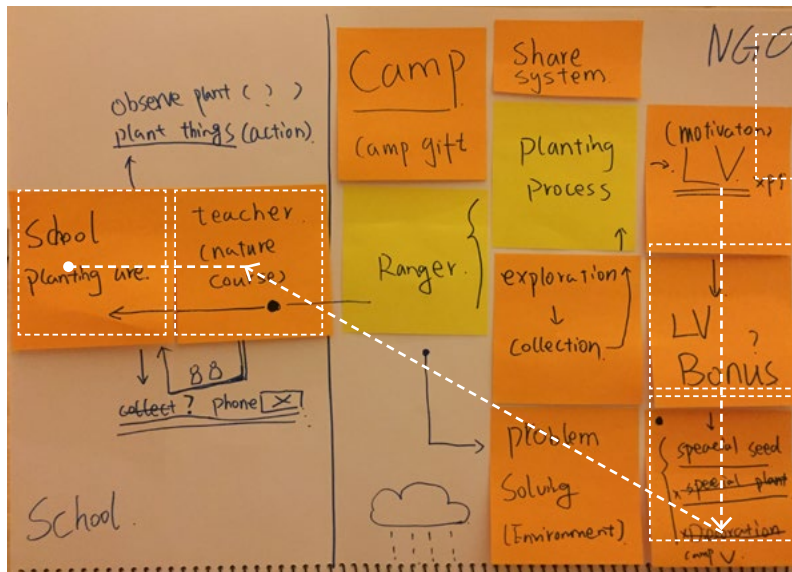
Advantages:

- Utilize existent planting area;
- Make nature course more in out-door
- Long-time stay place
- Nature teacher' help

Challenge:

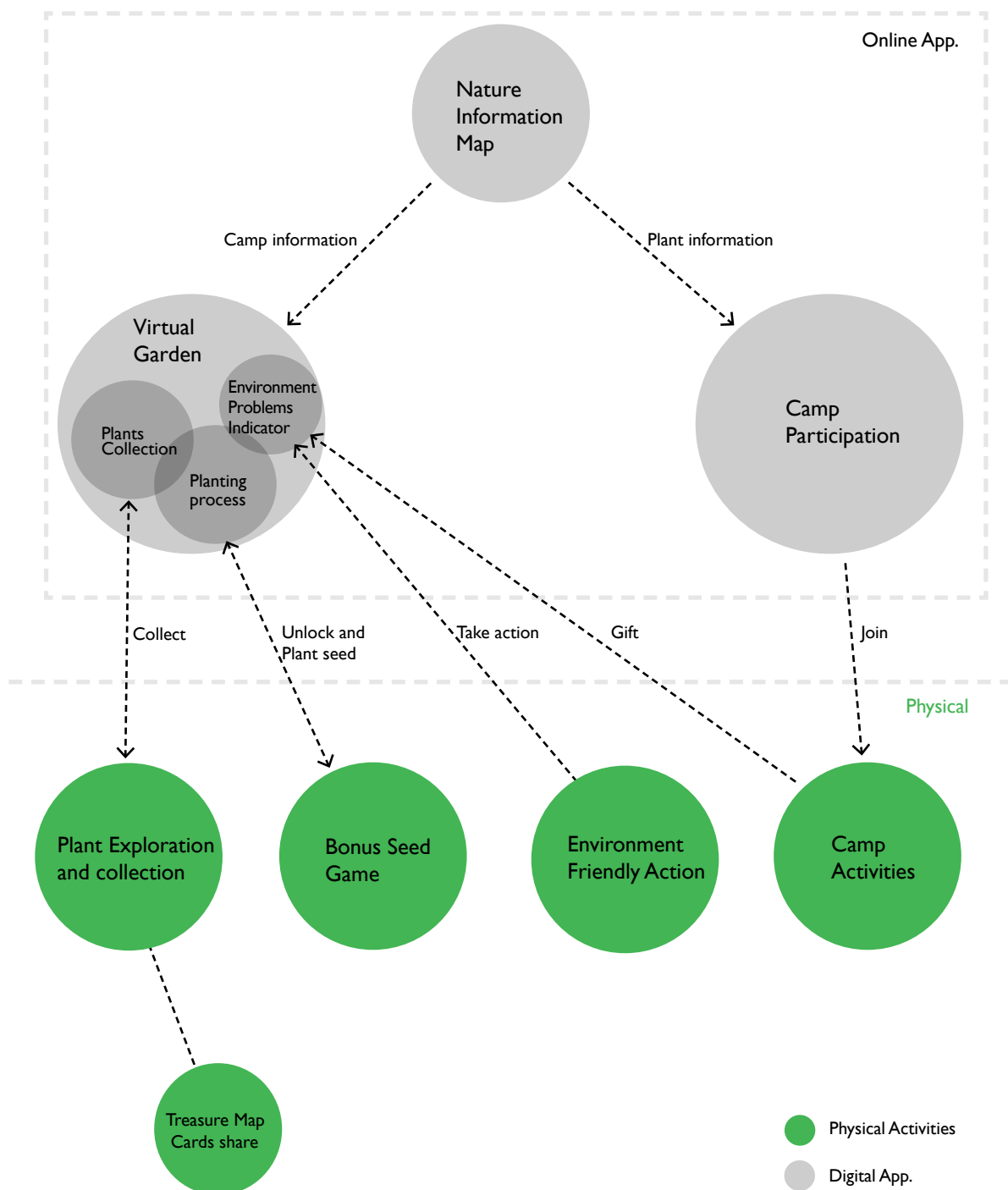
- How to connect to the service?
- Simplify teacher's work
- Show value to school

• Connection Mapping



Mapping out possible connection with school

The above picture shows the connection between school planting area and “ranger” app. After level ups with the process of collection and planting, it will automatically unblock “bonus seed” on the app which will send a notification text to nature course teacher in primary school. Then children will receive seeds and plant them during the course. After planting the seeds, children need to plant it in the virtual garden as well. Then they get the qualification to when plant’s level ups. Finally, when the seeds grow up, children can go to collect them in school with the help of teachers.



• **"Ranger" Concept**

My concept "Ranger" includes physical and digital parts which provide an informal nature educational tool and a platform for accessing camps. The primary objective is to create a connection between nature and children in both behaviour and intellectual dimensions through the mechanism starting from the below app.

In the App, there are three main parts: virtual garden, camp participation and nature information map. Nature information map is a media to provide information to users for virtual garden and camp participation by presenting information about plants and camp activities.

Virtual garden:

1. Through plant collection, firstly users need to go to nature environment to find plants. For successfully collecting plants: users need to scan them and answer the required questions in app. There is an optional treasure map phone case sells on E-commerce stores. It has some treasure map cards inside for users to locate plants position and share with friends.

2. Through environment problem indicators reflecting the daily air pollution status in Beijing to user's virtual garden, users will be asked to do environmental friendly actions to overcome it.

3. Through bonus seeds coming with users level ups, connected, it will provide children nature planting experience by connecting nature course in primary school.

Participation camp activities:

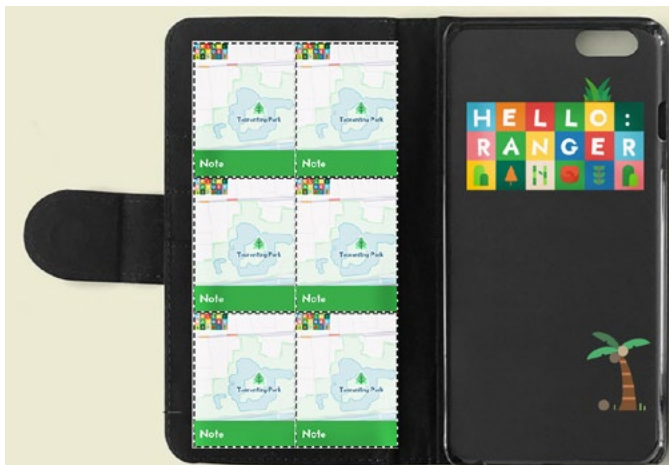
1. Signing in the camp and get confirmation after camp providers con-



Deliver

- 88 | “Ranger” App
- 94 | Customer journey map
- 104 | Stakeholder map
- | Service Blueprint
- 106 | Value Chain
- 108 | Business Model Canvas
- 110 | SWOT
- 112 | Design Achievement

"Ranger" app is the main outcome from the concept, it is also the start point for other physical activities.



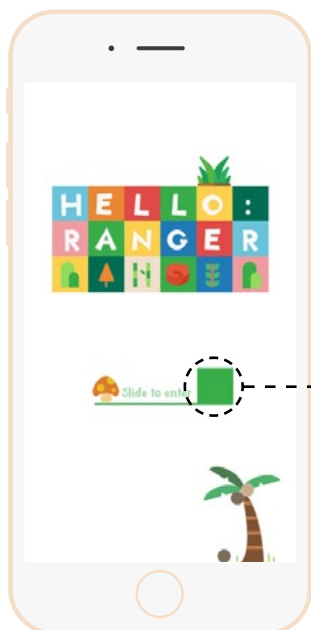
Optional-Treasure Map Case.
Locating plants on the card and share with friends



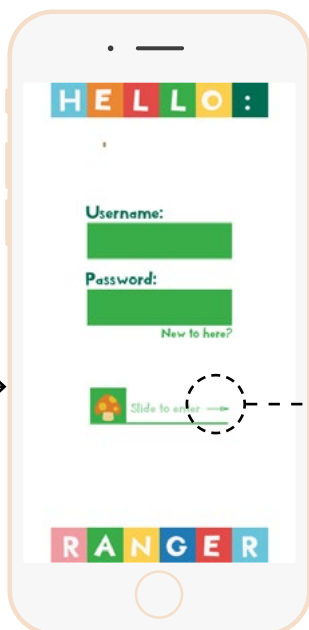
Slide to enter



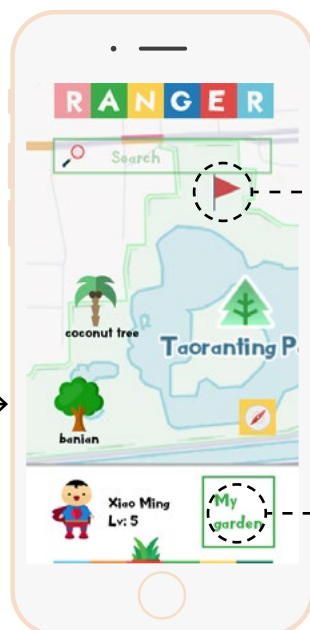
"Ranger" App



Welcome Page



Sign in Page



Nature Information Map



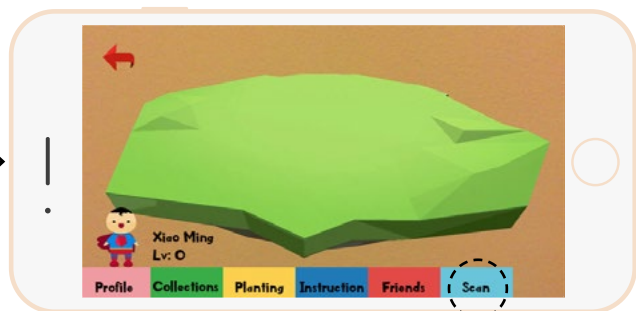
Participation



Camp Information

There are main functions of "Ranger" app

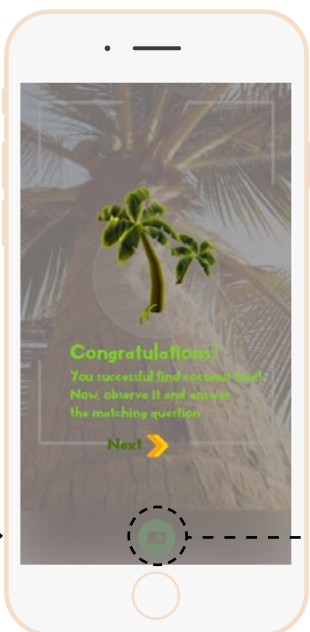
->



Virtual Garden



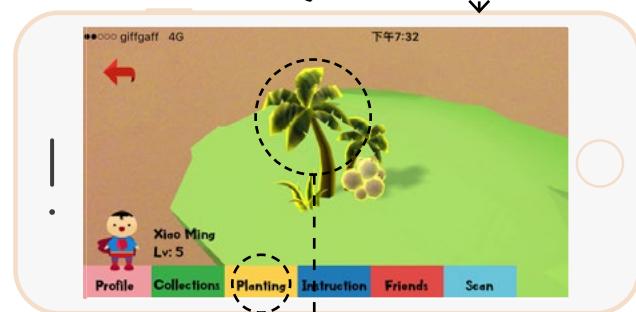
Scan Page



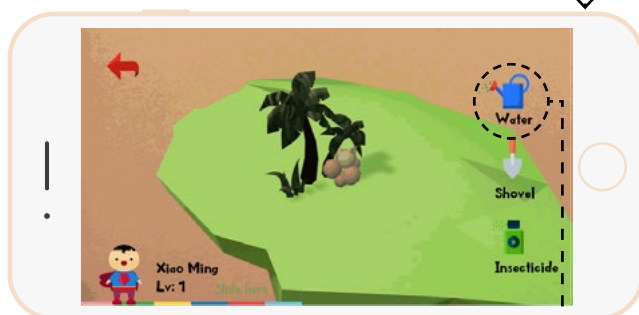
Plant Identity



Plant Question



Collection



Planting



Collection



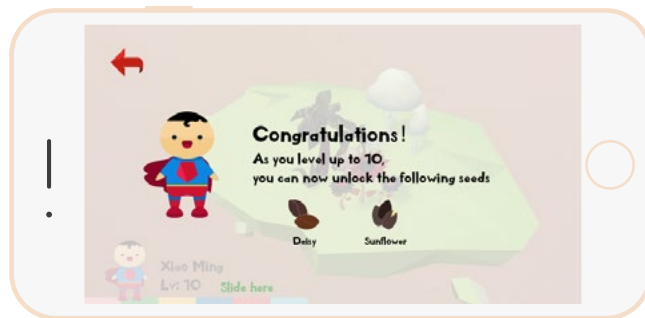
Water



Too many times



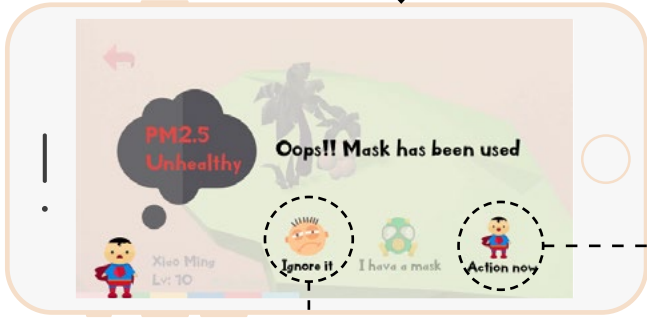
Notification about Virtual Gift



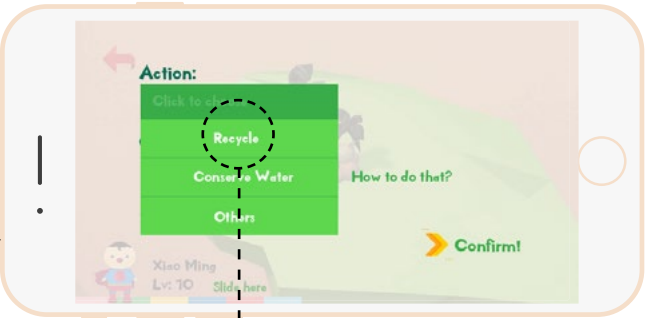
Notification about Bonus Seeds



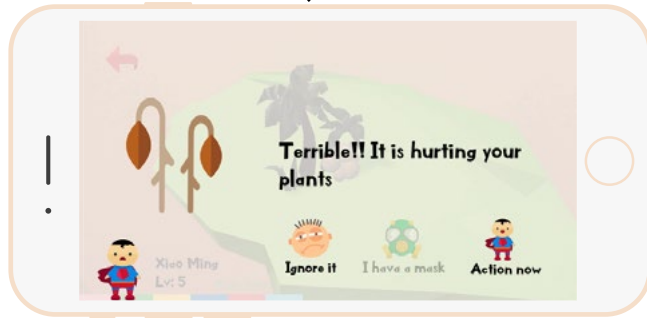
Environment Problems



Mask



Action



Damage

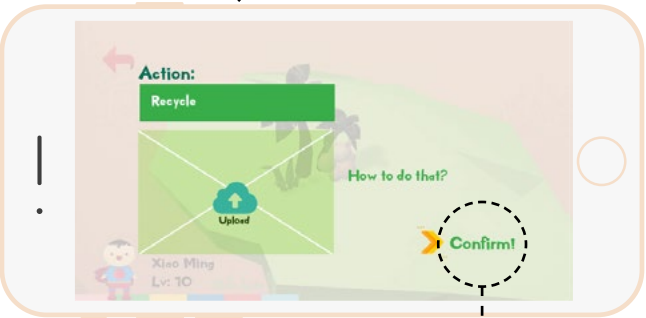
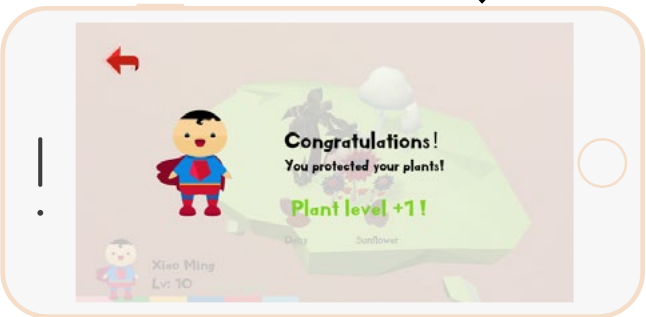


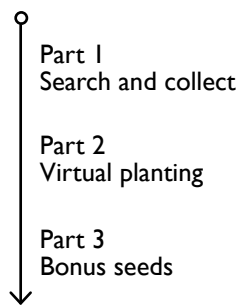
Photo upload



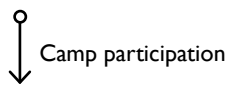
Overcome it

The User journey map was developed to illustrate how the user interacts with the service step by step in a scenario. There are two user journey maps in this case. Journey A has three successive parts start from aware of the service. Journey B is mainly about how camp participation process works

Journey A



Journey B



- **Part I. Search and collect**

Welcome to join us,
now you can go to plant
and collect them!



Aware •

Knowing the service from **posters**: camp providers and school teachers provide;
Knowing from **social media** like We-chat



● Download and Register

Download the app on the phone provided by parents; and register account by their help



Treasure map case

Buy treasure map case(it has some map cards used for locating the position of plant) on E-commerce stores with parents' help





• Nature information map

Scan nature information map which is the main page of the app and it includes the information about plants location and camp

Share "treasure"

Locate the plant you found on treasure map cards and share with friends



• Check the plant

Check the plant you collected in "my garden"

Virtual Planting Process

• Scan the plant

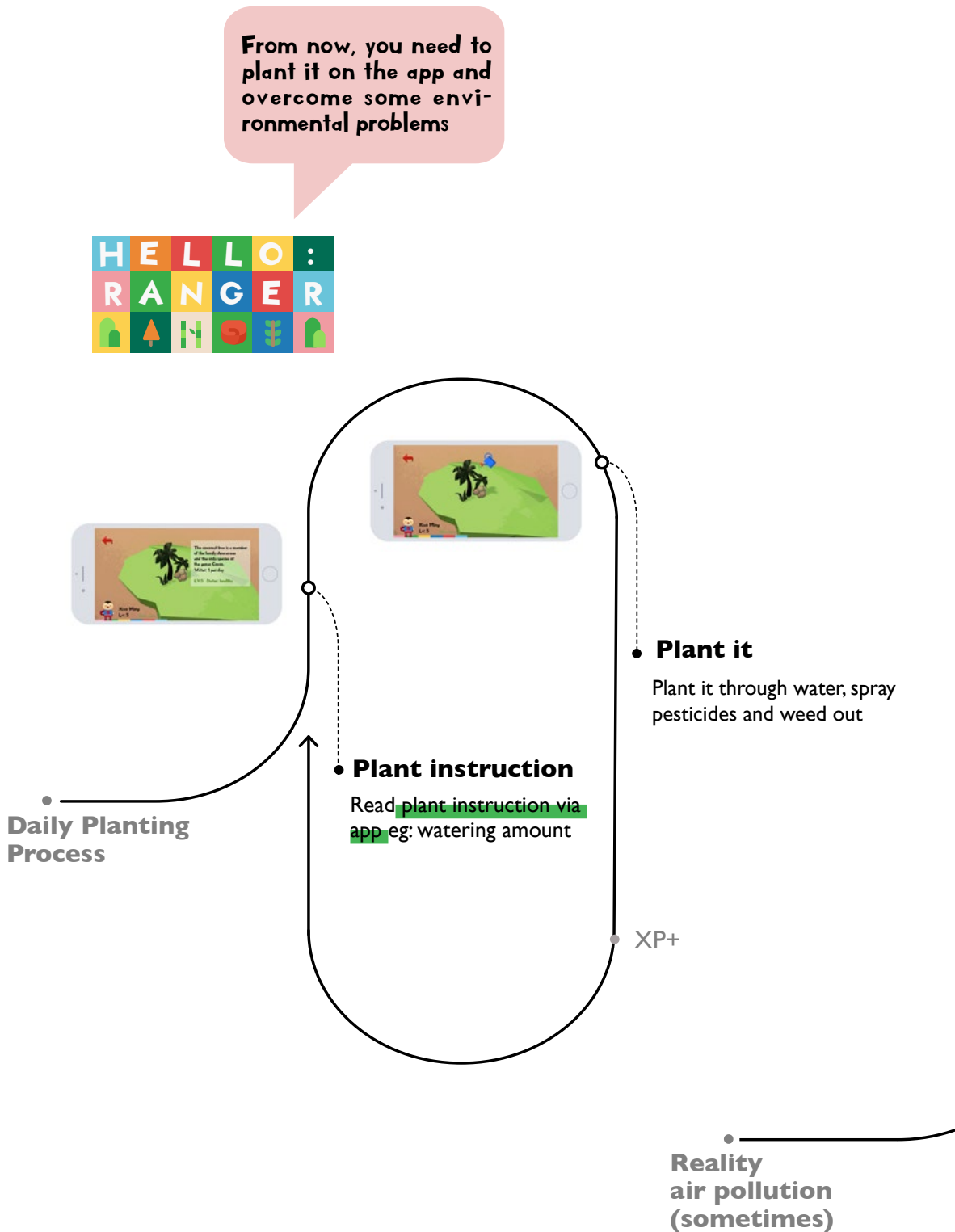
Open "my garden" and scan the required part of tree and answer questions about the plant to finish collection via APP.

• Search target plant

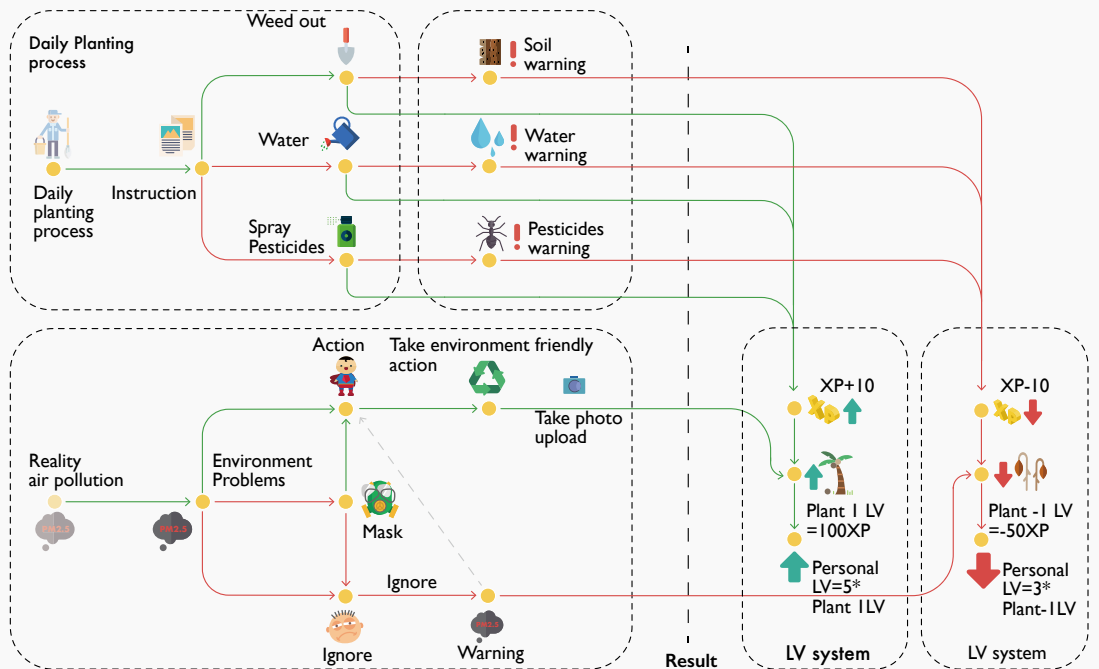
Find out the plant want to collect and go to search target area with Relatives' company



• **Part2. Virtual Planting**



User flow in planting



Environmental Problems

Environment problems happening by reflecting daily air pollution situation in Beijing and make choice for it

Action

Overcome problem

Take environment friendly actions to overcome it by taking photo to upload via APP.

Plant Level+

Level ups



• **Part3. Bonus seed**

Congratulation!
You did great job in your garden and now you can unlock your bonus seeds with your level up!

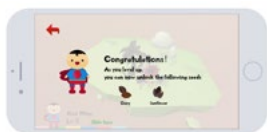


Unlock seeds

Unlock bonus seeds with Level ups and choose one seed to collect in school

Level ups

Level ups to 20



Plant seed

Collect it from nature course teacher and plant it during the nature course



• Get Qualification

Plant the virtual seed to
get qualification via app to
collect it when it
grow up



Seed grows up



• Collect it



Search and collect

• Camp Participation



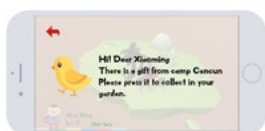
• Participate

Join the nature camp ,and relatives will receive the updates news and status



• Get camp theme gift

Receive camp theme gift reminder and through press it to collect via app: virtual garden page



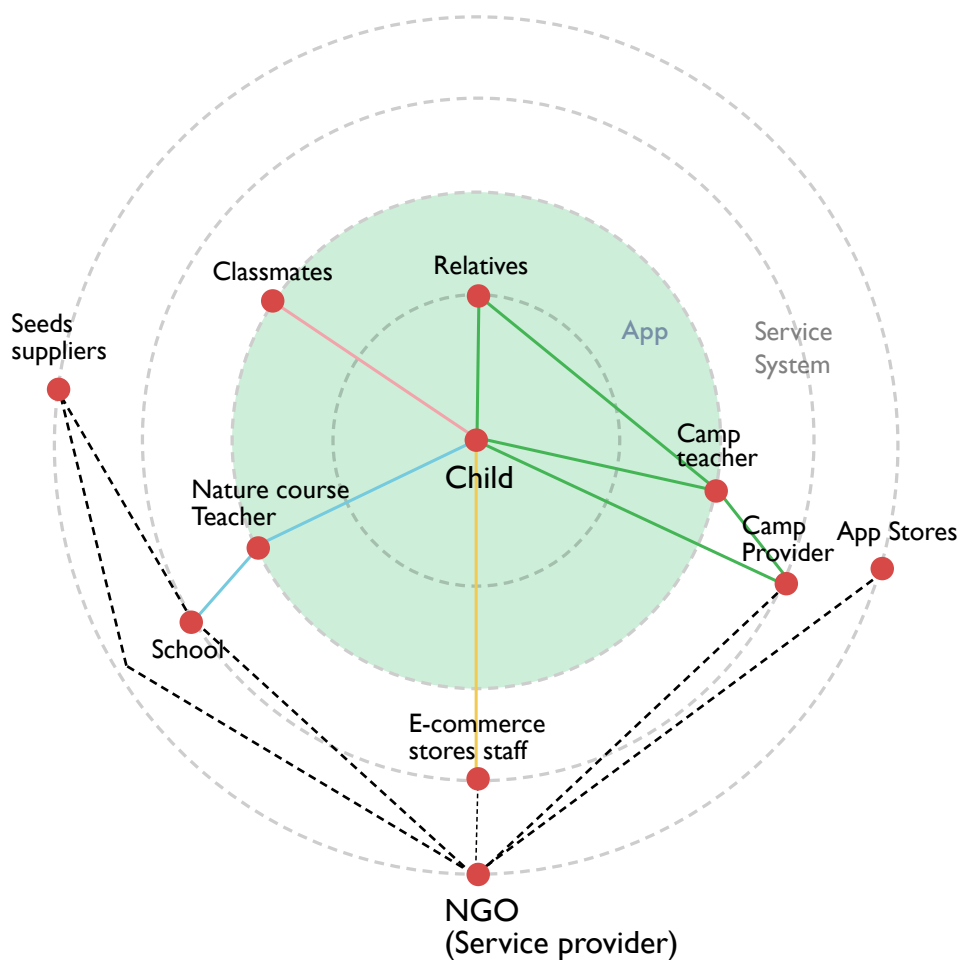
Share the news to friend

• Rally

Relatives send children to the rally place or participate together depending on their confirmation with camp providers



Utilizing stakeholder map to illustrate the representations of the various users and their connections with “Ranger” concept.



• Partner flow

In the outer dotted-line circle, NGO is the service providers and through the connection with seeds suppliers (purchase seeds for school) and App stores (provide app downloading channel and receive the income it). And in the inner grey circle, school and camp are stakeholders who help provide services.

How they are connected?

• Camp Activities

It is a process of participating a camp providers. After signing, relatives will receive a call from the camp teacher which is necessary to release the confirmation of successful participation. At the end of camp. A camp provider will give children virtual gift in the App as camp service evidence.

• Share

Sharing happens between classmates and friends. For digital app: it will happen for sharing each other's garden page and news. For physical activity: it will happen for sharing the treasure map cards about the place they find plants.

• Plant Seeds

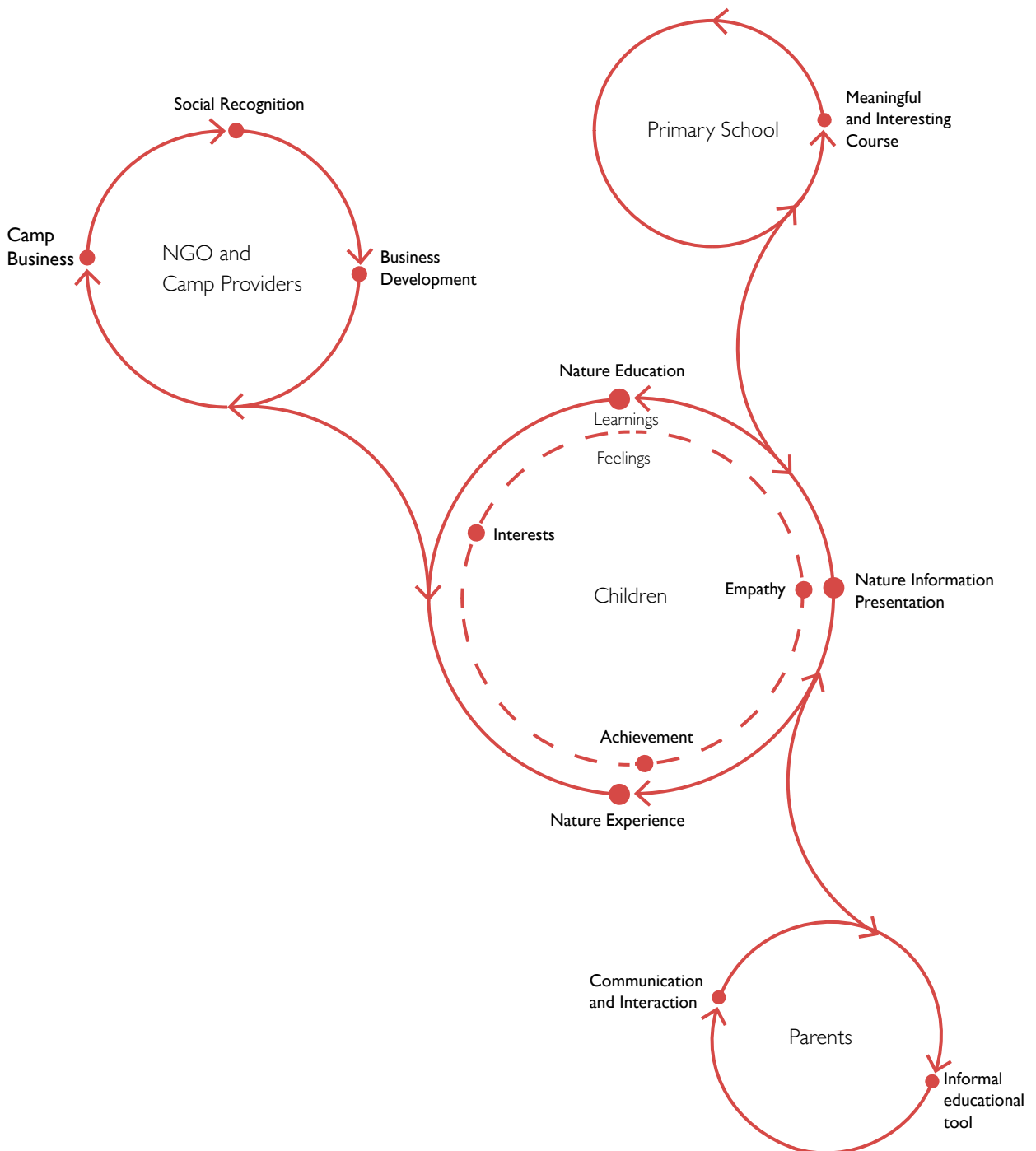
After receiving the seeds from NGO, the school will distribute to teachers. Then teacher delivers to children who successfully unlock the bonus seeds and plant it on nature course.

• Purchase

Children and parents purchase the treasure map case on E-commerce stores which is charged by NGO

Value Chain

The value chain has four dynamic flows. The value generation starts from children and then flows among different stakeholders.



- Children

There are two layers of values for children: feelings and learnings and they will impact on each other. Value generates from children to other stakeholders through “Ranger” process.

- Primary School

Nature course in primary school will become more meaningful and practical through combining into “bonus seeds” in “Ranger”

- NGO and Camp Providers

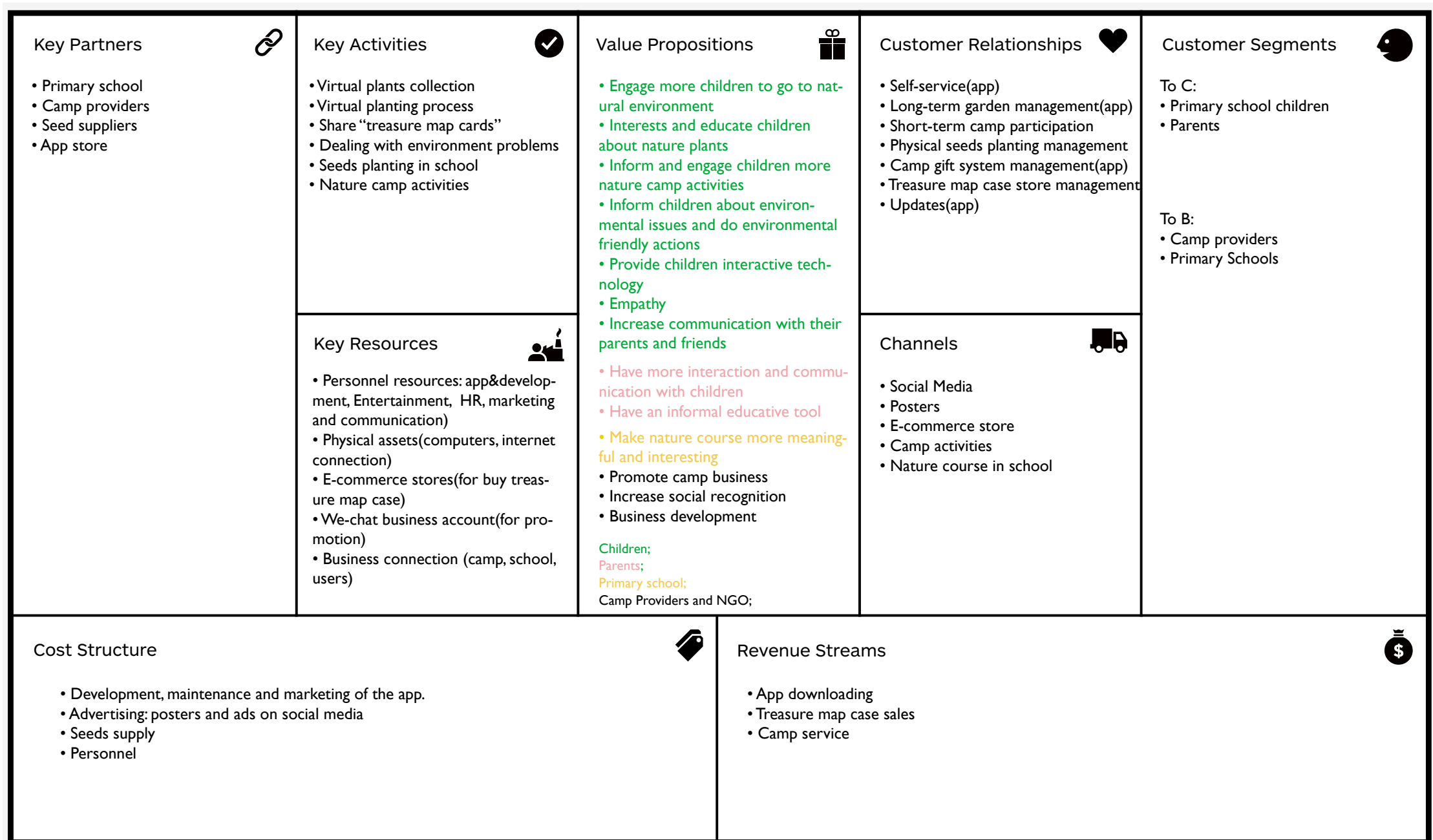
Through creating value for children, the value to NGO and camps are camp business through children’s participation, social recognition through nature education and experience brought by “Ranger” service, and the business development.

- Parents

To parents, the value is that they have an informal nature educational tool. It can be used in flexible occasions. Meanwhile, increasing the communication and interaction with their children in the plants’ collection process of “Ranger”

- **Business Model Canvas**

It helped me to structure business model of the service from dissected form to a systematic logically thought process.



Evaluate “Ranger” Concept by utilizing SWOT analysis approach. The concept has lots of strength and opportunities especially in involving more stakeholders. Meanwhile, the weakness and threats need to be worked out and minimized especially like user time control. It may be solved by designing parents’ supervision system before launching on the market.

- Appealing and innovative app
- Connect virtual to reality.
- Informal continuous nature education
- Environmental friendly
- Repeatable in other cities
- Fixable time and place
- Connection with different stakeholders
- Camp promotion

S

-
- Connection with volunteer activities of NGO
 - Connection with social events
 - Government funding
 - Wearable equipment
 - Growth demand to camp and nature education
 - Plant business
 - Branding

O

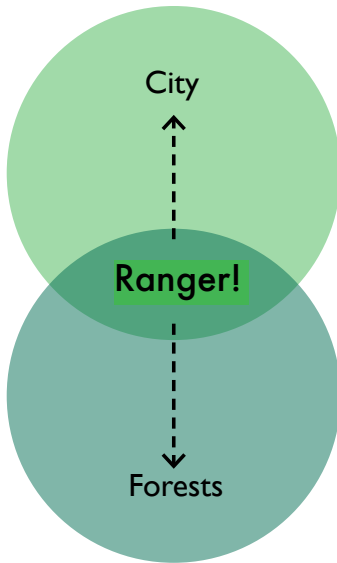
- User time consumption control
- Device need
- Personnel cost
- Investment on app development
- Plants and location data collection
- Low revenues and earnings

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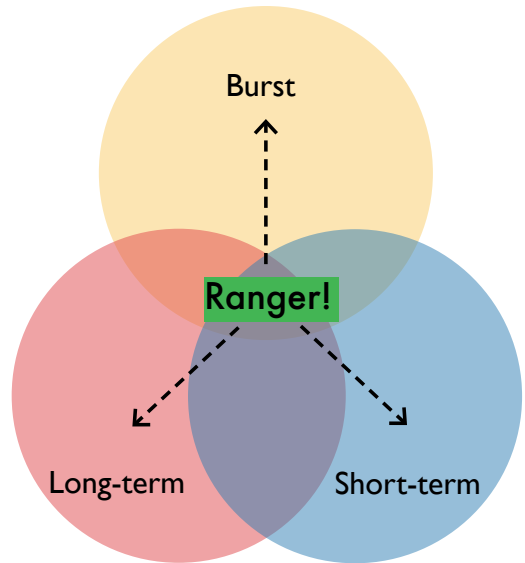
- User digital addiction
- Identification technology restriction
- Strong competition
- Technically complicated

There are the achievements of the “Ranger” concept regarding design considerations in the discovery phase. The following charts describe how “Ranger” expand its using scenarios and value



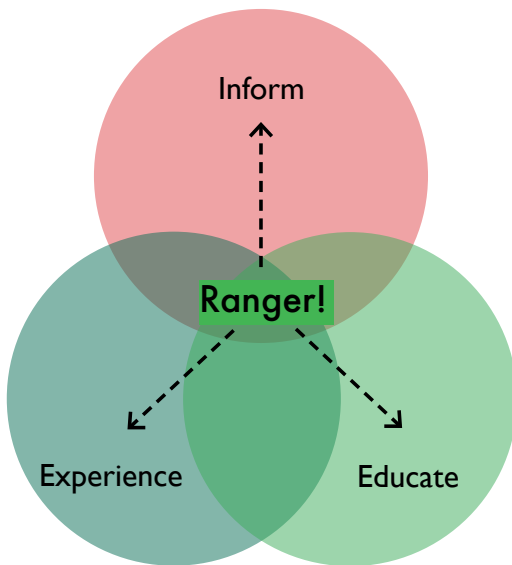
Environment

Expand using scenario for environment to city and forest



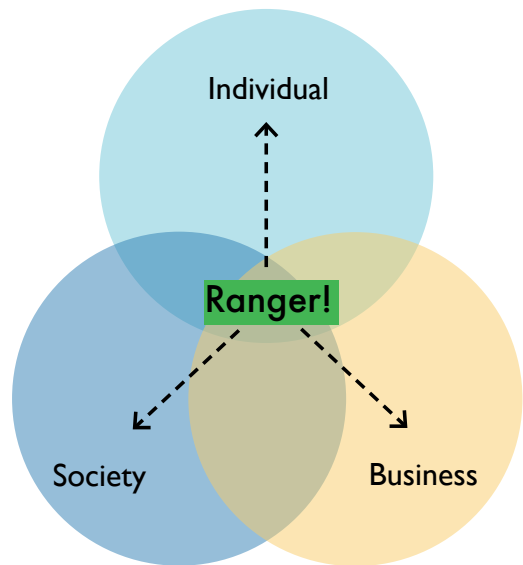
Time

Expand using scenario for time
Burst scenario: environment problems;
Short-term scenario: find a plant to scan;
Long-term scenario: planting process;



Behaviour

Develop behaviour in:
 Being educated and accept education;
 Being informed and access information;
 Experience;



Value

Expand concept value to:
 individual:
 personal development;
 Society:
 social awareness;
 Business: Camp, NGO;

This project intended to solve a social phenomenon of estrangement among children to nature identified in the research in an urban setting, posteriorly focusing on the nature education and experience of primary school nature.

The solution of “Ranger” is a way of combining nature education, nature experience nature and information presentation which will impact on children from four stages:

1. Attraction: make nature more attractive and create more connection.
2. Accessibility: give more opportunity for children to engage the activities in natural environment like camp
3. Awareness: Remind them about environmental issues and create empathic scenes
4. Spontaneity: through the above research, help them form habits and mind-set about the connection with nature.

For parents, it will be an informal educational tool to provide nature education more flexible. Moreover, through the knowledge contribute, it will impact on parent's and children's communication.


From the primary school perspective, they have more forms to organize their natural course and make it more practical and meaningful.

From NGO's perspective, firstly, the camp business (some camps belong to NGO) will be promoted in an interesting platform having target customers. Meanwhile, it will contribute to increasing children and parents' awareness of nature and environmental issues. Moreover, the reflection of environmental pollution in the app also is a driver to ask user take action to the environment.

From a society point of view, it could be a business platform as a game, which also attracts other users like young people. It helps to engage more people to nature and impact on their awareness through a long-term interaction with the platform.

From a strategic point of view, the association with Ranger can facilitate the promoting of NGO activities and other activities or events associated with nature which increase information spread through a public platform than a significant economic interest for the whole system among NGO, user, camps, business in this field.

The solution would potentially impact the society and main stakeholders from the above perspective. As the network expands, more people and organization will involve contributing better environmental-friendly future.



“If we want children to flourish, to become truly empowered, then let us allow them to love the earth before we ask them to save it. Perhaps this is what Thoreau had in mind when he said, “the more slowly trees grow at first, the sounder they are at the core, and I think the same is true of human beings.”

David Sobel, *Beyond Ecophobia*

KAHN, P. H. (2002). *Children and nature: psychological, sociocultural, and evolutionary investigations*. Cambridge Mass, The MIT Press.

LOUV, R., & HOGAN, J. (2011). *Last child in the woods: saving our children from nature-deficit disorder*. Prince Frederick, MD, Recorded Books. <http://mclaz.oneclickdigital.com/en/Products/0/0/70000/7000/800/Last%20Child%20in%20the%20Woods.aspx>.

LINDON, J. (2012). *Understanding children's behaviour 0-11 years*. London, Hodder Education.

Moss, S. (2012). *Natural Childhood*. National Trust.

Kumar, V. (2013) *101 Design Methods, A structured Approach for Driving Innovation in Your Organization*, New Jersey, USA: John Wiley & Sons, Inc

NEWTON, R. (2013). *The project management book: How to Manage Your Projects To Deliver Outstanding Results*. Harlow, Pearson/Education. <http://www.mylibrary.com?id=485124>.

Max.book118.com. (2017). *Nature and children*.PDF. [online] Available at: <https://max.book118.com/html/2017/0620/116850641.shtm> [Accessed 18 Nov. 2017].

Sohu.com. (2017). *2016nature business survey*. [online] Available at: http://www.sohu.com/a/120523273_503441 [Accessed 18 Nov. 2017].

The UX Review. (2017). *User Journeys - The Beginner's Guide - The UX Review*. [online] Available at: <http://theuxreview.co.uk/user-journeys-beginners-guide/> [Accessed 18 Nov. 2017].

Design Council. (2017). *The Design Process: What is the Double Diamond?*. [online] Available at: <http://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond> [Accessed 18 Nov. 2017].

Shonstrom, E. (2017). *WHAT THE FINNS KNOW: "Friluftsliv" Gets Big Results in Finland's Schools*. [online] Children & Nature Network. Available at: <https://www.childrenandnature.org/2014/05/19/what-the-finns-know-friluftsliv-gets-big-results-in-finlands-schools/> [Accessed 18 Nov. 2017].

Walker, T. (2017). *Kindergarten in the Great Outdoors*. [online] The Atlantic. Available at: <https://www.theatlantic.com/education/archive/2016/09/kindergarten-naturally/500138/> [Accessed 18 Nov. 2017].

Files.eric.ed.gov. (2017). *Cite a Website - Cite This For Me*. [online] Available at: <http://files.eric.ed.gov/fulltext/EJ884383.pdf> [Accessed 18 Nov. 2017].

Journals.sagepub.com. (2017). *Place-Based Education: Learning to Be Where We are* Phi Delta Kappan - Gregory A. Smith, 2002. [online] Available at: <http://journals.sagepub.com/doi/abs/10.1177/003172170208300806?journalCode=pdka> [Accessed 18 Nov. 2017].

The King's Fund. (2017). *Place-based systems of care*. [online] Available at: <https://www.kingsfund.org.uk/publications/place-based-systems-care> [Accessed 18 Nov. 2017].

CM, h. (2017). nature-deficit disorder- Taiwan Word. [online] Twword.com. Available at: <http://www.twword.com/wiki/%E5%A4%A7%E8%87%AA%E7%84%B6%E7%BC%BA%E5%A4%B1%E7%97%87> [Accessed 18 Jun. 2017].

Anon, (2017). [online] Available at: <https://www.psychologytoday.com/blog/people-in-nature/200901/no-more-nature-deficit-disorder> [Accessed 18 Jun. 2017].

the Guardian. (2017). How children in China's urban jungle are reconnecting with nature. [online] Available at: <https://www.theguardian.com/environment/2012/jan/11/children-china-urban-jungle-nature> [Accessed 18 Jun. 2017].

Baohua, Y. (2017). NATURE EDUCATION IN CHINA: Growing Demand, Greater Business Involvement, and a New Model for Conservation. [online] Children & Nature Network. Available at: <http://www.childrenandnature.org/2015/12/14/nature-education-in-china-growing-demand-greater-business-involvement-and-a-new-model-for-conservation/> [Accessed 18 Jun. 2017].

BBC News. (2017). Nature deficit disorder 'damaging Britain's children' - BBC News. [online] Available at: <http://www.bbc.co.uk/news/science-environment-17495032> [Accessed 18 Jun. 2017]

the Guardian. (2017). How children in China's urban jungle are reconnecting with nature. [online] Available at: <https://www.theguardian.com/environment/2012/jan/11/children-china-urban-jungle-nature> [Accessed 18 Jun. 2017].

Chinaenv.colgate.edu. (2017). Urban Green Spaces in China – Urban Green Spaces. [online] Available at: <https://chinaenv.colgate.edu/greenspaces/2016/11/16/urban-green-spaces-in-china/> [Accessed 18 Jun. 2017].

Nicholls, H. (2017). Should cities be for animals too?. [online] the Guardian. Available at: <https://www.theguardian.com/cities/2014/apr/14/cities-animals-urban-environment-species> [Accessed 18 Jun. 2017].

Design Council. (2017). The Design Process: What is the Double Diamond?. [online] Available at: <http://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond> [Accessed 18 Jun. 2017].

STICKDORN, M., & SCHNEIDER, J. (2011). This is service design thinking: basics, tools, cases. This Is Service Design Thinking. Amsterdam, BIS Publ.

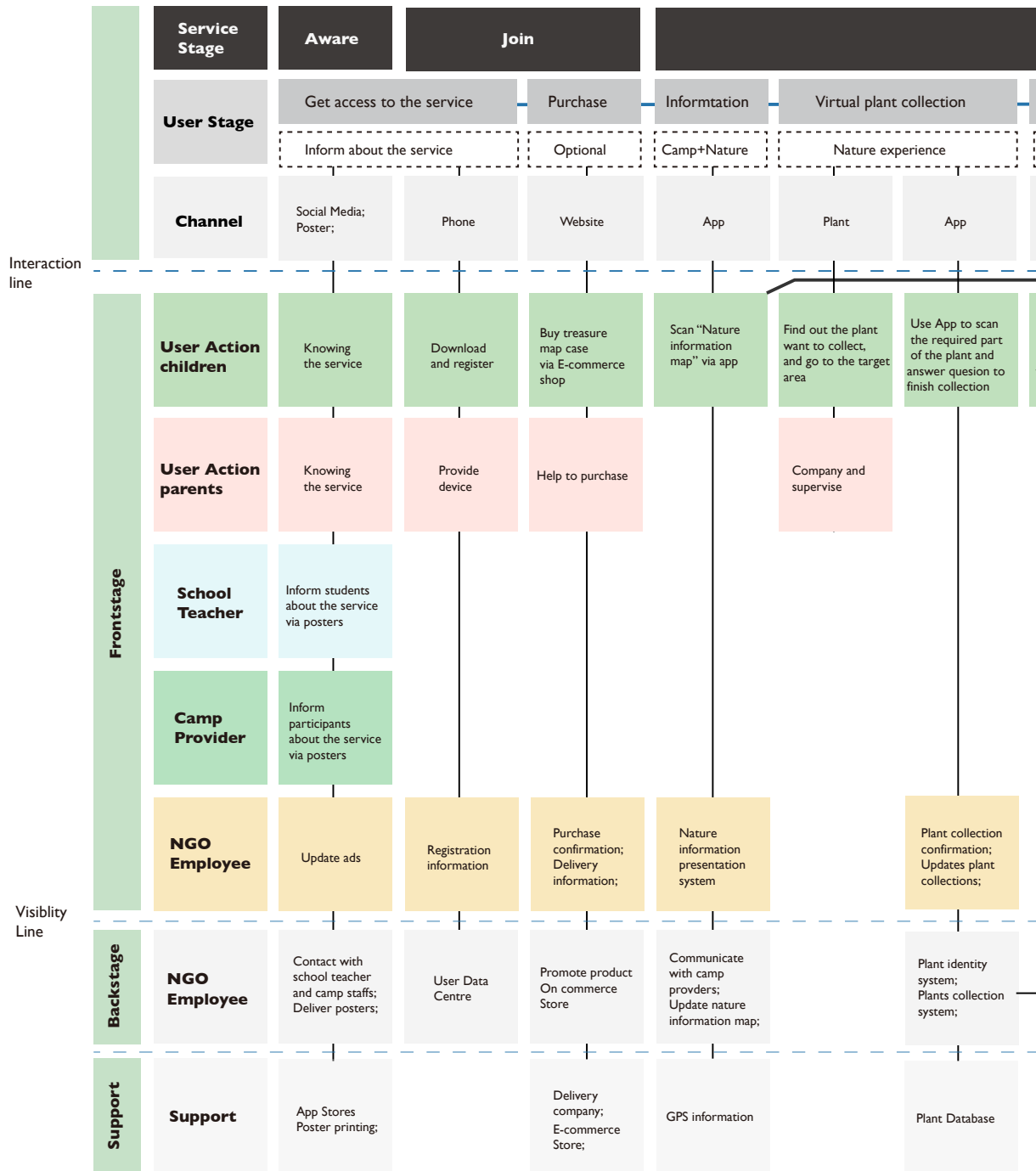
CUREDALE, R. (2013). Service design: 250 essential methods. Topanga, CA, Design Community College Inc.

KERZNER, H. (2017). Project management: a systems approach to planning, scheduling, and controlling. <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=1472845>.

OSTERWALDER, A., PIGNEUR, Y., BERNARDA, G., SMITH, A., & PAPADAKOS, T. (2015). Value Proposition Design: How to Create Products and Services Customers Want. Somerset, Wiley.

Gettingsmart.com. (2017). Cite a Website - Cite This For Me. [online] Available at: <http://www.gettingsmart.com/wp-content/uploads/2017/02/What-is-Place-Based-Education-and-Why-Does-it-Matter-3.pdf> [Accessed 18 Nov. 2017].

Service Blueprint





"Now I see the secret of the making of the best persons, It is to grow in the open air and to eat and sleep with the earth."

Song of the Open Road
Walt Whitman