

INFO 5440 App Design & Prototyping

Project Milestone 2

Team Hot Pot (H.P.)

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User

Family: Our app targets families with children under 15 years old, who have a small garden at home, either indoor or outdoor. They have basic gardening experience, hoping to expand their gardening knowledge and improve their skills. They enjoy gardening since they can grow and eat organic, fresh vegetables. While they sometimes find it challenging to manage the heavy workloads from gardening, given their busy schedules.

Their kids spend hours on their phones, tablets, and laptops every week. They are concerned that their kids spend too much time on digital devices and don't get enough outdoor activities. They try to engage their kids in the gardening process to enhance family interaction, teach kids how to grow their food, and spark kids' exploratory spirits.

User Research

In total, we conducted **15 interviews** with **14 different users**. Our user research was done in two rounds: the first-round exploratory and the second-round informative interviews. All interview notes are attached in *Appendix 3*.

First-Round Exploratory Interview

In the first-round interview, we interviewed **three participants** to explore potential market areas, identify our target users, and draft our product concept.

Participation Description

• 1 - Participant MP:

- **Summary:** MP is a professor and copyright specialist at Cornell University's Information Science Department, who grew up in a farmer family. He and his wife have a 9-year-old daughter and a 5-year-old son. They moved to a house with a small garden near Cornell University last December. His family members enjoy outdoor activities: he and his wife love skiing, and their kids enjoy hiking and bike riding. Recently, MP started planning their garden at home.
- **Insight:** MP believes that it's extremely important to let children engage in outdoor activities. Even though he is afraid of his kids getting hurt in nature, he understands the value of providing his kids enough space to explore the world. He also values time spent with his kids and wants to find a family activity that everyone can enjoy. Growing up in a farmer family, he thinks that the experience of observing plants grow teaches him a lot, so he also wants his kids to gain the experience. He hopes that his kids can value food more and understand the concept of growth and death from gardening experience.

• 2 - Participant FG:

- **Summary:** FG is a professor at Cornell University's Information Science Department. He has two children who are currently going to middle school in Ithaca. He enjoys engaging in outdoor activities, such as walking, biking, skiing, and sailing, in his free time, with his

son and daughter. According to him, his children spent at least one hour per day playing outside to enjoy the fresh air and relax.

- ***Insight:*** FG believes it is very important for his children and himself to have enough time to engage in outdoor activities because it is a very healthy lifestyle and can let them forget about school and work. He has a small vegetable garden at home, where he and his children plant, water, and pick seasonal vegetables together for the family to consume. He mainly uses online resources to gain knowledge about plants and understand how seasons influence the growth of plants. He uses [primitive pursuits](#) as the primary source for searching outdoor activities for his children.

- **3 - Participant KR:**

- ***Summary:*** KR is a visiting lecturer at Cornell University's the SC Johnson College of Business. He has two children. The older one is 31, and the younger one is 29. His whole family enjoys various outdoor activities such as skinning, cycling, camping, and hiking. His two children were born with enthusiasm in many types of outdoor exercises and sports. He used to take them together for family camping or hiking until they were old enough to do their own. Now, as young adults, his two children spend more time outdoors than he did in their ages.
- ***Insight:*** KR believes there are some risks for children spending time outdoors, but they are worth taking, and children should be in touch with nature. He gained knowledge about ecosystems, plants, and camping from his college courses. He was especially interested in identifying plants in the natural environment: what's edible and what's safe to touch. He believes this knowledge is necessary for children to learn to stay safe on camping trips and have more chances to survive in dangerous situations.

Product Concept

After conducting three initial interviews with our potential target users, who are parents with children, have minimal knowledge about gardening, and enjoy outdoor activities daily in the United States, we decided to narrow our focus to creating an app that creates an interactive family learning experience, improves physical and mental health of all family members, and

supports nature engagement for the entire family. We had two ideas for the product concept (we decided to proceed with **Idea 1** for the later interviews):

- **Idea 1:** The first idea is a **garden planner** app for families with children who have or plan to have a garden at home with minimal previous gardening experience to create interactive family learning experiences that support nature engagement for every family member. Users will be able to take pictures of their garden environment, place digital plants to plant out the garden, and keep a photo diary of their real garden.
- **Idea 2:** The second idea is an **outdoor adventure gaming app** that allows families with children who enjoy outdoor activities to explore the playful plants in their local area through challenging games and plant scavenger hunts.

While we had two initial product concepts, we wanted to refine our focus by narrowing it down to families' **gardening experiences** because we think the outdoor activities vary due to Ithaca's weather and seasonal change. Therefore, focusing on families' garden experiences could be more helpful in incorporating the plant database and encourage the collaborative family environment for nature engagement and learning.

Second-Round Informative Interview

In the second-round research, we conducted interviews with **12 target users** to understand their goals, challenges, and needs in regard to gardening. Besides, we attempted to understand their children's current technology levels and gardening experience, which would be taken into consideration in the later design phase.

Participation Description

• 1 - Participant J:

- **Summary:** J is a professional yoga instructor who took her undergraduate at Cornell University. She and her husband got divorced last year. She lives with her 15-year-old daughter in an apartment near Cornell University. She has a small flower garden at home. Even with several-year gardening experience, J still describes herself as a beginner. She enjoys gardening and plans her garden every year. When her daughter was a kid, J always asked her daughter to help grow fresh vegetables, who was also excited.
- **Insight:** J values her time with her daughter. They allocate at least two nights every week to girls' nights, hanging out to have fun. J enjoys gardening since she can feel sunshine, smell the earth, and watch butterflies flying around every day. Besides, J believes that it's beneficial to have a small garden at home, where her daughter can grow fresh vegetables and learn how to plant her own food. However, J encounters difficulties in growing non-native plants and wants to learn how to take care of them.

• 2 - Participant MJ:

- **Summary:** MJ is a Cornell University Information Department professor who has an 8-year-old son and a 9-year-old daughter. They live in a house with a small outdoor garden near the Cornell campus. Since his wife loves Japanese herbs, which are hard to purchase in Ithaca, he grows many herbs in the garden. While gardening, MJ usually gets his kids involved, feeling fun to play with them in the garden. However, MJ sometimes finds it hard to manage it due to his busy schedule. Also, he struggles with keeping animals out of the garden and preventing them from eating fresh vegetables.
- **Insight:** MJ believes that it's extremely important to spend some time with his kids every day, so he allocates at least 1-2 hours to play with them. Even though he isn't a fan of

gardening, he thinks the growing plants and immediate results motivate him to continue doing it for his wife and children. He hopes that from gardening experience, his kids take a rest from digital products, explore other opportunities of having fun, and learn how to get comfortable with playing outside with no fear of getting dirty and messy.

- **3 - Participant MP:**

- **Summary:** The participant is the same one who helped with our first-round interview. We continued the discussion with follow-up questions in the second round of the study.
- **Insight:** MP considers gardening as a learning and exploratory opportunity for his kids and himself that they all can enjoy playing outside, so results aren't essential for him. He thinks that even though things don't work out, they still learn something from failures. Besides, MP explains that his kids' current knowledge about food is mainly from grocery stores, so he wants to provide them the experience of watching plants grow and teach them that food won't automatically appear in grocery stores. However, the extra time and energy required for gardening cause him trouble managing his busy schedule.

- **4 - Participant SC:**

- **Summary:** SC is a Cornell University ECE department advisor. Currently, he has no child, but he has an outdoor garden at home. Since his wife likes gardening very much and calls herself a 'green thumb,' he spends a lot of time in the garden. There are flowers like roses and daisies in his garden and vegetables like tomatoes and cucumbers. He continuously learns gardening knowledge from the internet and buys seeds and tools from local vendors. He'd like to try some new apps to improve his gardening skills.
- **Insight:** SC has a large garden at home, and he thinks it is fulfilling to plant in the garden. Although his work is busy, he always spends a lot of time in the garden. However, his method of acquiring knowledge is limited, which only comes from some different websites. It would be better if a tool could help him systematically learn gardening.

- **5 - Participant JC:**

- **Summary:** JC is the team leader of Cornell's Data Warehouse team. He has two kids, one is now 18 years old, and the other is now 21 years old. He shared his past outdoor and parenting experience with his kids when they were still in high school. JC enjoys outdoor activities with his two sons, and he thinks those experiences bonded him and his kids together.
- **Insight:** JC thinks planting is exciting, but he didn't spend too much time on it because his family loves traveling and has no extra time to take good care of the plants. However, he acknowledges the value of planting and outdoor activities for children's development. So he plans to expand his garden after retirement and teach his grandchildren how to garden in the future.

- **6 - Participant JP:**

- **Summary:** JP is a business intelligence specialist in Cornell's Data Warehouse team. He has two kids, one is now 2 years old, and the other is now 4 years old. JP is very interested in planting vegetables, even though his house is not big enough to have a garden. He plants his vegetables beside the pool. Moreover, he plans to move to a bigger house and engage his kids in the gardening process after they grow up.
- **Insight:** JP wants to engage his kids in gardening because he wants to let his kids know how nature works by actually growing plants on their own and seeing the growth of the plants. He believes that his kids can learn problem-solving skills and responsibility throughout the process.

- **7 - Participant RM:**

- **Summary:** RM is a professor in the Department of Asian Studies at Cornell University. He has two children who are raised in the Ithaca area. Besides raising children, RM loves to spend time with his eight turtles at home and built a 25 feet x 25 feet garden for his turtles. He planted greens mainly for his turtles, cherry tomatoes for everybody, and berries for his children in the garden.
- **Insight:** Because of the weather in Ithaca, RM can only keep his garden from May to September and spend the rest of the time planning and preparing for his garden. Although

he enjoyed gardening with his father when he was young, his children rarely garden with him nowadays. RM believes the biggest reason is that the children spend too much time online and are used to the “pretty results,” so they don’t want to put time and effort into the process. He hopes his children can appreciate nature more and cultivate some interest in gardening in the future.

- **8 - Participant CT:**

- **Summary:** CT is an Assistant Director of Admission for Diversity at Cornell University. She has two kids, ages 4 and 8, who are always outside. They love spending time outdoors for various activities, such as hiking, walking, gardening, biking, etc. CT keeps a tiny garden at home to plant simple greens, tomatoes, and herbs for the family to consume.
- **Insight:** CT said her children are very willing to garden with her by helping pour soil, make seeds, buy plants, pick fruits and vegetables. She does not want her children to spend too much time using digital technologies. However, she thinks it might be helpful if the app supports learning for children by educating them more about plants and climate and connecting people to real life more seamlessly.

- **9 - Participant SS:**

- **Summary:** SS is a Program Manager for Cornell Student Services related to Career Development. She has two small children aged 3 and 5. SS uses an app called *A Thousand Hour* to track time spent outdoor, and she enjoys outdoor activities and gardening with her children. SS comes from a gardening family and keeps a 25 feet x 30 feet garden at home to plant a variety of things for the family to eat or make in cans.
- **Insight:** SS says because of the short attention span of her young children, she tries to motivate them to be involved in gardening activities that allow them to see actual growth and plants because those things are more attractive to them. She uses social media and online websites to find resources, yet she always seeks to improve her gardening skills by learning from others.

- **10 - Participant SM:**

- **Summary:** SM is an associate professor at Johnson Business School. He has a 2 years old kid. He spent a lot of time with his kid, but they did more indoor activities together, such as reading books. In terms of children's development, he focuses more on children's cognitive development, such as dexterity and understanding. He has no plans for gardening because it requires a time commitment.
- **Insight:** SM agrees that outdoor experiences are important for children's development, but he doesn't have special plans to ensure his kid enjoys outdoor activities. He prefers to go with the flow and if his kid shows interest in outdoor activities, he will support their interests.

- **11 - Participant YL:**

- **Summary:** YL is a graduate student in the ECE department at Cornell University. He has a 6-year-old child. Since he is a student, he spends little time with his child. His child always stays alone and plays with digital products. Although there is an outdoor garden in his house, he hardly plans gardens with his child. They prefer hiking, skiing, or some other outdoor activities. But he thinks gardening knowledge is vital for a child, and he would teach the child to plant in the future.
- **Insight:** YL's child spends too much time on digital products, which would cause vision loss. YL wants to distract the child's attention from screens to the green plants. He and his wife are not familiar with gardens, and they always learn from social media platforms. They want to explore other methods to educate their child, which can improve the skills and maintain a good parent-child relationship.

- **12 - Participant RN:**

- **Summary:** RN is a senior lecturer at the Civil and Environmental Engineering at Cornell University. He has three over 30-year-old daughters and 7 grandchildren. One of his daughters and three grandchildren live in Ithaca with only seven miles to his house. His three grandchildren come over to visit every weekend, and his wife sometimes has their grandchildren help her take care of the two gardens.

- **Insight:** RN's wife is a well-experienced gardener with 30 years of gardening experience, knowing very much about how to plant effectively considering Ithaca's snowy weather and short planting seasons. He and his wife like to try new plants each year just for the experimental experience. They value the experience more than the result they get. They also believe it's beneficial for children to gain gardening experiences to learn to be responsible and not be defeated by failure.

Affinity Diagram



After we compiled the interview notes of all 12 interviewees, we analyzed the findings using the affinity diagram and organized them into 3 main categories:

- 1) Children's Technical Skills
- 2) Family Experience, and
- 3) Gardening Experience.

Inside each category, there are also subcategories for more detailed information. To view the detailed version of our affinity diagram, please refer to *Appendix 1*.

Research Insights

While interviewees said their children enjoy outdoor activities, they hope to let their children become more engaged and involved outdoors by learning more about plants and nature. Many interviewees think the gardening experience should be **more interactive and collaborative** for **both parents and children** to plan and participate together. Interviewees hope to gain more experience and knowledge about gardening and plants with online information and let their children learn more about the gardening process. Here are **four key research insights** we found from the interviews.

1. Technologies and Outdoor Activities:

- In terms of children's usage of digital devices, parents usually pay attention to **minimizing the screen time** for their children's health. While sometimes children need to use tablets and smartphones for school purposes, parents hope to let their children spend more time doing exercises and engaging in outdoor activities to relax. The primary purpose of digital technologies for children is related to **education** and **learning** because the internet can provide them with abundant information and knowledge.

2. Gardening Challenges:

- One of the biggest gardening challenges for our interviewees is the **limitation of time**. Many parents have full-time jobs, limiting their time to plan and cultivate their gardens. Besides time constraints, interviewees also face challenges regarding the **space of the garden**, the **garden's environmental conditions**, and **local weather issues**. When facing those challenges, they usually try to resolve them by consulting gardeners in local stores, asking neighbors with gardening experience, and searching for online resources.

3. Purpose of Gardening:

- Of all 12 interviewees, we found that most parents enjoy gardening because they can spend more time outdoors, enjoy sunshine, and **eat healthy plants** grown by themselves. The most frequent plants are greens, berries, and tomatoes because those vegetables and fruits are **easier to grow** and all family members can eat.

4. Areas of Improvement for Gardening:

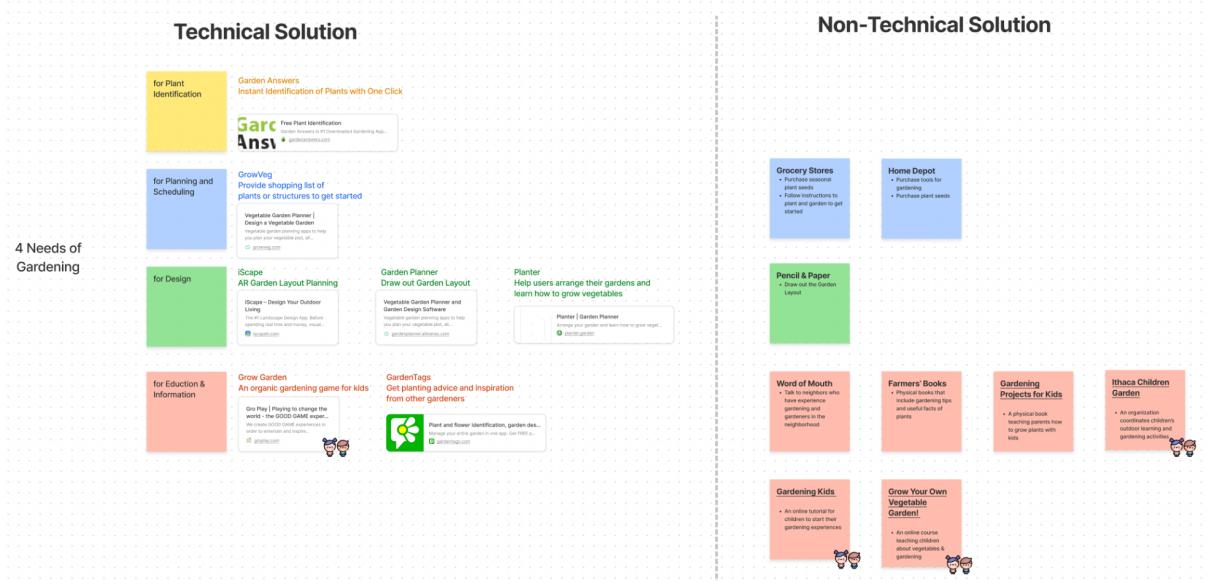
- Many interviewees express satisfaction with their current gardening. However, regardless of their gardening experience, they hope to **learn more knowledge** and expertise about gardening to improve their gardens, such as the soil, watering, seeds, planting techniques, and so forth. In addition, parents also want **their children** to be **more involved** in the entire gardening process from beginning to end. Many interviewees expressed concerns about their children being too reliant on digital technologies and don't want to do the "dirty work." Most of the interviewees hope to make gardening a **family activity** and let

their children choose the seeds, plan the garden, pick the vegetables so children can learn more about plants and have a better appreciation for the natural environment.

While our group initially formed the product concept of creating a garden planner that puts more emphasis on designing the garden with digital aid, we found that parents want their children to involve in the entire process of gardening, many interviewees also commented that their children like to see the real plants compared to just plain soil or the seeds. As a result, our group decided to slightly shift our product concept so that it is more about gardening journal. The gardening journal still allows users to plan their journal with educational information; however, it highlights the growth of plants and the entire gardening process as children can help with documenting the natural process of growing plants.

Product Research

After the user research, we did product research based on resources mentioned in interviews, which helped them gain gardening knowledge. We attempted to explore the current gardening market and find out potential market gaps.



We used an affinity diagram to record and organize our research results. To view the detailed version of the diagram, please refer to *Appendix 2*.

Current Market

Based on our product research, we can divide the current technical solution for gardening into **4 different categories**:

1. Solution for plant identification
2. Solution for planning and scheduling
3. Solution for garden design
4. Solution for education and information

Within these four categories, the solutions for **education and information** have the **most non-technical designs** in the market. The solutions for **garden design** have the **most technical designs** in the market. We learned from the initial product research that current gardening solutions are mostly for adults. As a result, we shifted our research focus to gardening-related

designs for children and found out that most of them are games where children can create their virtual gardens.

Gap & Potential Area

The Gap - We couldn't find any garden solutions to facilitate children's learning in actual gardening. Moreover, we couldn't find any solutions that support interaction between parents and their children in the area of gardening.

Potential Area - We learned from the user research that parents want their children to engage in gardening to help their children learn more about nature, gain hands-on experience in gardening, and develop problem-solving skills. Luckily, this is an area where we haven't seen any related solutions. Therefore, we believe that a solution focusing on creating an interactive learning experience for parents and children and facilitating hands-on gardening learning can provide a unique value proposition for our target users.

Moreover, as we're going to design an app for parents and children, and there are abundant technical solutions for the garden design and plan phase, we decided to shift our focus to a gardening journal tracking our target users' entire gardening projects.

Value Proposition

Product Concept: Our team attempts to create a **gardening journal** for families with children who have a garden at home with basic gardening knowledge to create interactive family learning experiences that support nature engagement for every family member.

Compared to the existing solutions, our product provides:

1. Free access to the basic information and gardening instructions of various playful plants
2. An online journal to keep track of the family's gardening progress and the growth of plants
3. Interactive family journaling platform to promote parent-child relationship
4. Easy and approachable operations that allow a more organized and streamlined gardening process
5. Customized user interface to meet both parents' and children's demand

Persona

Background



Emma is a 38-year-old college professor. Her husband, Richard, is a 40-year-old manager at a large finance company, who is often really busy and usually comes home after 8 pm. They have a 9-year-old son, Lucas, and now they live together in a house in a quiet suburb area with an outdoor garden. When they moved into the house around two years ago, it was during the quarantine time, so Emma started to work from home and utilized her leisure time gardening next to their new house.

She was almost new to gardening, so she spent a lot of time gaining gardening knowledge from her grandmother by the phone and some online YouTube videos. In the first year, she started with some easy-to-grow plants her grandmother recommended for beginners, such as tomatoes, spinach, and zucchinis. In the late autumn of the same year, she got a good harvest for a beginner and gave the end products away to her neighbors as gifts. From that moment on, it deeply inspired her further interests and motivations into gardening. Now, the garden is filled with tomatoes, green onions, cucumbers, spinach, and cabbages. Since Emma loves flowers, she recently planted some lilies.

Goals

Emma's long-term goal is to pursue work and life balance: chasing her career goal in college while spending quality time with her family. Primarily, she wants to raise and educate her son, Lucas, to grow up with health, happiness, and some good qualities, such as a sense of curiosity, responsibility, and hands-on practical ability and capacity. However, since Richard and herself have both been in their career upward rising periods for several years, in the past, Emma often had to send little Lucas to his grandma's place to be watched over. Recently, she has noticed their deficiency as parents in spending quality time with Lucas in his critical years of growth from childhood to teenager. Lucas sometimes started to lose interest in sharing fun stories that

happened in school with them. He spent over 3 hours on electronic products playing video games every day, which Emma believes is very harmful to his health and damages the family bond. Therefore, Emma's short-term goal is to encourage Lucas to leave his video games in the closet, spend more quality time with the family members outdoors to embrace the sunshine and fresh air in nature, and rebuild the family connection and affection to improve his mental health. She believes inviting Lucas to join her in gardening and teaching him some basic skills to help take care of plants could be a good way to achieve her goal.

Behaviors

This spring, at the garden planning stage, Emma brought Lucas to the local farmer's store and let him look at different seeds in the big displays. She chose a section and allowed Lucas to pick his top 3 favorite vegetables: cucumbers, cabbages, and green onions. She also bought him a set of kids' gardening tools that fit his size, brought home the plants he picked, and told Lucas that he is the house's little gardener and needs to be in charge of the garden with mom's help. Lucas was excited when getting the seeds home and starting to learn. Still, later, he seemed to lose interest in pulling out weeds and digging and became impatient waiting in the plants' growing process without seeing any results in a short time. One day, he surprisingly found the plants growing taller and asked Emma and Richard to look at the plants he helped take care of. They all felt so happy for him to learn that: a little hard work can pay off afterward. They suddenly regretted forgetting to record each of the moments Lucas spent on gardening and track how the plants grow up, starting from a bit of seed because they believe what Lucas learned in the process is way more important than the final result. Also, as Lucas started gaining interest in gardening, he showed excitement for trying some new and uncommon plants. Emma told him that if he could well complete his duty as the little gardener for the first year, he would be allowed to pick some playful plants to grow in the future. Therefore, Emma and Lucas started to look for more knowledge of various plant categories.

Scenarios

Emma is a 38-year-old college professor. Her husband, Richard, is a 40-year-old manager at a large finance company, who is often really busy and usually comes home at 8 pm. They have a 9-year-old son, Lucas, and live in a house with an outdoor garden. When they moved into the house two years ago, Emma started gardening to let his son play in the field and have fresh vegetables. The garden is now filled with tomatoes, green onions, cucumbers, spinach, and cabbages. Since Emma loves flowers, she recently planted some lilies. While taking care of those plants, Emma usually asks Lucas to help by teaching him some basic skills, such as watering, digging, etc.

Scenario 1: Write a Journal Tracking Plant Growth (Children)

Value proposition: An online journal to keep track of the growth of plants

After dinner, Lucas remembers Emma assigned him to take care of some plants. He wants to keep track of the plants' growth and share the progress with Emma. So he opens the app and checks on his assigned plants. He takes the smartphone to the garden and searches for the first plant. After he finds the plant, he opens the app again, selects today's date, clicks on the camera icon, and takes a picture of the plants. After taking photos, he waters the plants and finds out that the plant grows a little bit. Lucas feels a sense of accomplishment and is eager to let Emma know about his learning. To record his learning and share it with Emma, Lucas opens the app again and inputs his observations and feelings on the app. After finishing all gardening tasks, Lucas runs to Emma and Richard to show off his accomplishments. They chat and laugh excitedly.

Scenario 2: View Plant Catalog

Value proposition: Free access to the basic information about various playful plants

On the weekends, Emma finally has time to relax, and she decides to start planning the family garden with her son, Lucas. Because of Ithaca's weather, she usually spends time planning the garden since March so she can begin purchasing seeds and preparing the soil during spring and summer for the actual gardening to begin. This time, she wants to let Lucas be involved in the

planning process because she thinks Lucas can better understand the process and learn more about plants and the natural world this way.

Emma and Lucas sit together on the sofa, and Emma opens the app on her phone. Inside the app, there is a feature specifically about learning and education regarding plants. It includes a list of playful plants for a wide variety of use, such as plants that protect, plants that teach or heal, resilient plants for play, edible plants, etc. Emma can easily scroll through the list and see all the plants with small images and their names. Emma wants to plant something easier to grow and survive in her backyard garden, and she also hopes the plants can be edible for the family. During the process, Lucas becomes very interested in what he wants to eat later in the year, so he grabs the phone and starts exploring the list.

Lucas sees a plant called "Bunchberry" and decides to learn more about it. He learns that Bunchberry is sweet, very dry and mealy, and best dried like raisins, which interests him. Then, he shares the knowledge with Emma and continues to explore more plants.

Scenario 3: Create a Journal of Kid's Gardening Experience (Parents)

Value proposition: Interactive family learning platform to promote parent-child relationship

As a college professor, Emma spends most of her time with her students and very little time with her son. Sometimes she feels like her son, Lucas, grows up in a flash. To keep track of Lucas's growth and progress of gardening experience and preserve precious memories, Emma uses the gardening app to keep a journal.

After completing daily tasks, Emma walks to the outdoor garden and finds her son watering the flowers and vegetables. Although Lucas is slightly clumsy, he works hard. Emma wants to record the moment she can share with Lucas when he grows up. She starts a new journal on the app. Then, she opens the camera to take photos and record a video when he concentrates on the plants. After pasting all of the photos and recordings in the journal, she writes down several sentences of feelings about her son's progress and achievements. The journal is flexible, so she

formats and beautifies the pages to make the pages look better. Finally, she saves the journal, uploads it to the server, and joins Lucas to have fun in the garden.

One day, Emma talks about her son's recent improvement with her husband. She opens the gardening app and chooses the journal category. Inside the journal, she recalls the journals submitted half a year ago and reopens the photos and recordings. What significant progress he made! Richard feels so proud of his son.

Scenario 4: Create a Gardening To-Do List for Kids

Value proposition: Easy and approachable operations that allow a more organized and streamlined gardening process.

At 5:00 pm on Monday, Emma just picked up Lucas from school. She has a hectic schedule tonight since her students requested a last-minute online meeting with her at 6:00 pm. After the meeting, she needs to start cooking to make sure that they can have dinner at 8:00 pm. Suddenly, she realizes that she didn't water the garden this morning. It will rain tomorrow, so she also needs to cover the plants with plastic wrap. Moreover, she needs to grab some tomatoes and spinach from the garden for dinner. However, she won't have time to take care of the garden tonight. She really hopes for someone to help.

Emma and Lucas arrive home at 5:45 pm. She is still struggling to manage her time. She considers asking Lucas to help since he has finished his schoolwork today, but she is worried that Lucas doesn't know what to do without her oversight and instruction. Then, Emma remembers that she once saw a to-do list feature on the gardening app on her phone. She opens the app and finds the feature, which can automatically create a to-do list based on her plants in the garden. Emma suspiciously makes a list and finds out that the list includes all gardening tasks with clear instructions, such as how much water is required for watering tomatoes. She manually edits the list, adds a task of picking tomatoes and spinach, and assigns the list to Lucas. Emma explains to Lucas that she needs his help and asks him to follow the to-do list on his phone.

At 6:00 pm, Emma starts the meeting with students in her room, but she is still concerned about whether her son can understand the instructions and finish all tasks. After the meeting, she rushes to the garden, sees tomatoes and spinach are on the table, and watches her son trying to cover the plants with plastic wrap. Emma suddenly feels relieved and proud of her son. She comes close to helping Lucas finish the last task and goes to the kitchen to prepare for dinner.

Scenario 5: Customize Personal Garden in App

Value proposition: Customized user interface to meet both parents' and children's demands

Around mid-April time, Emma previously checked the weather forecast, which showed that all the snow should be gone starting from this week, and the temperature will have a sudden rise to around 15 degrees Celsius. She believes it's a safe time to start planting the garden for this year. Lucas has been using the app to check the list of playful plants that he wants to eat later this year for around one week, and he finally decided to try some new plants he learned from the app: "Bunchberry," "Sea Buckthorn," and "Quince." After checking the planting instructions on the app, Emma thought it wouldn't be too hard to plant these three types picked by Lucas, so she pressed the "Add" button to store these three plants on the app's "My garden" page. She is also afraid she may forget what has grown in the garden, so she adds all the existing plants to the "My Garden" page as well. Then, Emma and Lucas went to the local market to purchase the seeds he had chosen and plant them in the garden according to the planting instructions in the steps provided in the app.

Two weeks later, the plants Lucas picked had grown out of the ground and kept getting taller. This Monday morning, Emma checked her garden, applied some fertilizers to the plants at 7:30 am, and took Lucas to school at 8:30 am. These are parts of her daily routine. Then, she headed to her office on campus for the in-person office hours she held this morning. At 12:30 pm, Emma's friend Tracy came to invite her to try out the newest dining hall on campus for lunch. During lunch time, Tracy asked Emma about her garden, so Emma showed Tracy the list of plants she had stored on the app's "My garden" page, with their updated growing status and further planting suggestions for each type of plant. Tracy was impressed by Emma's digital garden and couldn't wait to visit the real garden any longer. Emma said that when she has a

break between working times, she likes to use the app to check each plant's current situation at least once a day and thinks about her further planning for the garden. Then, Emma invited Tracy to come over this weekend and check the current achievements in the garden that she and Lucas had been working so hard on.

Gardening Journal Project Themes

- ***Adaptability:*** The high-fidelity prototype of the app will be fully responsive on mobile, tablet, and desktop devices.
- ***Usability:*** Design the application with simple interactions and user flow using large, touchable targets. The app will have a playful but simple aesthetic, suitable for children and parents to use. The language used should be easy to understand from children's perspectives.
- ***Content:*** The app will display a list of plants from the Playful Plants database and instructions and tips for growing each plant. The app will allow users to input journal entries with both texts and pictures to document their gardening experience and progress.
- ***Interaction:*** The app will enhance an interactive user experience that connects parents to children, taking full advantage of the wireless capabilities and location awareness.
- ***Visibility:*** The app will display an image-based catalog that provides users with visual understanding of plants and brief textual descriptions.

Team Member Contribution

Han Gao

- Conducted 4 user interviews with 3 different participants
- Recorded her observations from the interviews in the affinity diagram
- Helped create the product research's affinity diagram
- Responsible for writing the User, Participant Description, and Scenario 4 parts in the report
- Helped write the Project Themes part in the report
- Responsible for editing and submitting the report

Kehui Guo

- Conducted 4 user interviews with 4 different participants
- Recorded her observations from the interviews in the affinity diagram
- Responsible for writing the User Research, Participant Description, and Scenario 2 parts in the report
- Helped write the Project Themes part in the report
- Helped with editing the report

Hang Jiang

- Conducted 3 user interviews with 3 different participants
- Recorded her observations from the interviews in the affinity diagram
- Responsible for writing the Participant Description, Persona and Scenario 5 parts in the report
- Helped write the Project Themes part in the report

Hongxi Jin

- Conducted 2 user interviews with 2 different participants
- Recorded her observations from the interviews in the affinity diagram

- Responsible for writing the Participant Description, Value Proposition, and Scenario 3 parts in the report
- Helped write the Project Themes part in the report

Daisy Liu

- Conducted 3 user interviews with 3 different participants
- Recorded her observations from the interviews in the affinity diagram
- Responsible for writing the Participants Description, Product Research, and Scenario 1
- Helped write the Project Themes part in the report

Appendix

Appendix 1: User Research Affinity Diagram Details

User Research - Children's Technical Skills

Children's Technical Level	Time Spent on Digital Products
JC Advanced Technical Skills	JP Novice to Intermediate
RN Really good at entertaining related skills, anything beyond that probably not very developed.	RM Mainly using technologies for entertainment, but not very good at doing research or learning things
J My daughter always joke me that I should take a course called technology for old people	CT Very basic because of young age
SS Minimal experience due to young age and controlled use	MJ They're better at technical products than I do
MP I sometimes still need to tell and teach them. However, They are better on tablets than their grandparents are.	YL Better than me.
SM Novice	MP At home, I try to limit their time to 30 minutes per day. But, usually end up with about an hour on tablets and iPhone
	JC A lot, can't even quantify
JP 2-3 hours, only during the weekend	RN Probably 3 hours or more
RM 8-10 hours per day, for all types of use: school, play, social	CT A couple of hours a week
SS Not daily, few hours a week with parent monitoring	MJ I try to keep the time pretty low: 30 minutes - 1 hour
	YL 3-4 hours per day
	SM Not regularly

Types of Digital Products		Activities on Digital Products	
JC iPhone, Desktop	J: iPhone, TV, Laptop	JC Social Media Some Games	J School work Watch movies Listen to music Communication
JP TV & iPad	RN <ul style="list-style-type: none">• computer,• iPad• video games	JP Watch streaming service Some Game Apps	RN <ul style="list-style-type: none">• Digital artworks• video games
CT iPad	RM iPad, phone, TV, computer	CT Reading digital books, looking at educational videos	RM computer games school work connecting with friends
SS iPad	MJ iPad and laptops	SS Game, video, for mainly entertainment purposes	MJ <ul style="list-style-type: none">• Finding books online to read• Listening to stories• Doing programming & math game• Other video games
MP Tablets, iPhones, Switch, TV	YL TV, smartphone, tablets.	MP <ul style="list-style-type: none">• They watch YouTube on tablets• Do some school works• They sometimes search for information on the internet	YL <ul style="list-style-type: none">• Playing computer games;• Browsing the video social platforms like Tiktok.
SM iPhone		SM Watching videos	

User Research - Family Experience

Most Memorable Family Experience		Time Spent With Kids	
RN Probably the time we lighted up a fire in my backyard, and we cooked hotdogs/hamburgers together. That was a pretty nice time.	J We went to NYC together to watch Broadway Shows, eat delicious food, and go shopping together	RM Not much since children is older	RN - (grandchildren) • Around 2 hours per week. Usually one night on the weekends • Generally they are busy. It's hard for them to come over
JC Go hiking, packpacking, and biking together Biking tours for 4 days Conquering 46 mountains together before his son finished high school	JP The first time his kid learn how to swim(at their own house pool)	J She spends 75% of her time outside the school with me. We will have at least two nights together for "Girls' Nights."	SS depends on the season: summer all day, winter varies, try to spend as much as time outside use app A Thousand Hour to track time spent outdoor
MJ When we go on a bike ride, in the summer, there is a little river along the trail. It's always fun to watch them jumping around in the water	MP • The first time when my kids showed their interest in skiing, I was extremely excited. My wife and I both love skiing, so we finally found our family activity. • Also, in summer, we start camping with my kids. When I watch them interacting with nature, I was happy.	JC 5 hours/day when they are younger 2 hours/day now since they are more active in personal social activities	MJ • Due to the pandemic, I was with them every day • Now they're at school, I was with them after they are home and until they go to the bed at 8-9 pm • They usually play with each other, so every day, I spend 1-2 hours playing with them every day
SM The first time we swing together and she called me dada		JP 2 hours on weekday 8-10 hours on weekend	YL 2 days per week (weekend)
		MP Due to the pandemic, they are with me 24 hours per day	
		SM A lot, can't even quantify	
		CT Always, as much as she can	

Family Activity	
Indoor	Outdoor
RN • Play the video games • Play chess • Sometimes they come over and we cook together	RM play with dog, walking, skating, gardening
J • watch movies • cook together • KTV • Talk and chat	J • most of times, we will go for a walk, grab some coffees • walk our pets together
MJ • Try to involve them in things I'm doing: • Cooking • Gardening • Reading books • Watching movies	RN In summer, we do outdoor activities together probably 2 hours a week: • Go hiking • Cycling • Tak them fly in my airplane • Go to the beach
MP • Play Barbie dolls with them • Lego • Switch • Play video games with them • Read together • Do arts together	JC Hiking, backpacking, biking
YL • Play Lego together • Play table tennis	JP Go to physical classes with his kids every week Go to parks and trails on the weekend Swim at their own pool
SM Read books	MP • Ski • Camping • Hiking
	SS Local playground, hiking, botanic garden, biking, walking have a small playground backyard with swing, slide, and small tree house
	MJ • Ball game • Help them build something • Bike ride
	YL • Barbecue • Camping • Skiing • Sliding / Swinging
	SM Play and walk around in the backyard

User Research - Gardening Experience

Gardening Challenges	Gardening Tools/Resources
<p>RM not enough time, need to spend time to protect the garden from deer by building high fences</p>	<p>SC hard to taking care of, time consuming</p>
<p>JC Require time commitment</p>	<p>JP Bugs issue - don't know how to deal with it and plants die</p>
<p>RN</p> <ul style="list-style-type: none"> • Weather: When winter is gone, we plant the flowers in the end of May, but all the sudden it's 20 degrees outside, that kills everything Put big cloth over my flowers to protect them from the frost and sun • Timing: Planting too early → in the spring → the risk of getting snow and frost. Planting too late → won't get anything by the end of october • Types of plants: The conditions Ithaca influence the types of plants we choose: Watermelon is very difficult to grow here, because the season is so short here, and it likes heat • Weeds Have to pull weeds everyday 	<p>RM online and local garden shop, Amazon, agway, grocery store (have seasonal seeds from reputable companies)</p> <p>JC Google online Experience sharing from colleagues Mostly given by friends</p> <p>CT very small house and yard, not enough space; can only garden for certain months</p> <p>J My lower back always hurt when I'm gardening</p> <p>SS Not enough time Still learning ways to use the space more efficiently, waterings, and amending soil</p> <p>MP</p> <ul style="list-style-type: none"> • Right now, the challenge is to figure out where to put the garden and build the fence • Hard to manage my busy schedules <p>YL</p> <ul style="list-style-type: none"> • Hard to apply fertilizer • Flowers withered frequently • Attract pests
<p>MJ</p> <ul style="list-style-type: none"> • The main challenge is animals who come and kill our plants • time-consuming 	<p>JP Google online Go to Home Depot and ask around Sometimes order tools online</p> <p>SC Online shopping Local vendors</p> <p>CT Local stores, agway; rarely buy in Target or Amazon, try to support local businesses; ask people in store about gardening tips</p> <p>SS Social media like Tiktok and Instagram, seed companies, online resources for educating about gardening, local stores, plant sales in botanic garden</p> <p>MP</p> <ul style="list-style-type: none"> • Internet • Farmers' books • Trials & errors <p>MJ</p> <ul style="list-style-type: none"> • Trials & errors • Internet <p>YL</p> <ul style="list-style-type: none"> • YouTube • Ask for friends for help • Supermarket like Walmart

Purposes of Gardening	Areas for Improvements	Gardening with Children
<p>RM plant greens for his turtles, seeing things grow and spend time in nature</p> <p>JC Grow vegetables - tomatoes</p> <p>J <ul style="list-style-type: none"> to get more outdoor activities to see beautiful flowers filling the garden to smell fresh air </p> <p>SS come from family of gardening plant things for family to eat, enjoy the outdoor fresh air and nature, a good way to spend time</p> <p>RN Planning State: <ul style="list-style-type: none"> We plan all the locations of each plants roughly leave enough space, so when they grow up, they won't block the way </p> <p>MJ <ul style="list-style-type: none"> Fun to play with kids My wife loves Japanese herbs, which are hard to purchase in Ithaca, so we plant them ourselves I can do something, and immediately see the result </p> <p>YL <ul style="list-style-type: none"> Plants can serve as food Spend time with child and wife </p>	<p>SC Vegetables are good to eat, and flowers are beautiful Plant some tomatoes, cucumbers ... rose, daisy...</p> <p>JP Grow vegetables - tomatoes, green onion, banana pepper Enjoy eating self-grown vegetables</p> <p>CT Grow very basic things for eating purposes; want to connect to the earth and enjoy spending time in nature to honor life</p> <p>RN Experimental Game: We like to try different plants, sometimes we didn't get what we wanted in the end, it's still interesting to try new things. <ul style="list-style-type: none"> Couldn't eat them all, gave things away as gifts. </p> <p>MP <ul style="list-style-type: none"> I'm having it for my kids Right now, their interactions with food and vegetables are mainly from grocery stores I hope that they watch those vegetables grow. They have a better understanding of food I also want them to learn the concept of life and death </p> <p>MJ <ul style="list-style-type: none"> Figure out how to keep animals out of the garden </p>	<p>RM knowledge and experience, share things with other people in a community, let the kids learn more about gardening</p> <p>JC Knowledge and experience</p> <p>CT Knowledge, want to learn more about plants, climate based on location; hope technology can connect people to real-life; encourage people to learn about local things</p> <p>J <ul style="list-style-type: none"> More sunshine Access to a broad variety of flowers and plants Keep animals out of my garden </p> <p>MP <ul style="list-style-type: none"> Find an online source to answer my questions </p> <p>SC Methods to acquire knowledges</p> <p>JP Expert knowledge ex how to deal with the bug issues Need a larger space</p> <p>RN <ul style="list-style-type: none"> want to get better fertilizer want to have better weather </p> <p>SS Pick things/plants intentionally and need resources to learn to evaluate cost and benefits knowledge and experience</p> <p>MJ <ul style="list-style-type: none"> Figure out how to keep animals out of the garden </p> <p>CT children like the easier work: watering, taking pictures, picking things</p> <p>MJ I hope to teach them <ul style="list-style-type: none"> They can spend time outside, get comfortable with playing outside Play with dirt, not afraid of getting dirty and messy Find the opportunities to explore things to play with They don't rely heavily on digital products </p> <p>J <ul style="list-style-type: none"> When my daughter was still a kid, she loved planting food. She loves the idea of being able to eat those food from the dirt directly. I want my daughter to understand how to plant her own food. </p> <p>RM Children don't like to spend a lot of time doing the "dirty work", they are already used to the easy results; want them to engage more</p> <p>SS children has short attention span, want to let them involved in picking seeds, watering, soiling, and picking</p> <p>JP Want to engage kids in gardening after they grow up a little bit - teach kids how the nature works & like to eat vegetables more</p> <p>MP <ul style="list-style-type: none"> It's a learning experience for both my children and myself. If things don't work out, we still learn something If my kids are no longer interested in it, we can stop doing it As long as we grew a cucumber, it's a success </p>

Appendix 2: Product Research Affinity Diagram Details

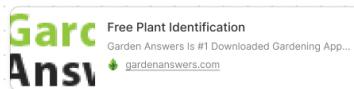
Product Research - Technical Solution

Technical Solution

4 Needs of Gardening

for Plant Identification

Garden Answers
Instant Identification of Plants with One Click



for Planning and Scheduling

GrowVeg
Provide shopping list of plants or structures to get started

Vegetable Garden Planner | Design a Vegetable Garden
Vegetable garden planning apps to help you plan your vegetable plot, all...

growveg.com

for Design

iScape
AR Garden Layout Planning

iScape – Design Your Outdoor Living
The #1 Landscape Design App. Before spending real time and money, visual...

iscapeit.com

Garden Planner
Draw out Garden Layout

Vegetable Garden Planner and Garden Design Software
Vegetable garden planning apps to help you plan your vegetable plot, all...

gardenplanner.almanac.com

Planter
Help users arrange their gardens and learn how to grow vegetables

Planter | Garden Planner
Arrange your garden and learn how to grow veget...

for Education & Information

Grow Garden
An organic gardening game for kids

Gro Play | Playing to change the world - the GOOD GAME exper...
We create GOOD GAME experiences in order to entertain and inspire...

groplay.com



GardenTags
Get planting advice and inspiration from other gardeners



Plant and flower identification, garden des...
Manage your entire garden in one app. Get FREE p...

gardentags.com

Product Research - Non-Technical Solution

Non-Technical Solution

Grocery Stores

- Purchase seasonal plant seeds
- Follow instructions to plant and garden to get started

Home Depot

- Purchase tools for gardening
- Purchase plant seeds

Pencil & Paper

- Draw out the Garden Layout

Word of Mouth

- Talk to neighbors who have experience gardening and gardeners in the neighborhood

Farmers' Books

- Physical books that include gardening tips and useful facts of plants

Gardening Projects for Kids

- A physical book teaching parents how to grow plants with kids

Ithaca Children Garden

- An organization coordinates children's outdoor learning and gardening activities



Gardening Kids

- An online tutorial for children to start their gardening experiences



Grow Your Own Vegetable Garden!

- An online course teaching children about vegetables & gardening



Appendix 3: Interview Notes

First-Round Interview with FG

- Do you have any kids? If so, how old are they?
 - 2 children, one son, one daughter
- What is your attitude on playing in nature?
 - walk
- What is your kids' attitude towards playing outside? Do they enjoy it?
 - Very open, walk, watch nature, bicycling
- What activities do you enjoy the most when spending time outdoors?
 - Sailing, skiing, walking
- When was the last time your kids played in nature? What were you doing?
 - This weekend, yesterday, skateboarding, walking
- Why do you like/dislike to play in nature?
 - Outdoor activities he likes, focus on that activity, relaxing
- How long do children play outside per week, on average?
 - Children at least 1 hour everyday
- Could you please describe the most memorable outdoor experience with your children?
 - Where did you play?
 - Enjoy skiing together
 - What did you do?
 - Who did you play with?
- What aspects of play are the most important to you?
 - Fresh air, sun; relax
 - Only focus on the activity without having to think about anything else
 - Forget about work
- How much do you know about plants?
 - Vegetable garden
 - picking vegetables
 - Plant, water
- If not much, why?
- What are several resources that you use to gain that knowledge?
 - Check online, search for tips when plants are sick
 - Understand the season issues
- Do you grow any plants at your home?
 - If yes, what are factors that impact your choices of plants?
 - If no, why not?

First-Round Interview with KR

- What activities do you enjoy the most when spending time outdoors?
 - Downhill skinning
 - Cycling
 - Camping
 - Hiking
 - Canoe trip
 - How often do you engage?
 - In summer, I cycle everyday when it's not raining
 - In winter, I go skinning 20 times a year (3 trips, 7 days at a time)
 - Outdoor canoe trip camping (1 trip 7 days at a time, per year)
 - Where
 - Canoe: Northern Quebec in Canada, about 300 miles from north Montreal
 - Hiking: anywhere, including mountains and hills all around in Ithaca
 - Who
 - Almost always my wifes (our common interests)
 - Sometimes other friends
- How much do you know about plants in nature?
 - If not much, why?
 - Not as much as I used to know, I used to know a lot. I don't really remember now.
 - What are several resources that you use to gain those knowledge?
 - I took some outdoor education courses when I was in college, and they included a lot about ecosystems and plants, what was edible, what was safe to touch, and bio, nature life and plants in general.
 - Not purely for survival, just a little bit about when you are camping what plants can you eat and be safe
 - When we go camping, there are often raspberries and blueberries that I'm confident to identify, the other plants I learned I'm afraid of remembering them wrong in nature.
- What is your opinion on letting children play in nature?
 - I absolutely think children should be outdoors.

If positive:

- How do you think the outdoor environment can better support children's health?
 - My older son is 31, and the younger one is 29. They spent a lot of time outdoors when they were little, learning from other people. They are adults now, and they are very comfortable spending time outdoors, camping, and skinning. They spend more time outdoors than I did in their ages.

If negative:

- What are your particular concerns about letting children play in nature? Why?
 - I guess children can get in trouble if they are not careful, but in general, not really. I think kids should be outdoors

- How long do they play outside per week, on average?
 - If it is longer than 2 hours, how do they often spend the time?
 - Several hours a day
 - When they were little, they spent a large amount of time with friends. We let them cycle around very often. They went camping with us until they were old enough as teenagers so they could do it by themselves.
 - They were hanging around, cycling, doing a little bit of sports like soccer but not too often, sometimes even just playing kids games.
 - What other activities do they do in their spare time, instead of spending time outdoors?
 - The older one liked to do a lot of online gaming, and the other one liked to build models and legos.
 - They both spent a lot of time reading
 - Do they spend more time outdoors or indoors?
 - On average, I would say it was split fairly even.
 - Back then we were living in New York, in the winter it was cold and dark, so they could spend a little less time outdoors in winter than in summer.
- Could you please share your thoughts on the outdoor environment around your house and school?
 - I'm gonna answer with where we used to live, because where we live now we chose to live here knowing our kids have moved out, and we didn't care about parks around that much.
 - Where we used to live, there were a lot of parks, we lived in a kind of suburb area outside of New York. If you count school yards in, there were a lot of parks, but there could be more.
 - Because even before that, we used to live right in the middle of the city in Toronto, where there were a lot of parks but not close to the house. In Toronto, there were probably more parks, but you had to get to them by driving.
 - Whereas later in New York, the parks were within walking distance for our kids, which was more convenient.
 - Do you think there are enough plants outside?
 - I don't remember, probably not. There could be more.

First-Round Interview with MP

- Do you have any kids? If so, how old are they?
 - I have two daughters. One is 9, and the other is 5 years old.
- What is your attitude on letting your kids play in nature?
 - Honestly, we moved to the country specifically to let my kids play in nature.
 - They spend too much time on tablets and those digital products. Sometimes, I feel that they are addicted to it.
- What is your kids' attitude towards playing outside? Do they enjoy it?
 - They definitely enjoy playing outside. However, they just don't want to give up their tablets sometimes. As long as you force them to go outside, they love it.
- What activities do you enjoy the most when spending time outdoors?
 - I and my wife both enjoy skiing.
- When was the last time your kids played in nature? What were you doing?
 - I let them play outside this morning since the weather is pretty good.
 - They go hiking on the trail around our house.
 - They have been outside since 9 AM this morning.
 - They both enjoy hiking
 - We have trials around our home
 - Riding bicycles
 - Going ski
 - Any concerns?
 - Concern about they are getting hurt (balance of allowing them to explore but keep eyes on them)
- How long do children play outside per week, on average?
 - If it is longer than 2 hours, how do they often spend the time?
 - I let them play outside as long as they can when the weather allows.
 - However, in school, kids don't have much time outside, and I have no control over it.
 - I know that the school does the best degree to let children play outside, so I understand the condition.
 - If it is shorter than 2 hours, what are the obstacles that prevent them from spending more time outside?
 - What other activities do they do in their spare time, instead of spending time outdoors?
- Could you please describe the most memorable outdoor experience with your children?
 - It was the last year when our family went skiing together. This was the first time when my kids learned how to ski and truly enjoyed it.
 - Previously, when they were still little, we sent them to ski lessons. However, since they were too little, they didn't like skiing.
 - However, last year, they were excited about skiing. Both my wife and I were excited as well since we eventually found a family activity that all of us love.
- What aspects of play are the most important to you?
 - I want my kids to explore nature while playing outside, but I am also really concerned about them getting hurt.
 - It's hard to find a balance between giving them enough space to explore and keeping them safe, so I need to always put my eyes on them.

- How much do you know about plants?
 - My family is farmers.
 - I grew up on the farm, but honestly, I don't know much about plants.
- Do you grow any plants at your home?
 - If yes, what are factors that impact your choices of plants?
 - If no, why not?
 - We don't grow any plants at this movement, since we just moved here in December. We are here just a few months.
 - However, I do have a plan of starting gardening. I plan to grow some tomatoes and fresh vegetables here.
 - It is nice to have fresh vegetables at home, but more importantly, I want to teach my daughters about planting, let them see the process, and learn the knowledge.
 - I really valued my experience of growing up on the farm and seeing the process. I believe this experience somehow affects me, so I also want my daughters to learn.

2nd Round Interview with SS

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
 - a. 2 kids, 3 and 5

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
 - a. Ipad, controlled use, not daily
 - b. Usually she uses to help navigate
 - c. Access to ipad, game, or videos, for entertainment
3. What kind of digital products/platforms do your kids spend time on?
4. What activities or tasks do your kids use those products to do?
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - a. How do you spend time with kids?
 - i. App: a thousand hour, track time outdoor, 2 dollars
 - ii. Depends on season, summer all day, winter not feasible
 - iii. Playground, stewart, cascad, children garden
 - iv. Hiking botanic garden
 - v. Playground backyard, swing slide, tree house small
 - vi. Biking
 - vii. walking
 - b. If not much, why?
 - c. Do you wish to spend more time with your kids? In what way?
 - i. yes
2. What activities do you usually do with your kids? What do you usually play together?
3. How much time do you spend engaging in outdoor activities with your children?
 - a. What do you like to do together?
4. What is your most memorable experience while spending time with your kids?

Garden Experience (for Idea 1)

1. Do you have a garden at home?
 - a. If so, why do you choose to have a garden at home?
 - i. Yes, 10 plants
 - ii. Flower beds, vegetable
 - iii. Fence area is vegetable, other bed for flowers
 - b. If not, are you planning to have a garden at home? Why or why not?
2. Could you please describe your level of gardening experience?
 - a. High, one of her hobby
 - b. 14 plants, 25*30 feet
 - c. More than average
 - d. **Tomatoes (sauce)**, peppers, cucumbers, beans, strawberries, squash, family eat or make in can/freeze

- e. Come from family of gardening
 - f. Mostly spring to fall; grow range from may to nov, start prepping march, wine things down in nov
3. Can you describe the last time you planned your garden?
- a. If yes, do you spend time with your children to plan garden activities together?
 - i. If yes, what did you do together?
 1. As much as they can be, attention span short
 2. Beans planted early, get them in june
 3. Son helped her, facilitated, put seeds
 4. They like when things are there
 5. Like to see the interesting things, watering plants, picking vegetables
4. What are some of the tools and resources you use for garden planning?
- i. Where do you usually get those tools and resources?
 1. Social media, tiktok and instagram
 2. Seed company, flonish and seed, make seeds
 3. Resources education for gardening
 4. Local stuff
 5. Corporate extension
 6. Plant sale, botanic garden
5. Are there any challenges for your current gardening experience?
- i. If no, why not?
 - ii. Time, not having enough time
 - iii. Still learning
 - iv. Amend soil, learning knowledge, watering
 - v. Space, good amount of space, want sufficient gardening
6. How do you usually acquire gardening knowledge?
7. Where do you usually go to purchase plants and seeds for your garden?
8. What aspects of gardening do you enjoy the most?
9. What aspects of gardening do you dislike the most?
10. In your opinion, what things may help you improve your gardening experience?
- a. Involve them in the choosing seeds, eg. watermelon LOL
 - b. Food that she wants them to eat
 - c. Dont like carrots, but like picking carrots
 - d. Picking things intentionally, evaluate the cost of benefits
 - e. They love strawberries, and flowers (daughter loves)
 - f. Get them involved in the entire process
 - i. Knowledge, passions

2nd Round Interview with SC

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?

No

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
3. What kind of digital products/platforms do your kids spend time on?
4. What activities or tasks do your kids use those products to do?
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - a. How do you spend time with kids?
 - b. If not much, why?
 - c. Do you wish to spend more time with your kids? In what way?
2. What activities do you usually do with your kids? What do you usually play together?
3. How much time do you spend engaging in outdoor activities with your children?
 - a. What do you like to do together?
4. What is your most memorable experience while spending time with your kids?

Garden Experience (for Idea 1)

1. Do you have a garden at home?

Yes.

Spend 10 hours in the garden per week.

Reason: my wife likes planting flowers and vegetables very much.

2. Could you please describe your level of gardening experience?

My wife is capable and calls herself a green thumb.

3. Can you describe the last time you planned your garden?

Last spring: 2021 late may, plant some tomatoes, cucumbers ... rose, daisy...

4. What are some of the tools and resources you use for garden planning?

Internet, Local venders

5. Are there any challenges for your current gardening experience?

Taking care of gardens.

6. How do you usually acquire gardening knowledge?

Internet

7. Where do you usually go to purchase plants and seeds for your garden?

Local venders

8. What aspects of gardening do you enjoy the most?

Vegetables are good to eat and flowers are beautiful.

9. What aspects of gardening do you dislike the most?

Hard to take care of them.

2nd Round Interview with YL

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?

One kid, 6 years old

Technical Skills

1. How much time do your kids spend on digital products every day?

3-4 hours per week.

2. What kind of digital products/platforms do your kids spend time on?

TV, smartphone, tablets.

3. What activities or tasks do your kids use those products to do?

Play computer games and browsing the video social platforms like Tiktok.

4. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)

Stronger than me.

Family Experience

1. How much time do you spend with your kids per week in general?

2 days per week (weekend)

- a) How do you spend time with kids?

Play Lego together / basketball / table tennis

- b) If not much, why?

- c) Do you wish to spend more time with your kids? In what way?

Of course.

Entertainment / tutoring homework / playing outside

1. What activities do you usually do with your kids? What do you usually play together?

Barbecue, camping, skiing...

2. How much time do you spend engaging in outdoor activities with your children?

5 hours per week.

- a) What do you like to do together?

Tree climbing / go hiking / sliding / swinging

1. What is your most memorable experience while spending time with your kids?

Garden Experience

1. Do you have a garden at home?

Yes.

- a) If so, why do you choose to have a garden at home?

Beautiful / fresh air / raise cats and dogs / plant vegetables to eat

- b) If not, are you planning to have a garden at home? Why or why not?

1. Could you please describe your level of gardening experience?

Entry level

2. Can you describe the last time you planned your garden?

Yesterday. Discuss with my wife and then scratch out the newest version of our garden.

- a) If yes, do you spend time with your children to plan garden activities together?

Yes. Trimming and watering.

- b) If yes, what did you do together?
1. What are some of the tools and resources you use for garden planning?
YouTube / Tiktok
 - a) Where do you usually get those tools and resources?
Internet
1. Are there any challenges for your current gardening experience?
Hard to apply fertilizer, and flowers withered frequently.
- If no, why not?
2. How do you usually acquire gardening knowledge?
YouTube.
Some of my friends are good at it, so I can ask for friends for help.
 3. Where do you usually go to purchase plants and seeds for your garden?
Supermarket like Walmart
 4. What aspects of gardening do you enjoy the most?
Plants can serve as food.
Spend time with child and wife.
 5. What aspects of gardening do you dislike the most?
Time-consuming / attract pests.
 6. In your opinion, what things may help you improve your gardening experience?
Practice / technology / professional lessons.

2nd Round Interview with JP

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
2 kids. 2-year-old, 4 year-old

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
2-3 hours, Only over the weekend, watch TV in the morning
3. What kind of digital products/platforms do your kids spend time on?
TV & iPad
4. What activities or tasks do your kids use those products to do?
Watching the streaming service(Disney+, Netflix), Some game apps
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)
Novice

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - How do you spend time with kids?
**1-2 hr/weekday
8-10 hr/weekend**
 - If not much, why?
Do you wish to spend more time with your kids? In what way?
2. What activities do you usually do with your kids? What do you usually play together?
Go to the park near the house
3. How much time do you spend engaging in outdoor activities with your children?
**Go to every physical class with the kids
Go to park and trail on weekend, depending on the weather
Have a outdoor pool at home, will play at the pool in summer**
 - What do you like to do together?
4. What is your most memorable experience while spending time with your kids?
The first time his kids learn to swim

Garden Experience (for Idea 1)

1. Do you have a garden at home?
No garden, but we plant vegetables next to the pools - Tomatoes, Green Onion, Banana Pepper
 - a. If so, why do you choose to have a garden at home?
 - b. If not, are you planning to have a garden at home? Why or why not?
Planning to move to a bigger house and have an actual garden
2. Could you please describe your level of gardening experience?
Very beginner
3. Can you describe the last time you planned your garden?
 - a. If yes, do you spend time with your children to plan garden activities together?
No, because the kids are still too young. But plan to teach them gardening after they grow up a little more
 - If yes, what did you do together?

4. What are some of the tools and resources you use for garden planning?
Google online, go to Home Depot to ask around
 - Where do you usually get those tools and resources?
5. Are there any challenges for your current gardening experience?
Not enough space
 - If no, why not?
6. How do you usually acquire gardening knowledge?
7. Where do you usually go to purchase plants and seeds for your garden?
Walmart, sometimes order online
8. What aspects of gardening do you enjoy the most?
Eating part
9. What aspects of gardening do you dislike the most?
Catching the bugs and dealing with the bugs' issues
10. In your opinion, what things may help you improve your gardening experience?
Need to know more expert knowledge, such as how to deal with bugs
11. What things do you hope to teach your kids from gardening?
Want to teach kids about nature - show them how the plants grow, how nature works

2nd Round Interview with RN

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
 - 3 daughters. The youngest is 30. The oldest is 36.
2. Do you have grandkids? If yes, how many kids do you have, and how old are they?
 - 7 grandchildren. Their ages: 13, 12, 11, 10, 9, 8, and the youngest one was born yesterday.
 - They all live with their parents
 - One of my daughters (the middle one) and her 3 kids live in Ithaca, only 7 miles from where I live. The two other daughters live in other cities.
 - I meet the 3 grandchildren in Ithaca every week, the other 3 I meet them once a year

Technical Skills (to understand kids' technology level)

3. How much time do your kids spend on digital products every day?
 - Probably 3 hours or more
4. What kind of digital products/platforms do your kids spend time on?
 - The 3 live in Ithaca:
 - The oldest one uses her computer and ipad. She is an artist, she does a lot of artwork on electronics. (13 years old)
 - The middle one doesn't spend as much time on electronics. She likes to read books. (11 years old)
 - The youngest one, if you let him, he would be on video games all day long.(10 years old)
5. What activities or tasks do your kids use those products to do?
 - The oldest one: does a lot of artworks
 - The youngest one: doesn't want to do anything else other than playing video games.
6. Could you please describe the level of your kids technical skills? (You can compare their levels with yours)
 - Really good at entertaining related skills, anything beyond that probably not very developed.

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - How do you spend time with kids?
 - Around 2 hours per week. Usually one night on the weekends
 - If not much, why?
 - Generally they are busy. It's hard for them to come over
 - Do you wish to spend more time with your kids? In what way?
 - Yes. Just anything
2. What activities do you usually do with your kids? What do you usually play together?
 - Play the video games they like
 - Play chess
 - Sometimes they come over and we cook together.
3. How much time do you spend engaging in outdoor activities with your children?
 - In summer, we do outdoor activities together probably 2 hours a week. We would go down to Kentucky to see the other 3 grandchildren for a week outdoor trip.

- In winter, we almost stay inside all the time, and usually cook and watch movies together.
 - What do you like to do together?
 - Go hiking
 - Cycling
 - Take them fly in my airplane
 - Go to the beach
4. What is your most memorable experience while spending time with your kids?
- Probably when we light up a fire in my backyard, and we cook hotdogs/hamburgers together. That was a pretty nice time.
- Garden Experience (for Idea 1)**
1. Do you have a garden at home? Yes
 - a. If so, why do you choose to have a garden at home?
 - I grow up always with a garden at home, so when I got my own house, I just continued to keep it.
 - Now we have a vegetable garden and a flower garden at home.
 2. Could you please describe your level of gardening experience?
 - Me: not so good
 - My wife: 30 years of gardening experience
 - Not for commercial, just for joyment to have fresh vegetables to eat
 3. Can you describe the last time you planned your garden?
 - Last year, we made our second garden, because we needed a bigger space. We also made two large boxes as containers to grow peppers in.
 - We planned to grow cucumbers, peas, and other vegetables in the large garden, and garlic and other smaller plants in the small garden.
 - We also had flowers all around the house
 - b. If yes, do you spend time with your grandchildren to plan garden activities together?
 - Yes.
 - If yes, what did you do together?
 - We let them choose plants like sunflowers, things that grow very quickly, so they can see the result in a few weeks.
 - In the spring, we would go to the stores together and have them look at different seeds. There are big displays of different seeds in stores. We choose a section for them and ask them to pick from there.
 - They also have their own gardening tools for kids. They are in charge of the plants they picked with our help.
 4. What are some of the tools and resources you use for garden planning?
 - Where do you usually get those tools and resources?
 - Internet
 5. What do you do in the garden planning stage?
 - We plan all the locations of each plants, decide what we want to put where, and leave enough space, so when they grow up, they won't block the way, and we can actually walk into the garden

- Sometimes we draw it on the paper, but more often we just go into the garden and roughly plan the location by estimating. It doesn't need to be very accurate.
6. Are there any challenges for your current gardening experience?
- Weather:
Here in Ithaca, when winter is gone, you can plant the flowers in the end of May, but all the sudden it's 20 degrees outside, and that kills everything
Had to put big cloth over my flowers to protect them from the frost and sun
 - Timing:
If you plant too early in the spring, you need to take the risk of getting snow and frost.
If you plant too late, you won't get anything by the end of October, and it's getting too cold
 - Types of plants:
The conditions of Ithaca influence the types of plants we choose:
For example, watermelon is very difficult to grow here, because the season is so short here, and it likes heat
7. How do you usually acquire gardening knowledge?
- From my wife and our family members
8. Where do you usually go to purchase plants and seeds for your garden?
- Local farm markets
 - Stores: Walmart, Country Max
9. What aspects of gardening do you enjoy the most?
- I like to see if you plant something, is it going to grow? If it is a vegetable, you actually get to eat it.
 - We try some different plants for each year, it's like an experimental game. Even though sometimes we didn't get what we wanted in the end, it's still interesting to try new things.
 - For example, last year it was raining too much, so the new plants we tried didn't grow very well.
 - The year before 2020, it was perfect here, the temperature and the sun was really good, and we got lots of vegetables, we even gave things away as gifts. We couldn't eat them all.
10. What aspects of gardening do you dislike the most?
- Pulling weeds. Have to do it everyday
11. In your opinion, what things may help you improve your gardening experience?
- fertilizer
 - Better weather
12. What things do you hope to teach your kids from gardening?
- Identity different types of plants/vegetables and what they can do/cook with them
 - A little hard work can pay off afterwards — patience.

2nd Round Interview with RM

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
 - a. 2 kids

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
 - a. Huge amount of time
 - b. School, 6-8 hours
3. What kind of digital products/platforms do your kids spend time on?
4. What activities or tasks do your kids use those products to do?
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)
 - a. Different technical skills
 - b. Children can navigate Instagram but don't do Google search
 - c. Have intuitive skills
 - d. Lower than his (parent)

2019 garden, but had it since 2016 when he first bought the house

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - a. How do you spend time with kids?
 - i. Daughter zero, son still go out all the time: dog, walk, skating
 1. Sometimes together
 - b. If not much, why?
 - c. Do you wish to spend more time with your kids? In what way?
2. What activities do you usually do with your kids? What do you usually play together?
 - a. A little bit of garden
 - b. Have a garden outdoor; 25-25 feet
3. How much time do you spend engaging in outdoor activities with your children?
 - a. What do you like to do together?
4. What is your most memorable experience while spending time with your kids?

Garden Experience (for Idea 1)

1. Do you have a garden at home?
 - a. If so, why do you choose to have a garden at home?
 - i. Keep turtles, garden for them
 - ii. Turtles walk in the garden
 - iii. Greens, lettuce, cherry tomatoes (for everybody), starberries, berries
 - b. If not, are you planning to have a garden at home? Why or why not?
2. Could you please describe your level of gardening experience?
 - a. Only few months of the year, May-September for actual gardening
 - b. Indoor
 - c. Grow up gardening with dad, pretty good, don't spend a lot of time
3. Can you describe the last time you planned your garden?
 - a. If yes, do you spend time with your children to plan garden activities together?

- i. If yes, what did you do together?
 1. His son doesn't garden with him too much, just little things
 2. Online person (his son), appreciation for nature came slowly; indoor and online world are more predictable, seems interesting
4. What are some of the tools and resources you use for garden planning?
 - i. Where do you usually get those tools and resources?
 1. Dads, talking to people (gardeners, neighbors)
 2. Don't look for information online because not satisfying, need to take a long time to navigate online
 3. Has very specific needs
5. Are there any challenges for your current gardening experience?
 - i. If no, why not?
 1. No time
 2. Dear, have to spend time to protect the garden (might vary for different cities), they go to their yards and garden
 3. Need to have relatively high fence
6. How do you usually acquire gardening knowledge?
7. Where do you usually go to purchase plants and seeds for your garden?
 - a. Occasionally online and local garden shop
 - b. Amazon; agway, grocery stores (they release in spring and seasonal, come from reputable companies)
8. What aspects of gardening do you enjoy the most?
 - a. Three things: seeing something grow is satisfying, giving hands in soil tactile, being out in the fresh air
9. What aspects of gardening do you dislike the most?
10. In your opinion, what things may help you improve your gardening experience?
 - a. Knowledge and experience
 - b. Share with other people, but might not use an app
 - c. But kids can learn from the app about gardening

2nd Round Interview with MP

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
 - Two kids: one is 9, and one is 5 years old

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
 - At home, I try to limit their time to 30 minutes per day.
 - But, usually end up with about an hour on tablets and iPhone
 - The time does not include TV times
 - At school, I have no control over it
 - The school issues them tablets
 - They use several apps for the school works
3. What kind of digital products/platforms do your kids spend time on?
 - Tablets
 - iPhones
 - Switch
 - TV
4. What activities or tasks do your kids use those products to do?
 - They watch YouTube on tablets
 - Do some school works
 - They sometimes search for information on the internet
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)
 - I sometimes still need to tell and teach them
 - They are better on tablets than their grandparents are
 - Even my 5-years-old girl is pretty good at those digital products

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - How do you spend time with kids?
 - Due to the pandemic, they are with me 24 hours per day
 - I rarely spend time without them
 - I spend more time with my kids than my parents with me
 - If not much, why?
 - Do you wish to spend more time with your kids? In what way?
2. What activities do you usually do with your kids? What do you usually play together?
 - Play Barbie dolls with them
 - I'm a little bit less interested in this activity since I don't have as much passion as my kids do
 - Lego
 - Switch
 - Play video games with them
 - Read together
 - Do arts together

3. How much time do you spend engaging in outdoor activities with your children?
 - At least once per week
 - What do you like to do together?
 - Ski
 - Camping
 - Hiking
4. What is your most memorable experience while spending time with your kids?
 - The first time when my kids showed their interest in skiing, I was extremely excited. My wife and I both love skiing, so we finally found our family activity.
 - Also, in summer, we start camping with my kids. When I watch them interacting with nature, I am happy.

Garden Experience

1. Do you have a garden at home?
 - If so, why do you choose to have a garden at home?
 - I'm having it for my kids
 - Right now, their interactions with food and vegetables are mainly from grocery stores
 - I hope that they watch those vegetables grow. They have a better understanding of food
 - I hope to provide them an experience, teaching them that food and vegetables don't automatically appear in grocery stores
 - I also want them to learn the concept of life and death
 - If not, are you planning to have a garden at home? Why or why not?
2. Could you please describe your level of gardening experience?
 - My grandparents and parents grow up on a farm
 - My grandparents turn half of his farm into a garden
 - I always watch them plant vegetables and food
 - I'm always around gardening but have never done it independently myself
 - I'm not a skillful gardener, but I have basic gardening knowledge
3. Can you describe the last time you planned your garden?
 - If yes, do you spend time with your children to plan garden activities together?
 - If yes, what did you do together?
4. What are some of the tools and resources you use for garden planning?
 - Where do you usually get those tools and resources?
 - Farming books that my grandparents have
 - Use Google
5. Are there any challenges for your current gardening experience?
 - If no, why not?
 - It's a learning experience for both my children and myself. If things don't work out, we still learn something
 - If my kids are no longer interested in it, we can stop doing it
 - As long as we grew a cucumber, it's a success
 - Right now, the challenge is to figure out where to put the garden and build the fence

6. How do you usually acquire gardening knowledge?
 - Searching online
7. Where do you usually go to purchase plants and seeds for your garden?
 - There are several greenhouses and farms around
 - Home Depot
8. What aspects of gardening do you enjoy the most?
 - Not much
 - Gardening is not my favorite thing
 - Just create an experience for my kids
 - Also, results may motivate me
9. What aspects of gardening do you dislike the most?
 - Extra things that I have to pay attention to
 - Extra energy
 - Knowing that I have to oversee my children
 - Find a spot to fit into my busy schedule
 - Don't like digging in the dirt
10. In your opinion, what things may help you improve your gardening experience?
 - Trials & errors will improve my skills
 - Find an online source to answer my questions
 - What is the right time
 - What's the temperature

2nd Round Interview with MJ

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
 - 2 kids: 8-year-old son and 9-year-old daughter
 - My little son enjoys outdoor activities more than his sister. He always drag his sister outside to play.

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
 - I try to keep the time pretty low: 30 minutes - 1 hour
3. What kind of digital products/platforms do your kids spend time on?
 - iPad and laptops
4. What activities or tasks do your kids use those products to do?
 - Finding books online to read
 - Listening to stories
 - Doing programming & math game
 - Other video games
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)
 - They're better at technical products than I do
 - I'm more on the hardware side

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - How do you spend time with kids?
 - Due to the pandemic, I was with them every day
 - Now they're at school, I was with them after they are home and until they go to the bed at 8-9 pm
 - They usually play with each other, so every day, I spend 1-2 hours playing with them.
 - If not much, why?
 - Do you wish to spend more time with your kids? In what way?
2. What activities do you usually do with your kids? What do you usually play together?
 - Try to involve them in things I'm doing
 - Cooking
 - Gardening
 - Reading books
 - Watching movies
 - My kids really love me playing outside with them
3. How much time do you spend engaging in outdoor activities with your children?
 - What do you like to do together?
 - Ball game
 - Help them build something
 - Bike ride
4. What is your most memorable experience while spending time with your kids?

- When we go on a bike ride, in the summer, there is a little river along the trail.
- It's always fun to watch them jumping around in the water

Garden Experience (for Idea 1)

1. Do you have a garden at home?
 - a. If so, why do you choose to have a garden at home?
 - We want to plant some herbs
 - We purchased lots of Japanese special seeds, which aren't available in grocery stores or restaurants
 - Fun to play with kids
 - I tried to grow fresh vegetables initially, but there were lots of animals eating everything in our garden. Now, we only planted herbs and flowers.
 - b. If not, are you planning to have a garden at home? Why or why not?
2. Could you please describe your level of gardening experience?
 - Not much
 - I didn't garden anything until we were here
 - I spend too much time on screen, it's nice to do outdoor activities
3. Can you describe the last time you planned your garden?
 - a. If yes, do you spend time with your children to plan garden activities together?
 - If yes, what did you do together?
 - Last year, we tried to plant something new
 - We didn't get our kids into the planning phase.
 - However, they helped plant the staff
4. What are some of the tools and resources you use for garden planning?
 - Where do you usually get those tools and resources?
 - Japanese seed place: Kitazawa Seed (<https://kitazawaseed.com/>)
 - My wife loves Japanese food
 - It's hard to get that food in Ithaca
5. Are there any challenges for your current gardening experience?
 - The main challenge is animals who come and kill our plants
 - If no, why not?
6. How do you usually acquire gardening knowledge?
 - Look it up
 - Grow them inside first and move them outside
 - Trial & errors
 - We try to spend less energy on gardening
7. Where do you usually go to purchase plants and seeds for your garden?
 - Local farms
 - Online website
8. What aspects of gardening do you enjoy the most?
 - I can do something, and immediately see the result
 - Motivation
 - In comparison, when I'm doing research, I get a hypothesis, run the experiment to test it, and may need to wait for years to see results
9. What aspects of gardening do you dislike the most?

- When it requires me too much energy
 - I'm glad that my garden isn't too big, so it's manageable
 - I hate weeding
10. In your opinion, what things may help you improve your gardening experience?
- Figure out how to keep animals out of the garden
 - Last year, the kids planted sunflowers. When those flowers started looking good, animals came and ate everything, which was really disappointing.
11. What things do you hope to teach your kids from gardening?
- They can spend time outside, get comfortable with playing outside
 - Play with dirt, not afraid of getting dirty and messy
 - Find the opportunities to explore things to play with
 - They don't rely heavily on digital products

2nd Round Interview with JC

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?

2 kids

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?

A lot

3. What kind of digital products/platforms do your kids spend time on?

iPhone, Desktop

4. What activities or tasks do your kids use those products to do?

Much Social Media

5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?

- o How do you spend time with kids?

Now - 2 hours/day

When they are younger - 5 hours/day

- o If not much, why?

- o Do you wish to spend more time with your kids? In what way?

2. What activities do you usually do with your kids? What do you usually play together?

School activities, Running and hiking together, Biking together

3. How much time do you spend engaging in outdoor activities with your children?

5 hours/week, basically weekend

- o What do you like to do together?

Scouting, school activities, taking classes together

4. What is your most memorable experience while spending time with your kids?

Hiking and packaging together, go several different mountains together. My son wanted to achieve all 46 mountains before he graduated from high school.

Couple biking tours from Pittsburgh to Maryland for 4 days

Exposure by the parents >> camping trips and hiking trips since they are young

Garden Experience (for Idea 1)

1. Do you have a garden at home?

- a. If so, why do you choose to have a garden at home?

We grow some tomatoes plants at home.

- b. If not, are you planning to have a garden at home? Why or why not?

We only grow tomatoes now, but we do have a plan to do more gardening after retirement.

2. Could you please describe your level of gardening experience?

Novice

3. Can you describe the last time you planned your garden?

- a. If yes, do you spend time with your children to plan garden activities together?

No

- If yes, what did you do together?
Hiking, biking
- 4. What are some of the tools and resources you use for garden planning?
A little bit of Google, sharing experience from colleagues
 - Where do you usually get those tools and resources?
- 5. Are there any challenges for your current gardening experience?
Maintenance takes time
 - If no, why not?
- 6. How do you usually acquire gardening knowledge?
- 7. Where do you usually go to purchase plants and seeds for your garden?
Colleagues gave the seeds.
- 8. What aspects of gardening do you enjoy the most?
See the result fairly quickly. Tomatoes grew in two months, seeing the result of the labor.
- 9. What aspects of gardening do you dislike the most?
Time commitment. We travel a lot during the summer, so we don't really have time to take care of the garden.
- 10. In your opinion, what things may help you improve your gardening experience?
- 11. What things do you hope to teach your kids from gardening?
Maybe not with my kids now, but with grandchildren after retirement.

2nd Round Interview with J

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
 - Daughter: 15 years old

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
 - Most of her day is spent on digital products
 - She is on her iPhone everyday
 - From 7:30 am to the midnight
 - I'm not quite sure when she is at school
3. What kind of digital products/platforms do your kids spend time on?
 - iPhone
 - TV
 - Laptop
4. What activities or tasks do your kids use those products to do?
 - Watching movies
 - Texting & social media
 - School works
 - Music
 - Mainly for communication
 - Look for information online
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)
 - My daughter always joke me that I should take a course called technology for old people
 - She is better than me for many perspectives

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - a. How do you spend time with kids?
 - I divorced her father, so she spends 75% of her time with me
 - Two nights per week with me for girls' night. We hang out together
 - We try to spend most of our spare time together
 - b. If not much, why?
 - c. Do you wish to spend more time with your kids? In what way?
2. What activities do you usually do with your kids? What do you usually play together?
 - Before pandemic: go to the movies, go to see theater productions, go to the mall, go to KTV
 - Hang out with our pets: chicken and dog
 - Talk and Chat
 - Currently: go out for dinner, make food together, watch TV together
3. How much time do you spend engaging in outdoor activities with your children?
 - a. What do you like to do together?
 - When my daughter was a kid, she really loved outdoor activities
 - Now, she is a teenager. She is no longer interested in those outdoor activities.

- We generally spend about 1 hour per week walking dogs
 - Sometimes, go for a walk to grab coffees
4. What is your most memorable experience while spending time with your kids?
- She and I do fun things together
 - We go to New York City for the Broadway show
 - We went to see a show at Ithaca College is the most memorable experience recently

Garden Experience (for Idea 1)

1. Do you have a garden at home?
 - a. If so, why do you choose to have a garden at home?
 - I have plants all over my house
 - Last year, I started gardening at this house
 - I'm doing more flower gardening right now
 - I did lots of food gardening previously
 - I love digging around in the dirt to have beautiful flowers
 - I love being outside with sunshine
 - I love the smell of the earth
 - b. If not, are you planning to have a garden at home? Why or why not?
2. Could you please describe your level of gardening experience?
 - I'm a beginner
 - I won't do something crazy
 - I'm not a farmer
3. Can you describe the last time you planned your garden?
 - Every year, I will plan my garden
 - I haven't really engaged my daughter in the gardening process. Every week, she will go to her father's house for several days. I'm trying to do gardening stuff at that time.
 - a. If yes, do you spend time with your children to plan garden activities together?
 - If yes, what did you do together?
4. What are some of the tools and resources you use for garden planning?
 - Where do you usually get those tools and resources?
 - Mostly from the internet and gardening blogs.
5. Are there any challenges for your current gardening experience?
 - Some non-local or non-native plants can't grow well in Ithaca.
 - I'm trying to figure out what I can do to help them grow
 - If no, why not?
6. How do you usually acquire gardening knowledge?
 - I was in the natural resource department at Cornell University for my undergraduate. I indeed studied a lot related to gardening
 - I read a lot of books and research papers
 - The Internet helps me a lot. I'll read lots of gardening blogs
7. Where do you usually go to purchase plants and seeds for your garden?
 - Agway: chain store
8. What aspects of gardening do you enjoy the most?
 - I love being in the sun

- I love the smell of the garden
- It feels really productive
- It feels amazing when I have a new area filled with flowers

9. What aspects of gardening do you dislike the most?

- My lower back always hurts when I'm gardening

10. In your opinion, what things may help you improve your gardening experience?

- More sunshine
- If I can spend more money on gardening
 - Access to more expensive plants
 - Access to more native plants
- Keep the deer out of your garden

11. What do you want your kid to learn from gardening?

- When my daughter was a kid, she helped me a lot with gardening
 - One cool thing about gardening is that when your kid is little, she will be excited about the food gardening in the dirt.
 - She loves the idea that she can grab and eat those in the garden
- For her to continue understanding how to plant her own food
- I love teaching her to identify flowers and butterflies

2nd Round Interview with CT

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?
 - a. 2 kids, 4 and 8

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
 - a. A couple of hours a week
3. What kind of digital products/platforms do your kids spend time on?
4. What activities or tasks do your kids use those products to do?
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?
 - a. How do you spend time with kids?
 - i. Hiking, trials, walking, playground, outdoor space, children garden, botanic garden
 - b. If not much, why?
 - c. Do you wish to spend more time with your kids? In what way?
 - i. always
2. What activities do you usually do with your kids? What do you usually play together?
3. How much time do you spend engaging in outdoor activities with your children?
 - a. What do you like to do together?
4. What is your most memorable experience while spending time with your kids?

Garden Experience (for Idea 1)

1. Do you have a garden at home?
 - a. If so, why do you choose to have a garden at home?
 - i. Yes, tiny garden every year
 - ii. Simple, tomato, herbs
 - iii. house plants
 - b. If not, are you planning to have a garden at home? Why or why not?
2. Could you please describe your level of gardening experience?
 - a. Very basic
3. Can you describe the last time you planned your garden?
 - a. If yes, do you spend time with your children to plan garden activities together?
 - i. If yes, what did you do together?
 1. Involved in outside
 2. Help pour soil, making seeds, bought the plant, picked them, basil
 3. Developing and planting
4. What are some of the tools and resources you use for garden planning?
 - i. Where do you usually get those tools and resources?
 1. Eating purpose, local stores, agway, extra plants
 2. Might order in target and amazon
 3. Support local

4. Basic things, asking people in store
5. Are there any challenges for your current gardening experience?
 - i. If no, why not?
 1. Very small house and yard, so that can be challenging
 2. Not enough space, no direct sunlight
 3. Certain months, spring and summer, early fall
6. How do you usually acquire gardening knowledge?
7. Where do you usually go to purchase plants and seeds for your garden?
8. What aspects of gardening do you enjoy the most?
 - a. Connection to the earth, planting
 - b. Digging soil, water, nurture, slow down, be outside, honor life cycle
 - c. Tangible, process, get something from it
 - d. Plants have life
9. What aspects of gardening do you dislike the most?
10. In your opinion, what things may help you improve your gardening experience?
 - a. Learning, learn more about plants, climate, based on location
 - i. Eg. learn about strawberries
 - ii.
 - iii. Picture of tree, app for that
 - iv. Apply that in their lives
 - v. engaging
 - b. Technology to connect people real life, seamless connection
 - c. Encourage people to learn and research so that when they are outside, they feel connected and rewarding
 - d. Localized the app, connect Ithaca Children's Garden, then see those things in reality
 - i. For people who don't have garden, span, open up connection and opportunities

2nd Round Interview with SM

Basic Information

1. Do you have kids? If yes, how many kids do you have, and how old are they?

One kid, she is 2 years old

Technical Skills (to understand kids' technology level)

2. How much time do your kids spend on digital products every day?
Sometimes she will play with our iPhones, but not regularly
3. What kind of digital products/platforms do your kids spend time on?
iPhone
4. What activities or tasks do your kids use those products to do?
5. Could you please describe the level of your kids' technical skills? (You can compare their levels with yours)
Novice

Family Experience (to understand family's preference and connection)

1. How much time do you spend with your kids per week in general?

A lot actually, can't really quantify. We read books, go outside for a walk.

- How do you spend time with kids?
- If not much, why?
- Do you wish to spend more time with your kids? In what way?

1. What things do you hope to teach your kids from gardening?

2. What activities do you usually do with your kids? What do you usually play together?

Depends on the weather

We have a backyard at home and there is a swingset that we will play together

She will just walk around the yard and stare at people

3. How much time do you spend engaging in outdoor activities with your children?

- What do you like to do together?

Now she goes to school in the morning and teachers will take her and play outside.

4. What is your most memorable experience while spending time with your kids?

The first time she called papa! I was swinging her bed and she wanted me to swing faster so she said papa to hint me.

Garden Experience (for Idea 1)

2. Do you have a garden at home?

- a. If so, why do you choose to have a garden at home?
- b. If not, are you planning to have a garden at home? Why or why not?

No, gardening requires too much time commitment

3. Could you please describe your level of gardening experience?

Novice

4. Can you describe the last time you planned your garden?

- a. If yes, do you spend time with your children to plan garden activities together?
 - If yes, what did you do together?

5. What are some of the tools and resources you use for garden planning?

- Where do you usually get those tools and resources?
6. Are there any challenges for your current gardening experience?
 - If no, why not?
 7. How do you usually acquire gardening knowledge?
 8. Where do you usually go to purchase plants and seeds for your garden?
 9. What aspects of gardening do you enjoy the most?
 10. What aspects of gardening do you dislike the most?
 11. In your opinion, what things may help you improve your gardening experience?