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# User Research

## Users

Gardeners are known to be individuals that connect with nature on a deeper level and enjoy being outdoors, as such there hasn't been a lot of focus on this group of users from the tech industry. Trying to apply user centered design to such an overlooked demographic will pose some serious design questions and hurdles to overcome. Traveling off the beaten path will lead to an exciting and innovative way to assist gardeners in their love for nature, whether be it a digital or physical solution.

## Competitive Analysis

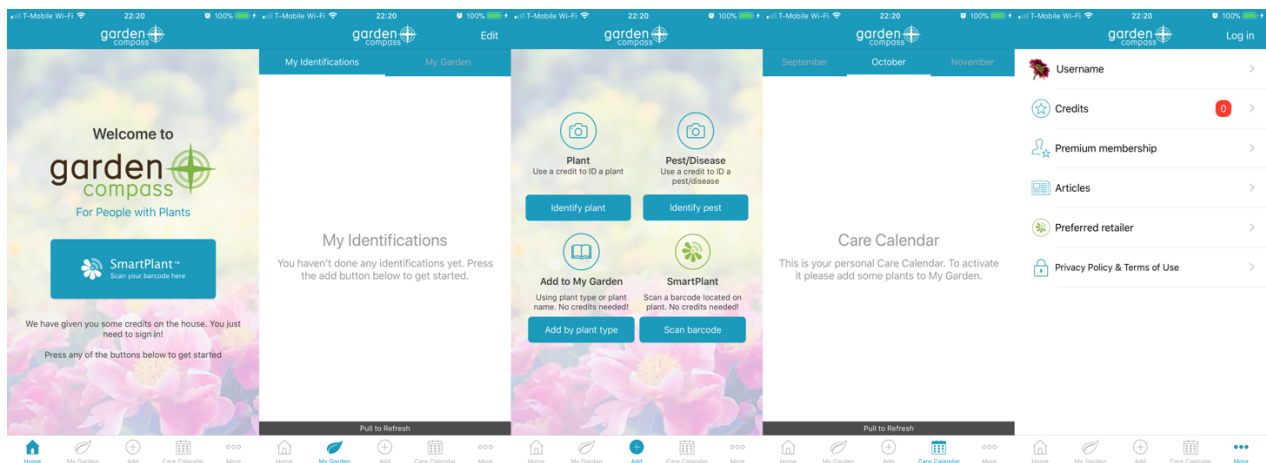


Figure 1: Garden Compass Screenshots

“An app called Garden Compass is great for those who need help finding essential data -- like **what season a plant blooms and how much light it needs**. The coolest part of the app has a **plant or pest identifier**. **Take a picture** of the item you need help with, **email it** to the Garden Compass team -- and **an expert will answer your question**. Because the app tags your **geolocation**, the expert will tell you additional details based on where you live.” (Ngak, 2014)

“Another common gardening task is **identifying a plant, or a pest or disease** affecting your precious greenery. For these issues, Garden Compass, on iOS, has your needs covered. Its two main sections are “plant ID” and “problem ID.” Tapping on these buttons takes you to a page where you can either **snap a new photo** or submit one from your device’s archive. The app **sends the image to a team of experts, who try to identify the plant or problem and then send the info back to the app** — including care instructions in the case of a problem. Garden Compass’s ID is a lovely idea, and many reviewers in the app stores report that the system has worked well for them, though it can take an **unpredictable amount of time to get feedback**. The app is free because it also contains advertisements for gardening products and retailers. But these aren’t an intrusive part of using Garden Compass, and may even come in handy if you need to buy a special product to get rid of a pest.” (Eaton, 2014)

Garden Compass welcomes user with a homepage that let’s users scan a barcode. My initial thought as a first time user is “what do barcodes have to do with plants?” After I press the “SmartPlant” button to scan a barcode it leads me to a page that says “you can turn any plant into a SmartPlant.” I keep seeing “SmartPlant” but no explanation as to what it is during onboarding, in the app, or on the app page in iTunes. After some research on their website, it seems that they have partnered with plant companies to offer barcodes on store-bought plants, and users can scan the code to add it into their plant list without having to pay credits or premium membership.

Next up is their “My Garden” page, which has a redundant “My Garden” subsection and another “My Identification” subsection. Then the next page titled “Add” has an “Identify plant” button and an “Add to My Garden” button. The grouping of identifications and personal gardens seems to be a bit off. Instead of grouping it by function of viewing vs. adding, grouping it by purpose (e.g. identification vs. personal garden) seems a bit better. For instance, have a “My Garden” tab and in that tab users can view and add plants to their garden.

The “Care Calendar” page is pretty simple and clean, but the list view is something that is less than desired. Giving users an option to choose calendar view would be nice.

In the “More” tab, there’s various other bits of information. The one thing that’s confusing is there’s “credits” and “premium membership.” Instead of having a pay-as-you-go plan vs. a membership, it would be better to just choose one business model. If a membership model is chosen, the users need to have the ability to choose how much they want to pay per month and what services they feel like they need.

Overall, Green Compass seems to lack a lot of empathy for their users. From the user interview, it seemed like gardeners really valued the social and inspirational side of gardening, both of which Green Compass lack. It also doesn’t have any tools to teach gardeners. Useful long-term knowledge such as soil chemistry and water flow can help beginner gardeners understand why their plants aren’t growing as well as they should. Even important things such as how large the plants will become are missing. There’s

also the use case that gardeners want to plan out a garden. There's no such feature in Green Compass to aid that process.

There are a ton of apps in iTunes store, with each exceling at one feature. From the gardener's perspective, none of them have that large of a draw. It would be great to have an app that does it all so that gardeners don't have to download ten different apps. There's also the fact that gardeners don't tend to want to tap at their phones when outside enjoying gardening. Some even prefer to take notes in a notebook over using their phone. The lack of popularity with gardening apps is indicative of something larger at play. It's worthwhile to investigate solutions in the physical space. Maybe a durable and waterproof journal with calendars and grids for planning out gardens, with some way to share, be inspired, and learn would be more appealing to gardeners.

## Interview

I initially contacted Tyson Kemper who is the Grounds Supervisor at the University of Washington, Bothell. He invited one of his coworkers along to give more insight. They both garden on the campus as a professional career. Interviewee #1 is Tyson Kemper.

### **Q: What got you guys interested in gardening?**

**Interviewee #2:** I had a general interest in gardening at from a young age. Just vegetable gardening with my mom. When my parents bought a yard and was overrun with certain weeds, and my mom didn't know what to do. We didn't want a lawn so we started growing food crops. Then I built a compost bin. I had a free summer and got more interested from reading. I had been doing photographic work for a lab in Seattle and they laid everyone off when they went digital. I had an opportunity to do worker retraining program and I did horticulture. I looked at landscaping and it seemed like you needed experience. So I decided to take some horticulture classes. That's what got me interested.

**Interviewee #1:** I guess I kind of started in gardening. My dad has been a landscape gardener with his own company. It's all he's done. And so that was my easy job on weekend or summer breaks. I did it all the time with him until I went to college. So like a lot of sons. They wanted them to go in a totally different direction than what was handed to them. And that was my case as well. I had every intention to get a business degree. I was going to UW Seattle, which is totally 180 from working the land. I pursued that major for about a year and a quarter. I left the country for the first time in my life. I went to South America. Totally changed my world view. I came back and left the business track behind. I started majoring in English and botany. So kind of the hard science of pants, so getting back to the earth a little bit. I followed that track through grad school and into my first kind of careers. The science was really interesting and challenging, but it always felt a bit disconnected. Trying to explain to my mom what I

do, was so far removed from life. I had a kid. Didn't want to be in the field. I wanted to be a dad and stay at home. And living in Bothell, I found a job here as a gardener. I needed a job, I was unemployed between seasonal work at that point. I know I had to do this. I got hired and found that it was this perfect marriage between the science and also just the deep gardening and the love for the land. And to be able to teach and connect with people. I brought the science and the art together. It's been so satisfying because I find that it brings me so close to something that's real for everybody. Everybody eats, everybody depends on the natural world for so many different things. Spiritual, material, just life in general. I really love that aspect of gardening that brings me in touch with something so vital to the world.

**Interviewee #2:** It's interesting. You have this hard science and you have the physical aspect of being outside and doing work. It all encompasses this love of plants.

**Interviewee #1:** Only a love for life. It's all living, it's balancing all these living systems and organisms together.

**Interviewee #2:** I mean going to school. I think it was especially soil science. Seeing how soil develops, seeing how there's no soil in so many areas. Everything is disturbed in our society. And really starting to understand how the natural world takes care of itself. A perfect system that just works well. And then you have the human system that disturbs that and keeps it constantly off balance. That really got me interested. And doing the work. I did residential landscaping at first. It was fun because it was new, but after awhile it didn't feel like I was doing anything beneficial. I was cleaning up wealthy people's yards, who never really even paid attention to their yard. And so I wanted to do something a little more, what I felt like was useful for more people. I worked for the city for awhile and that was good in some ways, but really destructive in other ways because it was the opposite of everything that I learned in school. It was a lot of massacring of plants, cutting everything to the ground, and spraying chemicals to control weeds. Being here is the opposite. It's using what I've learned in school. We get to experiment and we get to do all kind of cool projects, and outreach like this kind of stuff.

**Interviewee #1:** We garden in a way that everything is improved every year, as opposed to the opposite where you depleting and depleting every year so you have to figure ways to bring it back to at least a level where you can grow something. But it doesn't have to be like that.

**Interviewee #2:** And all of those chain reactions. With all of those inputs that, you know these chemical fertilizers and you hear about all these dead zones in the Gulf of Mexico and algal blooms in the Great Lakes and things like agricultural outwash that happens with all these chemicals. It doesn't have to be this way. It hasn't happened in other countries that have been farming for thousands of years.

**So what's your favorite thing to use while gardening?**

**Interviewee #2:** That's an interesting question. I really enjoy weeding and I just finished digging out blackberries from the far end of campus and there's something satisfying about that in some ways. So I love using a garden fork and it works really well for just getting into soil and prying out root balls or crowns of blackberry.

**Interviewee #1:** I would say my hands. And I think, it might sound like a cheesy answer. But I think it's profound in a sense that, especially in western society, where they go out of their way to find things to fill needs. Either through products or chemicals, or gimmicks and gadgets, and the next best thing. We love to strip away as much as we can and get to the root of things. And it's really just you and the environment. It's actually the best feeling when you can do something with your hands.

**Interviewee #2:** Yeah, a lot of weeding we can do. I mean you can pull a lot of plants by hand.

**Interviewee #1:** Well everything else is an extension of your hand. But I guess I always carry my clippers. They're amazing. I pry things with them, of course cut things, you can use them as a screwdriver in a pinch. These come in handy. Get good ones that are well made. These are made in Switzerland and like any good machine you can take them apart entirely, and repair and replace and clean everything, which is great. I always ask my dad what tools he likes and he's of the mindset "just cheap ones" because you're going to lose them or break them. I'm the opposite. I pick the highest quality, expensive thing and try to make it last for a generation. That's more of my philosophy.

**How long have you guys been doing what you guys do?**

**Interviewee #1:** I mean I would probably say thirty years. So I would say consciously understood what I was doing in the garden at ten. I understood the tasks that I didn't necessarily want to do.

**Interviewee #2:** For me, I'd say fourteen years. Twelve professionally. A couple of years before that, just knocking around. I mean, it was my parent's yard. It was their front and back yard, where I could just do whatever I wanted. When they bought that house, it was completely overgrown. The woman that owned it before just threw seeds and bulbs everywhere, and so in spring things were coming up everywhere. They had this crazy diseased apple tree that was out of control. I got to practice some pruning. Hack things back and just do whatever. So that was a good practice run for me.

**Do you guys have difficulties in terms of what you guys grow? Do you guys have difficulties with a certain plant?**

**Interviewee #1:** I don't know. If it's troublesome in that way... A lot of my philosophy is just get rid of it. There are so many plants that all they want to do is grow, they just

want a chance. So go find those.

**Interviewee #2:** We kind of look at campus. You have different kinds of climates, different areas. Some with a lot of concrete, some with very little concrete. You've got a lot of groundwater or maybe not as much. It depends on where you are. You've got a lot of different environments. If you practice right plant, right place then you don't have as much trouble. We sometimes put things in the wrong place, but that's the beauty of it. You can move things around. I mean we have troubles, but that's part of the experimentation. "Let's try that here," and sometimes wants to push a plant to try and see if it can do well in a place that the book says it shouldn't. And maybe it does great. It just really depends.

**Interviewee #1:** I mean in general the greenhouse we have on campus is a challenging environment to keep plants in. Especially for long term. We have a teaching collection in there of tropical and subtropical plants, and so they live in there because they really couldn't survive outside in the winter time. There's not the same force of nature that's flowing through that system because it's really an artificial environment in a glass building that you control. And that's really challenging because we've got lots of pests, lots of fertility issues. Everything is in a little pot. There's not the biology or the soil system like you would have outside, and there's not the predators to keep all the pests in check. It's because we don't have the complexity of nature.

**Interviewee #1:** I guess kind of satisfying the administration's need for aesthetics. So it's an idea that the landscape is an extension of our indoor environments, that it needs to look like an architectural statement or like window dressing. There's an expectation that it looks a certain way all the time and it fails to recognize the fact that plants are living things and that the seasons change. Things go through their cycle of life and death and to try to give people a sense of that is really challenging. IT can be done with massive amounts of effort, money, manipulation, and fighting the force of nature.

**Interviewee #2:** So many campuses and companies, that's what they do. They spend so much money mowing, pressure washing, and blowing, minimizing the more artistic side of things.

**Interviewee #1:** If you allow things to happen, it's surprising in a way that you had not expected. Plants interact, spaces evolve, and the magic.

**Interviewee #2:** What some plants look like when you don't hedge them all the time. This is what it's supposed to be, how tall it's supposed to get. Again, it's the right plant, right place thing. People will put whatever plant into any place, and not realize this wants to be a small tree or a shrub that's twenty feet tall. People have to constantly cut back and you see the result. That thing is always struggling, they die, they die out in the middle and things like that. They always look like these little lollipops. That's one cool thing here is that we don't do that. We don't hedge things and let things to be their natural size.

**Interviewee #1:** You let them express themselves, and then you feel like your part of something bigger when that type of thing happens. Not trying to control a plant. It's doing what it's supposed to do.

### **How do you guys assess the right place for a plant?**

**Interviewee #1:** Well it's understanding the site. Little pockets around campus have different soil attributes based on disturbance, soil that has been brought in, or what's been done to it. The way that water moves through the ground. You wouldn't necessarily notice that unless you see the land over the course of some years, that you understand how things are moving through. Especially with built environments, it can get pretty crazy. Know the environment first but sky is the limit as far as how much you can know about plants. There's the book knowledge, but that can always be proven wrong. We try our best with the knowledge that's out there and our experience with plants but we can always be proven wrong. There's always exceptions.

**Interviewee #1:** There's so many resources out there available. Even with very little live experience with plants, a person can learn. Google is your friend. I'm not afraid to admit I don't know and be humble about it. I don't have a book on hand but I got my phone, and I can quickly look up a plant and get some ideas on what it needs.

**Interviewee #1:** When you're at the nursery and you're shopping for plants to do some sort of install. You have an idea of what you might want but you come across other plants, or the ones you wanted aren't available. You can pull out your phone and you can type in a plant's name and find out a lot about the plant and make informed decisions. That's fantastic.

**Interviewee #2:** And if you're at the right nursery you can talk to someone.

### **Do you guys have any specialties or any favorite plants you guys like growing?**

**Interviewee #2:** I don't really anymore. There's definitely plants that I don't like. Maybe plants that I've seen too much of. I've come to appreciate everything that we have. Things that I don't like, if it's not doing well, then we have a reason to move it. Maybe it will do better at a different site, maybe it needs to rejoin the cycle in another way, like in the chip pile.

**Interviewee #1:** There's always use for the plant.

**Interviewee #2:** I'd always use to feel so bad. Like "oh I let this thing die," but it's full of energy and it just needs to go into a compost pile. I don't know if I have a favorite plant. I love a lot of what we consider boring, a lot of Northwest native plants. I love some exotics, tropical plants too but yeah, I really don't have a favorite anymore.

## **Do you guys have any frustrating experiences with gardening?**

**Interviewee #1:** I don't feel it. There's the sense of being overwhelmed in certain seasons. During the spring, everything is starting to grow and you can't just keep up with the weeds that are overwhelming certain areas that you're trying to develop. But that's not frustrating, more of overwhelming and it's okay, it's just life. There was a time when we didn't have good people working here. I just felt like we needed a better team, more capable, abled people. It felt like I was babysitting adult children when there were so many amazing things about this job. I wanted to extend that opportunity to people who really value the profession, who wanted to better themselves and wanted to experience this place in such a great way. I feel like that's been overcome. The team we have now is really passionate, smart, and capable. But in general, as far as gardening goes... I mean it sucks when something doesn't turn out the way that you wanted it to, especially here when we're artists, our work is in full display of people on some level. They see it and they judge it. You have to be willing to put yourself out there, take chances, and make failures in front of everybody. You can't hide.

**Interviewee #2:** I mean we do judge ourselves in that way. We're probably our own harshest critics. I would agree that the only real frustrating things are the human variables. Sometimes for me, that's myself. At home, I don't do much. In the past few years, I haven't done much with my yard. I get my gardening out at work, and I'm home and I'm tired, and I have a son. My yard, I just kind of let it go. I throw some wildflower seeds out for the bees and I've put in some shrubs. It's nice to watch things grow. I've put things in places where they can take off. I haven't felt the same energy, the same inspiration at home in the last couple of years. That's fine too, but when summer comes and he's got great peppers or tomatoes. I'm like "I should've planted some." So that bothers me. It's my own limitation that frustrate me sometimes, about what I'm willing to put into things.

## **Could you describe your daily gardening routine? What does your normal day look like?**

**Interviewee #2:** I'll start by saying we do a lot of different things that we can't call gardening because we're a grounds crew here, a maintenance team. So we start by cleaning up campus with litter and trash, picking up after people. We make rounds throughout campus, through the parking lots, the Court, Husky Village, and residential area too. So basically just picking up and that gives us a chance to assess campus. "A branch is broken here, that's dead, this looks really great, and things that we can report back." Then we get to the gardening at some point. That varies from day to day. Sometimes we have big projects, sometimes we have small projects. Things that we can knock out really fast, mowing – things like that.

**Interviewee #1:** My day is a little from a supervisory level. Meet with the lead, with the team and assessing what needs to be done in general and try to keep a list of those priorities. So much in gardening is based on timing and adapting to environmental



things like weather and seasons. So it's keeping the rhythm set and a lot of dealing with the administration's concerns, trying to buffer as much of that with the garden and what the team is actually doing on the ground, trying to keep the two worlds separate because they don't necessarily jive well. The scale of time is just so different. SO much of what you do as a gardener in the garden is you do something now and you see the success of that years later. You're constantly doing that so you're always getting things way from the past to celebrate, enjoy, and learn from. So the sense of scale of time for a gardener is different from managing or administrating, which is moment to moment and immediate. Throughout the day, always keeping tabs of what needs to be done. I'm constantly emailing myself, which is how I communicate with myself. I'm always on my phone emailing because I know I'll eventually get back to my computer. I'll have all those emails and at that point I can make my list or calendars, kind of disseminate that information. In the field, that seems like the easiest way for me to communicate things that need to happen.

**Interviewee #2:** I use my phone in that way too. I sometimes send myself a voice memo.

### **Outside of the job, do you guys have any other activities related to gardening?**

**Interviewee #1:** I participate with my son in elementary school as part of the garden club every week, and for the school district as well. I've found the position of gardener here at UW Bothell lends you some credibility in the landscape managing world out there. So I advocate a lot what I believe in. Organic gardening practices, elimination of chemicals with pest control. So I do a lot of that at the school district most recently but then the parks department and things like that. Always using the position in that way to advocate and advance those general ideas. And growing vegetables with my family and sharing all the starts with friends, and trying to get as many people as I can to grow food for themselves. There's not much boundary between what I do here and my life. It's all kind of one. I do it because I love it.

**Interviewee #2:** Same thing. I love this kind of work. In past years I was more passionate about working in my own yard. I like share what I do here with friends, housemates, and talk about things that I do. I love to explain. I like to go into details. A lot of outreach that I do is doing side jobs for friends, people that I know. It's to help people out in ways that they can't do themselves. We get to share some time together and I get to talk about the evils of English Ivy and things like that. Other than that, I've done some volunteering. I've worked at Seattle Tilth and Rainier Beach Farm, doing work to kill off huge invasive grasses so they can start a strawberry mound. I usually keep myself busy with my son and my house.

### **How do you learn about new things?**

**Interviewee #1:** I read tons of books, looking for them to inspire me. It's nice to have a piece of land as big and diverse as this. There's a lot of opportunity to be inspired,

connected to some problem or some landscape that we're trying to develop here and be able to apply that inspiration. Just visiting gardens and being aware of what's going around you.

**Interviewee #2:** Looking at people's yards is one way. Just walking in my neighborhood. I used to have two dogs, and just walking around was the mental exercise I got to see what I wanted to do and what I didn't want to do. Yeah, and also reading. Picking up old plant guides, seeing what people used to do. Plant ID books. And just reading the news and being inspired by current events or scientific goings. One thought connects to another thought, spark an idea and things like that. And talking to other gardeners.

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