

Title	Inclusive community water planting as a medium to connect elderly residents : a practice at Yonamoto Danchi
Sub Title	
Author	杨, 小希(Yang, Xiaoxi) 佐藤, 千尋(Sato, Chihiro)
Publisher	慶應義塾大学大学院メディアデザイン研究科
Publication year	2022
Jtitle	
JaLC DOI	
Abstract	
Notes	修士学位論文. 2022年度メディアデザイン学 第981号
Genre	Thesis or Dissertation
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO40001001-00002022-0981

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Master's Thesis
Academic Year 2022

Inclusive Community Water Planting as a
Medium to Connect Elderly Residents

-A Practice at Yonamoto Danchi



Keio University
Graduate School of Media Design

Xiaoxi Yang

A Master's Thesis
submitted to Keio University Graduate School of Media Design
in partial fulfillment of the requirements for the degree of
Master of Media Design

Xiaoxi Yang

Master's Thesis Advisory Committee:

Senior Assistant Professor Chihiro Sato (Main Research Supervisor)

Senior Assistant Professor

Dunya Donna Chen (Sub Research Supervisor)

Master's Thesis Review Committee:

Senior Assistant Professor Chihiro Sato (Chair)

Senior Assistant Professor Dunya Donna Chen (Co-Reviewer)

Project Associate Professor

Tatsuya Saito (Co-Reviewer)

Abstract of Master's Thesis of Academic Year 2022

Inclusive Community Water Planting as a Medium to
Connect Elderly Residents
-A Practice at Yonamoto Danchi

Category: Design

Summary

Gardening is a very common hobby among elderly people. Bringing the venue of gardening from their own balcony to a public space and involving more people in the process of gardening may build a stronger emotional attachment between the participants. A lot of researchers have discussed how community gardens could benefit local residents from both mental and physical perspectives, and also, promote social health and build community cohesion. Nevertheless, in an elderly community, not everyone has the energy and mobility to commit themselves to communal gardening fully. Therefore, having a flexible setting and a simplified method of gardening that keeps co-creation as the core value may bring a new experience that gives participants more choices and creates a more inclusive experience. This paper provides a perspective of how bringing a personal interest to community space in a simplified form can provide participants with a more inclusive gardening experience and build a balance between communal responsibility and personal interests. The research is conducted at Yonamoto Danchi, Chiba prefecture, Japan. And the purpose of this practice is to simulate social interaction in the elderly community and develop a “life worth living” through the mediation of water planting.

Keywords:

elderly community, community garden, water planting, community cohesion, elderly loneliness

Keio University Graduate School of Media Design

Xiaoxi Yang

Contents

Acknowledgements	viii
1 Introduction	1
1.1. Background	1
1.2. Objective	3
1.3. Method	3
1.4. Summary	4
2 Related Works	5
2.1. Gardening and elderly well-being	5
2.1.1 Elderly well-being: living a happier long life	5
2.1.2 Gardening and mental health of elderly	6
2.1.3 Therapeutic Horticulture (TH)	7
2.2. Community garden	8
2.3. Community cohesion in elderly community	8
2.4. Participatory design	9
3 Design	11
3.1. Research Setting: Yonamoto Danchi	11
3.1.1 Geographic, demographic and facilities	11
3.1.2 Hokkori cafe	15
3.1.3 Happy Card	16
3.1.4 Preliminary Ethnography regard planting	17
3.2. 1st Try-out: Planting separately at balcony	19
3.2.1 The Preconceived User portrait	19
3.2.2 Participants and setting	20
3.2.3 Findings	20

3.3.	2nd Try-out: Planting together at public space	22
3.3.1	The Preconceived User portrait	22
3.3.2	Participants and setting	23
3.3.3	Findings	25
3.4.	Ethnography during the try-out	27
3.5.	3rd Try-out: Water planting at public space	28
3.5.1	The Preconceived User portrait	28
3.5.2	Participants and setting	28
3.5.3	Findings	30
3.6.	Ethnography after the try-out	31
3.6.1	Bring the idea on stage	31
3.6.2	First prototype of workshop	32
3.6.3	Participatory design	34
3.7.	Final Design: Water planting in community and bring it home . .	35
3.7.1	User portrait of final design	38
4	Proof of Concept	40
4.1.	Stage 1: Pre-workshop	40
4.1.1	Process	40
4.1.2	Findings	45
4.2.	Stage 2: Workshop day	46
4.2.1	Process	46
4.2.2	Findings	47
4.3.	After workshop	49
4.4.	The change of autonomy level of participants	50
4.5.	Questionnaire data analysis	50
5	Conclusion	56
5.1.	Conclusion	56
5.2.	Limitations of the research	57
5.3.	Future works	58
5.3.1	Community garden	58
5.3.2	Elderly community activity	58

References	59
Appendices	64
A. Workshop information on community newspaper	64

List of Figures

0.0.1	Group photo on the workshop day	ix
3.1	Location of Yonamoto Danchi	11
3.2	Organizations	13
3.3	Happy card	16
3.4	User portrait 1	20
3.5	Try-out 1 on September 4th	21
3.6	Harvest	22
3.7	User portrait 2	23
3.8	Planting	24
3.9	Plants	24
3.10	Communicate via notes	25
3.11	Try-out 2 on September 9th	25
3.12	Rosemary tea	26
3.13	User portrait 3	29
3.14	Material used	29
3.15	Prototype of hydroponic green onion	30
3.16	Design concept	30
3.17	Participatory design	35
3.18	Flyers for final workshop	37
3.19	Service blueprint	38
3.20	Final user portraits	39
4.1	Timeline of the research	40
4.2	Eat a pineapple together and plant it in water	41
4.3	Interactions	42
4.4	The granny shows us the vegetables she harvested and froze	43
4.5	The sign, purple potatoes and handcraft	44

4.6	Step 1: Participants reading the handout and listening to the introduction	48
4.7	Step 2: Make water plants kits	53
4.8	Step 3: Eat together	54
4.9	After the workshop: Residents are talking about plants	55

Acknowledgements

I would like to thank every people who participated in this research. Thanks for the help from Haishi-san, Yamoto-san, Imai-san, and other members of the volunteer group at Hokkori. They made a big part of the contribution to the design process and without them, this research couldn't be carried forward. Thanks to the Aso Mutsumi Comprehensive Support Centre and Yachiyo City Council of Social Welfare for always supporting our research, especially Ujie-san, Ito-san, and Suzuki-san.

Special thanks to Professor Chihiro Sato as a mentor in both academic and real life. Thanks to Professor Donna Chen for always being with me and being supportive in all ways.

Thank all the people in the Aging community project for working together with me and helping each other, especially Noriko-san. Thanks to all Itoma people.

Thanks to my family, my mother Lu Yuyun, and my father Yang Zhijun for the financial and mental support.



Figure 0.0.1 Group photo on the workshop day

Chapter 1

Introduction

1.1. Background

The aging of the population is a common problem for most countries in the world. With the development of modern medical treatment, people can live a much longer life than back to 20th century. Thus, how to live a long life happier has been a crucial question for discussion. In Japan, the number of people over 75s have reached 15% of the population in 2022.¹ Numerous news and research have talked about the issue of the Japanese elderly's loneliness. [1] Giving the fact that more than 6.7 million elderly are living alone in Japan.² How to prevent the social problem of dying alone has always been an important topic for government, social welfare workers and NGOs. In this research area, several scholars [2] [3] have already proved that social isolation between the elderly, family and local community is one of the key factors that makes death difficult to be spotted early. Hence, encouraging the elderly to walking out of their homes and interacting with the local community is helpful to reduce loneliness and prevent the dying alone social phenomenon from happening. Furthermore, research in the field of aging [4] has proved that support and companionship from social relations have a positive impact on the subjective happiness and well-being of the elderly.

1 Japantimes. "Over 75s make up over 15% of Japan's population for first time". Sep 10, 2022.

<https://www.japantimes.co.jp/news/2022/09/19/national/japans-graying-population/>

2 Statista. "Number of private one-person households with elderly members in Japan from 1980 to 2020". Sep, 2022.

<https://www.statista.com/statistics/642764/japan-senior-one-person-household-number/>

Danchi is a massive housing complex throughout Japan. After WWII, the Japan Housing Corporation started building Danchi to solve the housing shortage in the cities. At that time, Danchi was a symbol of modern house and life.³ However, nowadays 22.2% of the Danchi has been in use for more than 40 years. More than 30% of the residents are people over 65 years old. The public perception of Danchi has turned to poverty, an aging population, and outdated housing.

The setting of this research is Yonamoto Danchi in Chiba prefecture, Japan. Yonamoto Danchi is a government-operating apartment complex with 50 years of history. With 42.2% of the residents being seniors⁴ and most of them living alone, encouraging residents to join community activities to prevent “dying alone” has become a very important topic in the community support center. During the several field trips we conducted at Yonamoto Danchi, there was also an issue that eating alone has been a difficulty for some of the elderly. It’s hard to prepare daily meals for only one person. The quantity and quality of the meal are hard to control. There are some people who subscribe to a weekly food delivery service, but the food is pre-cooked and frozen and not so fresh. At the same time, there is someone who lives in Danchi who likes to cook and could share some knowledge about healthy diets for the elderly. What’s more, there are male elderly who worked as farmers when they were young. Now because of health conditions, or their driver’s license being withdrawn because of age, they couldn’t go to the field anymore. They may be happy to share some planting knowledge.

Thus the support center wants to hold a group activity related to farming in the Danchi, and the author proposed a solution to combine eat together and plants together.

3 Wikipedia. Danchi.

<https://en.wikipedia.org/wiki/Danchi>

4 UR Web Press. Yonamoto Danchi special edit. 2020.

<https://www.ur-net.go.jp/aboutus/publication/web-urpress63/special2.html>

1.2. Objective

There are lots of research about community gardens practiced all over the world. They are either communal gardening on public or private land or projects that support people starting gardening at home. [5] Each of them has merits and demerits. However, the normal form of community gardening may not suit the elderly community for two reasons. First, gardening requires a certain level of knowledge and financial cost. According to ethnographic findings, this cost is a big obstacle for the elderly to show interest in this activity. Second, given the fact that most of the elderly live in the Yonamoto complex and are in their 70s and 80s, they have mobility issues and may not bend their body down to work on the ground. Hence, the objective of the research is to design a planting-related community activity that is more simplified and inclusive than real planting but keeps a form of collaboration. We aim to encourage more elderly to walk out home and build connections within the neighborhood, develop new interests in planting, and have something to look forward to in daily life.

1.3. Method

This research proposes a new solution for communal planting using the method of hydroponic. The whole design follows AIDA method to the attract elderly's attention. In the beginning, the researcher put several hydroponic plants in the public space of the community center. We visit there every week to observe people's reactions and interactions with the plants, and with each other. We also tried to initiate a conversation about water planting with the elderly. During the process, the main focus is to promote social interaction among the elderly and relate them to this topic. Also, showing them the process of how the water plants grow can give them a clear image of what to expect if they do planting by themselves.

One month after the "come on stage" day, we hold a workshop to teach them how to do simple water planting with daily consuming vegetables at home. We also cooked some dishes using those vegetables and eat together as an activity to build community cohesion. After the workshop, the elderly bring their own plants

home and look forward to watching them grow.

1.4. Summary

In conclusion, this research project is an experimental combination of communal water planting and eating together, which gives more flexibility and inclusiveness to elderly people. The goal is to encourage social interaction in the community, help to develop a new interest, promote community cohesion and build lean in life. In this experiment, the elderly don't need to move too far, work too much or learn a lot of planting knowledge. Thus increasing the inclusiveness of community activity. The planting together process is environment-friendly because we avoid using soil and fertilizer. The elderly will communicate and socialize more with each other, walk out of the home more frequently, and feel the feeling of achievement and expectation in daily life. And the eating together part will increase community cohesion and prompt a healthy diet.

Chapter 2

Related Works

2.1. Gardening and elderly well-being

2.1.1 Elderly well-being: living a happier long life

In Japanese culture, there is a word called “ikigai” which represents “reason to live”. It is not just simple practical reasons for a living but represents a self-consciousness about the motivation to live, a feeling of “life is enjoyable and worth living”. Previous research examined that having an “ikigai” in daily life indicates a positive psychological state and can reduce the risk of mortality [6] and incident functional disability [7] among elderly Japanese. Quantitative research was also conducted [8] among a total of 30,155 men and 43,117 women with a follow up period in the mean of 12.5 years, and the results show that the elderly with “ikigai” had lower risks in all kinds of mortality, both internal and external. In the book *Ikigai Healthy Ageing Policy in Japan* [9], the author mentioned that participating in production activities like gardening can help with keeping an exercise habit. Many Japanese elderly like to work with the communities as an “ikigai”. And those two factors have contributed to the increase in the lifespan of Japanese people. Narrowing down to Japanese elderly who live in the suburban dwelling area, evidence [10] also shows that gardening and green tourism can give the elderly the pleasure of “ikigai” thus increasing the survival rate in later life.

How does “ikigai” affect people’s well-being? Researcher Ju [11] and his colleagues revealed the mediation effect of meaning in life. They proved that optimism and elderly well-being are partially mediated by meaning in life. Thus focusing on the meaning of life could be a productive way to enhance well-being in the aging community. Another research [12] defined “ikigai” as experience or positive emotions that make participants perceive their life as good and worth

living. The “ikigai” affects people’s self-understanding of their life thus affecting their well-being in the future life. There are more diverse contents for the meaning of life under a different context. For example, research proved that people who have high cognitive function reported that human relations, taking up new activities, and having a sense of coherence will give them a feeling of life is worth living.

2.1.2 Gardening and mental health of elderly

Research [13] has proved that interacting with green space has a positive impact on elderly people’s mental health and social functioning. Especially for elderly women and elderly who are living alone with less social support and social capital. Gardening is the most common green activity among people who is retired. No matter whether it is home gardening or community gardening, there are several systematic studies have been taken on how gardening and planting events would promote the elderly’s physical and mental well-being.

During COVID-19, the social isolation restrictions have an even bigger impact on elderly people’s well-being.¹ Researchers [14] have recognized that home gardening helped with improving elderly’s self-reported physical and mental health during COVID-19 lockdown.

Specifically in East Asia, researchers [15] in Korea examined that male elderly living in rural who participated in horticultural activity had a statistically significant improvement in mental health and life satisfaction. For female elderly in Korea, Park and Lee [16] conducted an experiment at a community center in Seoul. In the experimental group, elderly women were seen to have a significant increase in cognitive ability, sociality, and a decrease in depression, compared to the control group. In Japan, Machida conducted a web-based survey among 1,000 people aged from 60 to 69. [17] The results show that both home gardening and community gardening have a positive impact on subjective happiness, exercise habit, and vegetable eating habit. Furthermore, community gardening can build

1 WHO. “Coronavirus disease 2019 (COVID-19): Situation Report - 89”. 18 April 2020. <https://reliefweb.int/report/world/coronavirus-disease-2019-covid-19-situation-report-89-18-april-2020>. Accessed on 9th December 2022.

a connection with neighbors and have a reason for living.

2.1.3 Therapeutic Horticulture (TH)

Therapeutic horticulture, also known as horticultural therapy, is the use of gardening and plants to improve the physical, cognitive, social, emotional, and spiritual well-being of individuals.² In recent years, there has been growing interest in the potential benefits of therapeutic horticulture for a variety of populations, including older adults, people with disabilities, and those with mental health conditions.

Studies [18] [19] found that older adults who participated in a therapeutic horticulture program showed improvements in mood, self-esteem, and life satisfaction. In addition, the participants reported increased physical activity, socialization, and a greater sense of control over their lives.

Another study [20] found that individuals with mental health conditions who participated in a horticultural therapy program showed improvements in symptoms of anxiety and depression, as well as increased socialization and self-esteem. In addition, the participants reported feeling more connected to nature and a greater sense of accomplishment from their gardening activities.

Therapeutic horticulture has also been found to be beneficial for individuals with physical disabilities. A study [21] of individuals with acquired brain injuries found that those who participated in a horticultural therapy program showed improvements in memory, attention, and problem-solving skills. In addition, the participants reported increased physical activity, socialization, and a sense of accomplishment from their gardening activities.

Overall, the literature suggests that therapeutic horticulture can be a valuable addition to treatment programs for a variety of populations. It can provide not only physical benefits, such as increased physical activity and improved cognitive functioning, but also psychological benefits, such as improved mood and self-esteem. It can also provide a sense of connection to nature and a sense of accomplishment from gardening activities.

2 American Horticultural Therapy Association. "Horticultural Therapy History and Practice." <https://www.ahta.org/horticultural-therapy> Accessed on 9th December 2022.

2.2. Community garden

There is a wealth of research that has been conducted on the benefits and challenges of community gardens.

One of the key benefits of community gardens is their ability to improve the health and well-being of those who participate in them. Research [22] has shown that gardening can reduce stress and improve mental health, as well as provide physical activity and access to fresh fruits and vegetables. In addition, community gardens can serve as a source of social support and community engagement, fostering a sense of belonging and improving social connections [23].

Another important benefit of community gardens is their potential to support environmental sustainability. [24] These gardens can provide green space and habitat for wildlife, improve air and water quality, and reduce carbon emissions. [25] In addition, community gardens can support local food systems and promote food security [26], providing an alternative to relying on industrial agriculture.

However, community gardens also face challenges and obstacles. [27] One of the main challenges is access to land and resources, as many communities do not have sufficient space for gardening or lack the financial resources to support the creation and maintenance of a garden. In addition, community gardens can be subject to vandalism and theft, and may require significant time and effort from participants in order to be successful.

Overall, the research on community gardens suggests that these types of gardens can provide numerous benefits, including improved health and well-being, environmental sustainability, and social support. However, they also face challenges that need to be addressed in order to support their success and sustainability.

2.3. Community cohesion in elderly community

Community cohesion refers to the degree to which members of a community feel connected to one another and share common values and goals [28]. This concept is particularly important in the context of elderly communities, where older individuals may face a range of challenges related to social isolation and loneliness.

Studies have shown that community cohesion can have a range of positive im-

pacts on the well-being of older adults. For example, a study by Chen [29] found that community cohesion was associated with lower levels of depression and better physical health among older adults living in rural areas. Another study by Park [30] found that older adults who reported high levels of community cohesion were more likely to engage in regular physical activity and report better overall health. There are a number of factors that can contribute to community cohesion in elderly communities. These include the availability of social support networks, access to services and amenities, and opportunities for social interaction and engagement. [31]

In terms of promoting community cohesion, several interventions have been shown to be effective. For example, community-based programs that provide social support and opportunities for social interaction have been found to be effective in increasing community cohesion among older adults. These programs may include group activities, such as exercise classes or group outings, or support groups for individuals with specific health conditions. [32]

Additionally, efforts to improve access to services and amenities can also promote community cohesion. [33] This can include initiatives to improve transportation options for older adults, as well as programs that provide information and assistance in accessing healthcare, housing, and other services.

Overall, research suggests that community cohesion is an important aspect of the well-being of older adults and can have a range of positive impacts on their physical and mental health. Efforts to promote community cohesion in elderly communities can include community-based programs and initiatives to improve access to services and amenities.

2.4. Participatory design

Participatory design is an approach to design that involves the active participation of the end users of a product or system in the design process. This approach is based on the belief that the people who will use a product or system have valuable insights and ideas that can contribute to the design of that product or system.

Participatory design has its roots in the fields of human-computer interaction and design [34], and has been applied to a wide range of domains including software

design, user experience design, and product design. It has also been used in the design of public spaces, services, and policies.

The goal of participatory design is to create products and systems that are more relevant, usable, and effective for the people who will use them. To achieve this goal, participatory design often involves a collaborative process in which designers and end users work together to co-create designs that meet the needs and preferences of the end users [35].

There are a number of methods and techniques that have been developed for conducting participatory design [36], including workshops, focus groups, prototyping, and user testing. These methods can be used at different stages of the design process, from the initial ideation and conceptualization of a product or system, to the final testing and evaluation of a design.

One of the key benefits of participatory design is that it allows designers to gain a deeper understanding of the needs, preferences, and context of the end users, which can lead to designs that are more relevant and effective. Participatory design can also help to build trust and engagement between designers and end users, and can lead to a sense of ownership and empowerment among the end users.

However, participatory design can also present challenges [37], such as the need for careful facilitation and moderation, the potential for power imbalances between designers and end users, and the need to manage the expectations and roles of all stakeholders.

Overall, participatory design is a valuable approach to design that can lead to more relevant, usable, and effective products and systems. It is important for designers to carefully consider the benefits and challenges of participatory design, and to choose the appropriate methods and techniques for their specific context and goals.

Chapter 3

Design

3.1. Research Setting: Yonamoto Danchi

3.1.1 Geographic, demographic and facilities



(Source: Google Map)

Figure 3.1 Location of Yonamoto Danchi

The Yonamoto Danchi is located in Yachiyo city, Chiba prefecture, Japan. It is a suburban area with limited public transportation, and it takes around 2 hours to go from the center of Tokyo. The nearest train station is Tōyō-katsutadai station. It takes another 20 mins by bus to go to Yonamoto danchi and the bus comes in every 15 minutes. The complex itself is on a small hill which is difficult to walk for some elderly with mobility issues. The surrounding of the complex is mostly farms and open space. There is the Shinkawa river and a national highway nearby. The highway is very busy every day and a lot of heavy-duty trucks are passing by, which gives an intimidating feeling to the passengers walking along the sideroad. The

only commercial facility nearby is the “michinoeki” and an agriculture center. In the “michinoeki”, there are supermarkets, restaurants, flower shop and ice cream shop, and so on. Outside of the building, a TV and several benches are set up for people to take a rest and chill. During our field trip, we often saw some elderly sit there watching TV alone or eating ice cream after shopping in the supermarket. The agriculture center is a place to hold cultural activities such as lectures about healthy diet and exercise for elderly people.



(a) Agriculture Center



(b) ”Michinoeki”



(c) Yonamoto Danchi Entrance



(d) Community Comprehensive Center

Yonamoto danchi is a government-operating complex with 52 years of history. When it was built, there were 106 buildings and 3020 households in total.¹ Back in 2018, the elderly rate of the residents was 24.2%. However, when the time

1 UR Web Press. Yonamoto Danchi special edit. 2020.

<https://www.ur-net.go.jp/aboutus/publication/web-urpress63/special2.html>

comes to September 30th 2022, the aging rate reached 44.6%.² This indicates that Yonamoto danchi is a heavily aging community, even much more than other danchi.

Within the complex, the facilities are small but complete for daily life. There is one convenience store, one supermarket as historic as the danchi itself, a post office, a bank, a barber shop, and a newly opened neighborhood restaurant. There are also support organizations like kindergarten, primary school (which is closed in 2022 because of lack of students), UR office, community comprehensive center, and rehabilitation facility.

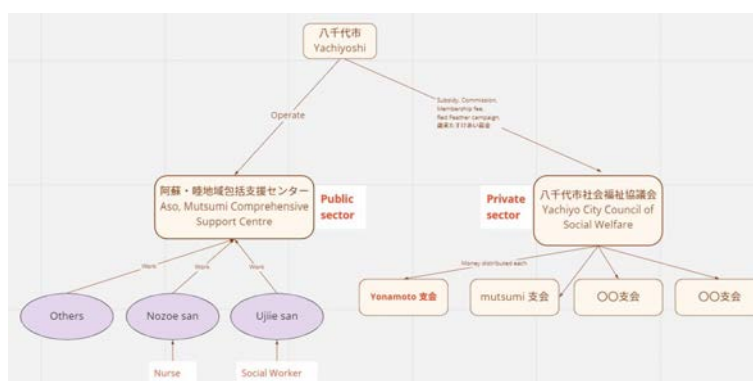


Figure 3.2 Organizations

At the organizational level, there are both public and private sections in the community. Each of them has different social capital and scope of work. The Aso, Mutsumi Comprehensive Support Centre is a public organization operated by Yachiyo city. Social workers, nurses, and nutritionists work there and plan community activities every few months. The Yachiyo City Council of Social Welfare is a private center and it has a branch at the Yonamoto complex named Hokkori. This organization is operated by residents as a volunteer and led by one of the grannies. There is also an NPO organization Wakka in charge of the Neighbor Food Place restaurant, vegetable selling, and agriculture center. They are building a close relationship with the locals via vegetable and healthy-diet-related

2 Yachiyo City. Population by town character and age. 14 Oct, 2022.
<https://www.city.yachiyo.chiba.jp/21004/page000022.html>

topics at the newly opened restaurant.



(a) Hokkori building



(b) Children's day



(c) Decoration on the wall



(d) Color-filling postcard

The Hokkori is a daily gathering place for residents. After the body temperature check and writing down the names, people can sit at a cozy table, read newspapers or books, color-filling postcards, meet and talk with friends or play board games. The volunteers always provide visitors hot tea once they sit down, and chat with people who come alone. Hokkori opens from 10:00 to 14:00 on weekdays except for Tuesdays and Wednesdays. On Tuesday, it becomes a 100 yen cafe place where people can drink tea or coffee for only 100 yen. The operators are still the same volunteer crew. Wednesday is children's day, primary-school-aged kids who live at the complex will come and play games here.

3.1.2 Hokkori cafe



(e) Hokkori Cafe Crew



(f) Customer



(g) Table and Seats



(h) Coffee

Every Tuesday is Hokkori cafe time from 1:30 pm to 3:30 pm. Visitors can enjoy coffee or tea for only 100 yen, which is even cheaper than a bottle of water in Japan. The community volunteers developed a very well-organized operating system. When visitors enter the room, a 3 people volunteer group will ask visitors to measure body temperature, sanitize and pay 100 yen. Then they will give visitors a number card and ask them to find a seat wherever they want. After the visitor sits down, another group of volunteers will ask what they want to drink, then tell the order to the kitchen volunteer group. In the kitchen, there are two divisions. Two volunteers are in charge of filling the coffee powder and water in the machine, as well as washing the cups since they are close to the sink. Other volunteers are responsible for filling the cups, putting spoons, napkins,

and snacks on the plate then serving the plate to the customers. After the cafe closes, everyone will clean up together, check how much inventory is left, and put everything back in the closet.

The volunteer group consists of around 10 residents in the complex. Most of them were housewives, one of them worked at a strawberry farm, and one of them used to be a barber. And there is only one man in this group. It is a surprise to see how much this volunteer group is organized and operating very efficiently on different occasions for different activities. Considering none of them has worked in an organization but learned all those skills from years of volunteer work.

The visitors to the cafe are quite fixed. Usually, some man will come once the cafe is open, drink fast, and leave soon. Other types of male customers include men who come alone and talk with people around, men who come alone and read newspapers, men who come alone and sit alone and watch others, and men who come with friends. Female customers have quite similar mental models, they usually come with friends, sit together and talk.

3.1.3 Happy Card

枚目
よなだん HAPPY カード

お名前: _____ 開始日: _____

1	2	3	4	5	6	7	8	9	10
/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/

マーク到達で特典GET!
満杯になったら包括にて新しいカードをお渡しします。

スタンプの設置場所:

- NPO法人わかか (野菜販売時)
- ほっこり
- 阿蘇・陸地域包括支援センター

特典交換場所:

- 生活支援アドバイザー窓口 (UR管理事務所)
- 阿蘇・陸地域包括支援センター

お問い合わせ
阿蘇・陸地域包括支援センター
047-488-9525

希望される活動にチェックをお願いします。1箇所につき1日1スタンプ。1日で2箇所回れば、それぞれスタンプ可。1日3箇所まで3スタンプ。

わかか: 野菜販売 レシピ作成

ほっこり: フリーバーバー配車提供 チラシ配り

寄付品 袋詰めや箱詰め

花壇の手入れ 手袋品の作り付け

カフェのお手伝い

包括: ラジオ体操 交換ノートネット提供

米詰ワークショップ 見守り

手袋品の作り付け

実食: 行事の協力 サロン等の椅子出しや片付け

※本選地 管理事務所: 手袋品の作り付け 猫トレ

Figure 3.3 Happy card

Happy card is a motivation system for residents to join as many community activities as possible. It was designed in a point card size so the users can carry it around. It includes most of the community activities provided by different parties. For example, helping with NPO to sell vegetables, contributing to the community newspaper at Hokkori, joining weekly radio gymnastics hold by Aso comprehensive center, putting self-made handcraft at the UR office, and so on. The participants can get a stamp from those entities once they finished one of those activities. After 30 activities are done, participants can get a gift.

The happy card is a very useful system to show residents some diverse ways to participate. People can freely choose what they want to do and what they are capable to do, and at the same time feel they are contributing to the same goal under this happy card system, which is making the community a livable place.

3.1.4 Preliminary Ethnography regard planting

This research topic is an entrust from the Aso Comprehensive Support Center. The social worker working onsite in the Yonamoto complex noticed that many people had farming experiences when they are young. He proposed to the research group that design an activity related to planting, giving an experience to those who want to share knowledge and make friends via this channel.

Even though the researchers have been conducting ethnography in the field ever since March 2021. The ethnography trip related to this research started in September 2022, after we decided on the planting topic. During the ethnography, we talked with an experienced gardener, Imai-san, who also lives in the Yonamoto complex.

Imai-san mentioned that due to the rule of the UR, which is the operator company of the community, residents cannot plant any eatable plants on the ground. So people who plant vegetables can only use planters. They need to take full responsibility for the planters they put outside and there is no guarantee that they will not be stolen or broken. Imai-san told us her husband tried to plant a lot of vegetables and fruits by himself. In the beginning, he started by learning on Youtube. Now it become his hobby and a big part of his life. Gardening became a very important topic within her two-people family. Since they have been married for many years and their children already left the family, they didn't have many



(a) Imai-san showing us the dish she made from veggies her husband plant



(b) A picture of the vegetable



(c) Researchers and social workers visit the garden



(d) Part of the garden

topic for daily communication.

During the field trip, Imai-san brought researchers and social workers to their garden next to her house. Her husband introduced all the plants to us. He also introduced his gardener friends living in the next building. They often exchanged

knowledge of gardening and give seedling to each other. They mentioned it's a social activity for gardener to give sprout away, teach people how to taking care of it and make friends.

The social workers mentioned that their expectation for the new activity is to include more people into the gardening circle. Especially those who has been less active in community activities. And the ultimate goal is to promote social interaction, build community cohesion and encourage people to develop new interest and hence have expectation in daily life. To figure out how to make planting activity more inclusive and how to design the attraction point and communication method in the whole process, the researcher decided to conduct several rounds of try out within the research group.

3.2. 1st Try-out: Planting separately at balcony

In order to better understand the mental model of gardeners. The researcher decided to try out planting vegetables in different settings. The 1st try-out is a recap of the existing model in the community. The individual gardeners we talked with during the ethnography studies are the mainstream of planting in the community. That is saying they plant vegetables or flowers at their own garden or balcony, and they communicate with each other every now and then. The researcher assume that under this model, the frequency of social interaction should be quite low and it's also difficult to attract newcomers join the gardener community.

3.2.1 The Preconceived User portrait

The user portraits for the 1st try-out is built on the existing model between Imai-san's husband and his neighbor. They have a little planting community and regular communication pattern with each other. They basically do planting activities everyday individually, exchange knowledge and sprout occasionally, thus it is difficult for the outsiders to be included.

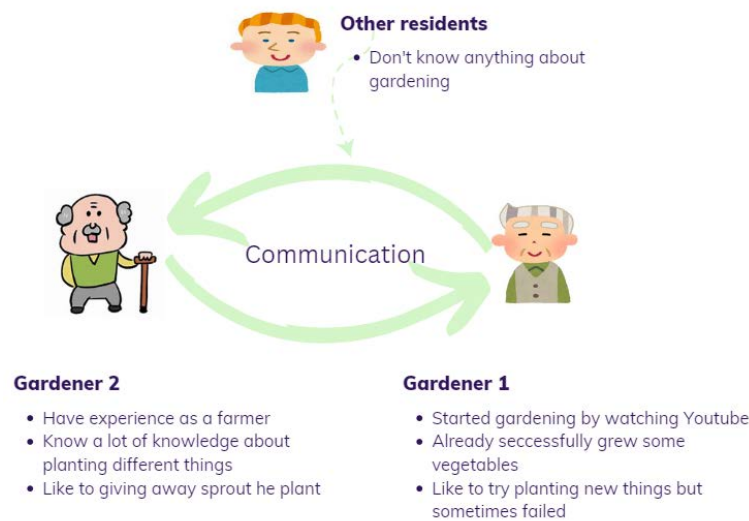


Figure 3.4 User portrait 1

3.2.2 Participants and setting

The participants for the 1st try-out are colleague at the Yonamoto field research group. They are studying at the same school but they don't have any common classes. They have online meetings every week. However, the Yonamoto field is basically the only occasion they will meet in person.

The setting of this try out is a private space. Each of the participants plants vegetables on their own balcony and using this as a topic to socialize. They communicate via pictures and messages on social media. Both of the participants are new gardeners and they are planting same vegetables, which are basil and mizuna. They are asked to taking care of the vegetables using their own method.

3.2.3 Findings

The test started on 4th September and ended on 21st October, 2022. One of the participant successfully harvested the vegetable. However another participant failed the planting one week before the harvest, because of the dry weather. The findings for the 1st try-out are as follows:

1. Each of the participants felt subjective happiness, achievement, and excite-

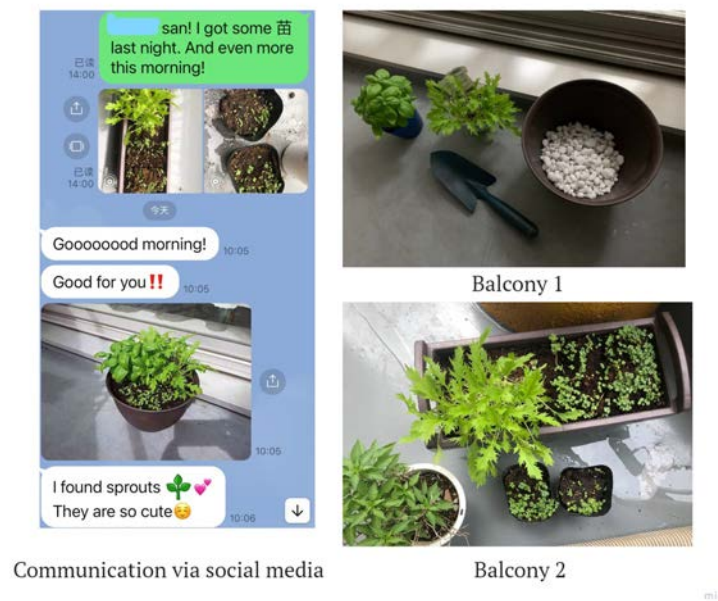


Figure 3.5 Try-out 1 on September 4th

ment

2. There was some knowledge exchange, even though both participants are new gardeners. They exchange knowledge they learned on internet.
3. The participants tend to share more good news like “The sprout is growing and they are so cute”. But they don’t usually share negative news like “Today my plants were dry out”.
4. The participants’ effort in planting is highly related to their motivation. During the test we figured out one of the participant’s goal is to grow vegetables and eat them. Another participant’s motivation is planting just for fun. The later participants paid less attention to her plants.

In summary, the planting individually mode can build limited connection and communication between participants. Participants can feel subjective happiness, feeling of achievement and excitement from the planting itself. However, how much effort participants pay and how happy they could be are highly depend on



Figure 3.6 Harvest

their motivation of planting. Thus, this mode is very difficult to include more people with less motivation on planting.

3.3. 2nd Try-out: Planting together at public space

To find a more inclusive mode of planting. The researcher hold a 2nd try-out with a communal gardening mode. The assumption is that participants may have more interaction and conversation. However, it will be difficult to identify each person's responsibility towards the plants and it's hard to maintain the desired level of motivation within the group.

3.3.1 The Preconceived User portrait

The user portrait for 2nd try-out is built on the most common model of community garden. The users belong to a same community and the venue of planting is in public. Inside of the gardeners group, there are both experienced gardener and newcomers who want to contribute.

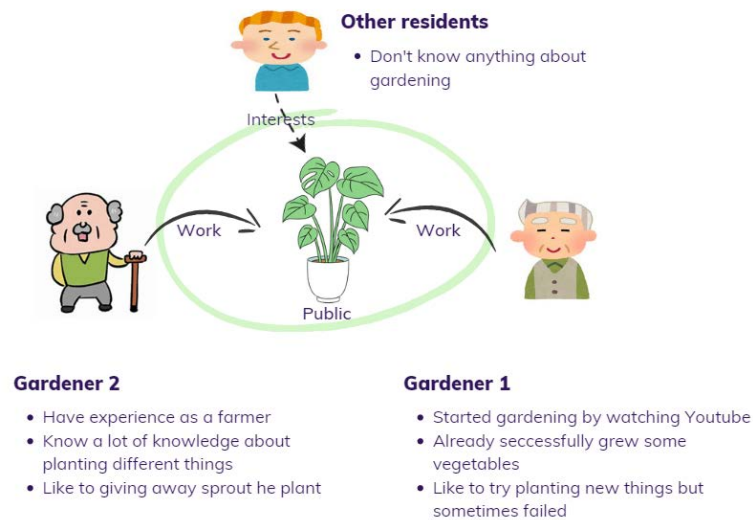


Figure 3.7 User portrait 2

3.3.2 Participants and setting

The setting of 2nd try-out is public space at the school. The school of Keio Media Design has a close community among students who are physically around the project room. Students usually come to project room to study, do group work or just hang out with others. Comparing to the traditional classroom, it's more like a share space for socializing.

The participants for 2nd try-out are three schoolmates who often go to the project room at similar time. They know each other from school but they are not close friend yet. They will only meet each other at school.

The three participants are going to plant rosemary together. Herbs are relatively easy to taking care of. Also, all participants have certain reason to choose rosemary. Participant 1 want to make rosemary tea after it grow. Participant 2 are doing research about smells so she want to use rosemary to make perfume in the future. Participant 3 wants to make satchel with rosemary. Participants are taking care of a grown rosemary together, at the same time participant 1 is taking care of a cutting seedling rosemary baby individually. Each of the participants made a name tag for the plants to better build emotional connection with the plants. The venue of the 2nd try-out is the balcony next to project room where

other students in the community will also pass by. The communication method is verbal communication and note communication. The participants are asked to water their plants every 3 days.



miro

Figure 3.8 Planting



miro

Figure 3.9 Plants

Date	Water	Comment	Date	Water	Comment
9/9	✓	Happy B-day Clem! Grow well!	9/9	✓	Welcome to the world ☺
9/12	✓	Looking Better! Still alive!	9/11	✓	Looking rough today... #clem
9/13	✓	writing a bit again. Maybe should write a bit every day?	9/12	✓	Looking stable
9/14	✓		9/14	✓	A lot of sun today
9/15	✓		9/16	✓	More sunshine!:
9/16	✓	still alive!	9/21	✓	Long time no see! Sorry
9/21	✓	Watered bigger area so the roots can explore and grow	9/28	✓	
9/24	✓	she is standing up again! Looking great though!	10/18	✓	It's autumn ☺
9/26	✓	I think her roots are starting to take!	10/5	✓	
			10/25	✓	

Figure 3.10 Communicate via notes



Figure 3.11 Try-out 2 on September 9th

3.3.3 Findings

The 2nd try-out started from 9th September. The participants harvested once on 3rd October to make some rosemary tea. However, after that the participants paid less attention on the plants and gradually stopped visiting the plants in the end.

The findings of 2nd try-out are as follows:



Figure 3.12 Rosemary tea

1. It's a good topic for initiating conversation every time when participants meet near the plants, or even not near the plants.
2. Participants feel bonding within the group. Some other students outside of the group
3. Participants put more effort into their individual rosemary. Since it's a baby and the responsibility is clearly only on one person.
4. However, this mode requires participants to go to the venue everyday which may be difficult for the elderly with mobility issues.

In summary, communal planting could bring more social interaction and community cohesion to the group. Also, attract potential participants. The drawback is the venue of communal planting may take time to access every day. Also, it is very difficult to make a clear separation of responsibilities within the group.

3.4. Ethnography during the try-out

To bring the idea of a community garden to the community. The researcher proposed to build a herb garden in a public space. Herbs are easy to take care of, and can grow even in winter. Also, herbs can be used to do a lot of things like herb tea, herb bath, seasoning for dishes, and so on. People can take a cutting of herb from community garden and plant it at home.

With the community herb garden idea, the researcher went to the Yonamoto complex and interviewed some local residents. First interview was with 2 grannies who are doing volunteer works at the community center Hokkori. They were very interested to talk with foreign students and learn English. They told us they would like to have a herb garden if they can pick herbs freely from the garden. But they don't want to work on the garden because it sounds like a lot of work to do and very bothersome. The second interview was with a male visitor at the community center. He told us he used to be a truck driver worked all around Japan. Now he like to travel with family, play mahjong. He just quit volunteer job in the Yonamoto complex. He is very satisfied with his fun life now and doesn't want to work on anything like gardening or farming. With those information from two

interviews, the researcher talked with the experienced gardener Imai-san again. Imai-san mentioned that people live in the complex like simple and easy things rather than a big plan.

3.5. 3rd Try-out: Water planting at public space

Considering the span of growing vegetables and the season are crucial to the success of this research, and the requirements from the elderly that they want activity that is simple and fun. The author came up with a less time and effort-consuming planting method which is hydroponic. The elderly in the community showed high interest in the prototype because hydroponic is easier to get started, less work required, and also a new thing for them to learn.

3.5.1 The Preconceived User portrait

The user portrait for the 3rd try-out is an upgrade from second one. In the second user portrait, the level of knowledge and ability of planting within the group differ among participants. Thus it's very common that the responsibility and effort from each participants are uneven which may cause negative experiences. In the 3rd try-out, the topic of water planting is new to everyone and it is easy enough to ignore any knowledge gap between users. Thus every user can be equally engaged into the activity.

3.5.2 Participants and setting

The participants for the 3rd try-out are 2 schoolmates and often meet in project room. They are asked to plant green onion root with only pet bottle and water. We also took the name tag element from 2nd try out, considering it built a attachment between the plants and the planters. The participants are asked to make a water planting kit by simply cutting one third of the pet bottle and putting green onion roots in. Then they are asked to decorate the pet bottle, make a name tag, also try to image what dish they can make from those green onion in the future. The participants put their plants inside the project room

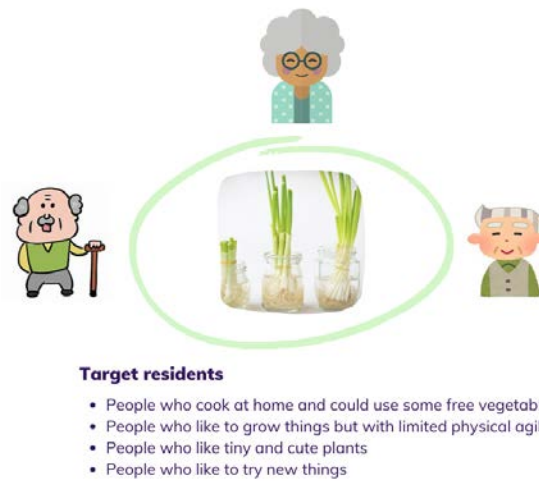


Figure 3.13 User portrait 3

because hydroponic plants can survive with LED lights. They could check their plants everyday at school and they need to change clean water for it everyday.



Figure 3.14 Material used



Figure 3.15 Prototype of hydroponic green onion

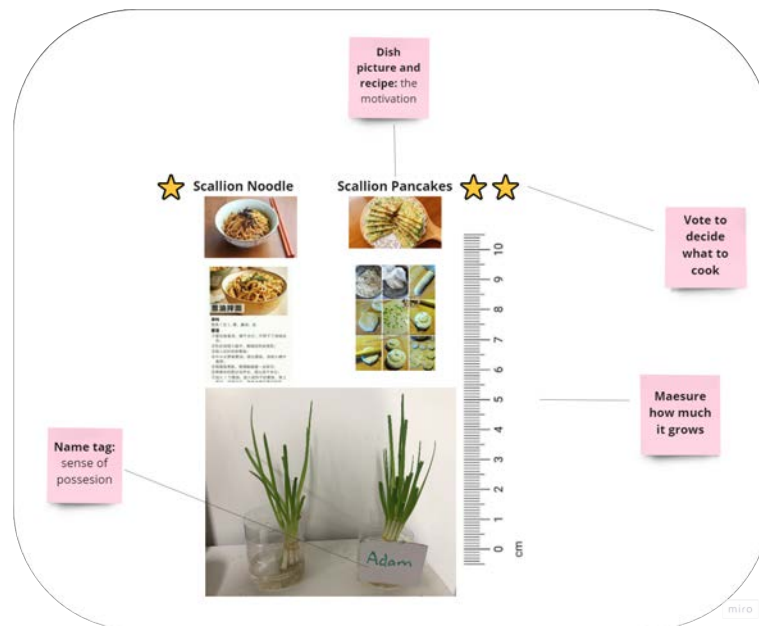


Figure 3.16 Design concept

3.5.3 Findings

The 3rd try-out started on 9th October and ended on 24th October. During these two weeks the green onions grew a fair length that is enough for making a dish.

The researcher used it as a prototype to show at the Yonamoto complex, so there was no harvest action in this round of try out.

The findings of 3rd try-out are as follows:

1. The participant feels ownership of the plants with their name tag and personalized decorations on it.
2. The participant feels excitement and sense of living when they saw the green onion was growing everyday.
3. It is a super easy activity which only takes 2 weeks. Surprisingly the participants didn't face any difficulty during the process.

In summary, the water planting vegetable is a planting activity that can easily attract people's attention. The initial cost of starting water planting is very low since we are using used pet bottle and consumed vegetable. It only requires changing of water everyday and it's possible to harvest after 2 weeks. These merits will make the planting experience much more inclusive to those elderly who cares about cost, effort and knowledge of planting when they first start.

3.6. Ethnography after the try-out

3.6.1 Bring the idea on stage

To bring the idea of water planting into discussion with social workers and volunteers, the researcher brought the prototype of green onion, carrot and rosemary to the community meeting on 7th October. The social worker from Aso Comprehensive Support Center, the volunteer from community center Hokkori, the officer from UR and Hachiyo social welfare department all showed interest in the prototype and said it is a feasible plan which they can see it happens.

However, one of the granny in the volunteer group showed hesitation about the water planting activity because she didn't feel enough motivation to do it. She said: "It is doable but I don't feel like doing it."

From the findings of the first and the third try out, the researcher noticed that "plant for eating" is a big motivation of the participants and the key factor of



(a) Community meeting

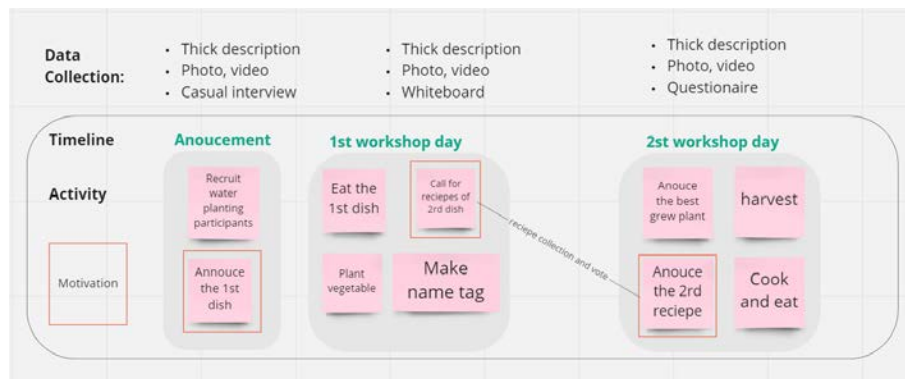


(b) Tasting green onion pesto

success. Comparing to a participant who plants it just for fun, those who plant it for eating felt more motivated to start the activity and paid more effort during the process. The researcher took green onion as an example, prepared several recipes for green onion, and brought one dish, green onion pesto to the field. The community volunteer tried the dish and was happy with the idea of combining planting and eating together.

3.6.2 First prototype of workshop

Hence, the researcher proposed the first prototype of a water planting workshop with a “eat together, plant together” theme. The idea is to combine water planting with daily life activities like cooking, eating and recipe sharing. Thus the elderly will not feel it’s just an isolated planting activity that they can’t find a reason to start.



(c) Workshop prototype ideation



(d) Poster for the workshop prototype

The first prototype of the water planting workshop includes three steps. They are the announcement of the event, the first workshop, and the second workshop. In the first step, we will prepare one dish that is made from the vegetables participants going to plant and keep the roots for the first workshop. The 1st dish is an attraction when we call for participants. In the second step, we will hold a workshop for participants to learn how to make a water planting kit, and to eat the first dish together, then look forward to the vegetables growing. During the

2 weeks when the vegetables grow, we will call for a new recipe from the participants that will bring more engagement and expectation on second workshop. And finally, in the last step, participants will harvest the vegetables they have planted and use them to cook the second dish which will give a feeling of achievement and a sense of belonging to the planting group. During the whole process, the eating part is the motivation for participants to join. However, the assumption is that they will feel attracted to planting once they start.

3.6.3 Participatory design

The researcher started visiting Yonamoto complex every Tuesday on Hokkori cafe day ever since 30th September. Every time, the researcher will bring an update of the ideation and discuss with granny work as community volunteers.

The turning point happened on 25th October. When we brought the idea and the poster of workshop prototype 1 to the granny, they proposed that only green onion is a little bit boring and they want to try some other vegetables too. Considering other vegetables don't grow as fast as green onion, the grannies proposed to plant them right on that day. The researcher rushed into the supermarket in the community and bought some vegetables and fruits that can plant in water. The grannies quickly learned how to make water planting kit, then planted several vegetables and put them in the public space of the community center.

The participation of the users in the prototype design process shows ownership towards this research. The users started to develop a autonomy under the topic of water planting and enjoyed playing a role in the whole design process. We think there are several triggers that made this happen. First, the water planting is an easy to pick up activity. Second, the grannies who works as volunteer have high autonomy that they gained from years of volunteer works. Third, most importantly, the researcher built a connection with the users and earned their trust in the community, thus they are willing to help and play a role in the research.



Figure 3.17 Participatory design

3.7. Final Design: Water planting in community and bring it home

To combine the first workshop prototype and the proposals from the grannies, the researcher finalized the design as a water planting activity followed AIDA model [38]. The goal is to provide a easy start point and more inclusive process so that more residents live in Yonamoto complex can be motivated to participate in planting activity.

AIDA model is a famous communication methodology that is widely used in many area, especially marketing and public relation fields. The AIDA model describes 4 cognitive statues of the target user while receiving a new idea or adopting a new product. They are attention, interest, decision and action. This research applied the AIDA model as a way of communication with elderly lives in Yonamoto complex and visits the community center every now and then. The communication media is hydroponic plants.

Attention: The hydroponic plants made by the grannies in the participatory design process were put on the table as an eye-catcher in the community center Hokkori ever since 25th October, about one month before the workshop. The researcher visits Hokkori every week to examine if the plants successfully drew visitors' attention. We observe how local residents interact with the plants and communicate with each other using the plants as a ticket to talk.

Interest: The visitors to the Hokkori community center will see the hydroponic plants and feel curious about what is this and why it is here. At the interest stage, the design itself becomes a ticket to talk in the community. The target users are expected to talk with Hokkori volunteers, who made those plants. They will get to know the idea of water planting using consumed vegetables, and see how it grows day by day for the next month. The curiosity, and motivation of talking with others about water planting are seen as a sign of interest. To examine if the design arose interest, we will initiate a conversation from our side about the water planting to check if visitors are interested in this topic and to understand the users' user portrait.

Decision: One month after we put the hydroponic plants in the Hokkori center, the volunteer and the researchers will tell visitors about the workshop. We will briefly introduce our activities in the workshop, show them the poster of the workshop, and ask the visitors if they are interested to join the workshop. Visitors who showed interest will write down their names as a registry. At the decision stage, the key to success is the trust from visitors towards the activity, the research topic and the researcher.

Action: The final stage is to examine if the design successfully attracted target users to participate in community activity. The workshop includes three activities, introduction of basic water planting knowledge, making water planting kit, and eat dishes made from the vegetables. At the action stage, the users will feel a feeling of achievement and sense of belonging to the community. The measurement is whether they will show up in the workshop and a questionnaire measures self-reported feelings regards the workshop.



Annoucement flyer

Instruction of making water planting kit miro

Figure 3.18 Flyers for final workshop

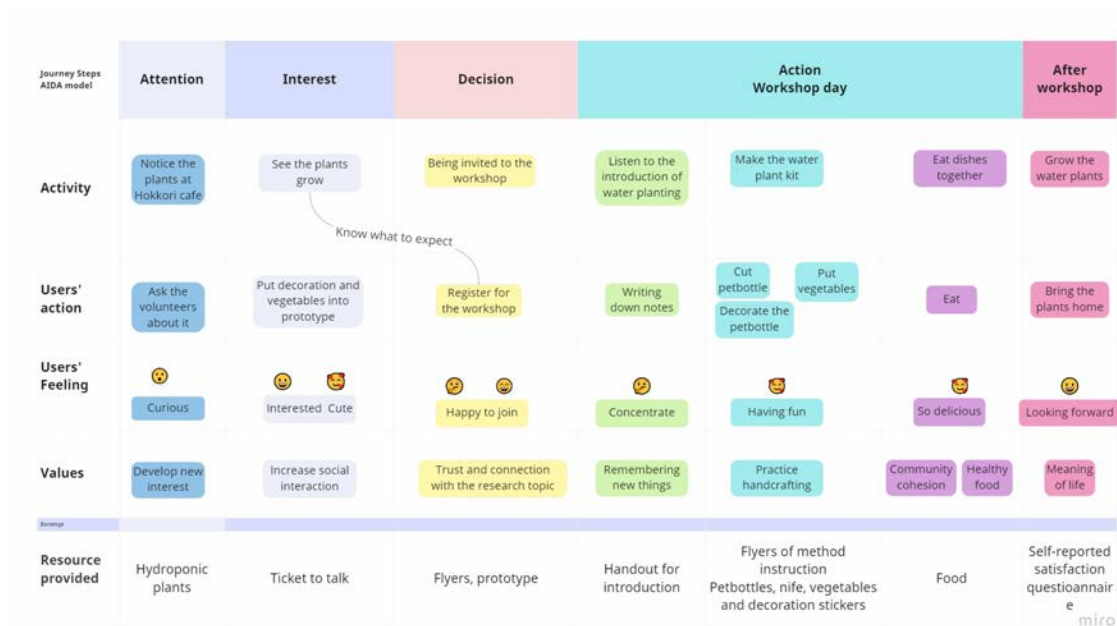


Figure 3.19 Service blueprint

3.7.1 User portrait of final design

During our weekly visit to Hokkori center, the researcher conducted 3 semi-structured interviews to better understand the users' portrait. The elderly who showed interest in the workshop have very diverse reasons.

User 1 is a grandmother in her 80s. She is living alone in the Yonamoto complex and she often eats alone. She likes cute things and made some friends in the community. She and her friends will meet at Hokkori cafe every Tuesday to enjoy afternoon tea and talk. She doesn't like to cook, and sometimes doesn't know what to eat for each meal. Her motivation to join the workshop is to enjoy the food and socialize.

User 2 is a grandfather in his 70s. He likes to cook. Started with the topic of vegetables, he told as he plant some vegetables before but now quit because of his knee problem. Regards of the eating together session, we asked for suggestions from him about recipes. For him, his motivation to join the workshop is to pick up planting in an easier way and to eat dishes made from his recipe together with

the community.

User 3 is a grandfather in his 80s, from the topic of planting, he told us that he knows a lot about plants because he worked in a green company when he was young. Now he is taking care of the plants in Yonamoto complex. He likes Chinese history and he built a special connection with the researcher. Sometimes he brought candies to the researchers. For him, his motivation to join the workshop is because of his personal connection with researchers.



Figure 3.20 Final user portraits

Chapter 4

Proof of Concept

The validation part is going along with the whole experiment process ever since 25th October when the granny put the water plants in Hokkori center. The evaluation target varies according to the different stages of the experiment. In Stage 1, the design target is to increase social interaction and develop new interests in water planting within the community. In Stage 2, the design target is to build community cohesion and future expectations for the plants to grow.

4.1. Stage 1: Pre-workshop

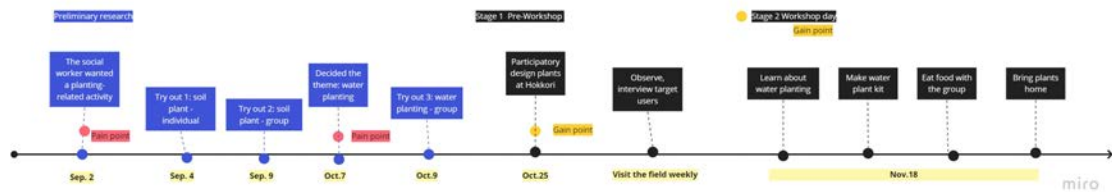


Figure 4.1 Timeline of the research

4.1.1 Process

The pre-workshop stage is from October 25th to November 17th. After the participatory design prototype was set, the researcher started to record data every week by taking photos and conducting informal interviews. The pre-workshop stage is for developing interest in the topic and building connections and trust with the community. Also, the target users are getting used to the topic of water

planting and could directly see how those plants grow this month. It is a very straightforward illustration of what the target users can expect if they join the workshop.

The observation starts with a greeting from the Hokkori volunteer grannies. The granny will tell us which plants grew a lot and which didn't. They also told the researcher that they started trying water planting other vegetables at home so that they can bring them to the "Hokkori garden" when they grow up. Then the researcher will bring the plants to other visitors in the Hokkori center and initiate a conversation using them as a ticket to talk. In the end, the researcher will record data via photos or write down a thick description.



Figure 4.2 Eat a pineapple together and plant it in water

Every week when we visit the Hokkori center, we would find changes in those prototype plants. The target users put self-designed handcraft decorations and a sign saying "please don't touch, we are doing water planting" on the prototype. One granny in the volunteer group is a very experienced gardener, and she brought some old sweet potatoes from her planter. She mentioned that those potatoes are from last year, and maybe not be delicious anymore. But after the granny put them into the water, they grew up as very beautiful purple plants. Many of the visitors love the color of those potatoes and gave compliments to the potato provider. Another granny in the volunteer group harvested the vegetables in the "community water plants garden" after they grow and froze them in the fridge to



Showing the prototype around

Join autonomous conversation about the plants

miro

Figure 4.3 Interactions



Figure 4.4 The granny shows us the vegetables she harvested and froze



Figure 4.5 The sign, purple potatoes and handcraft

show us when we visit.

4.1.2 Findings

The target users' motivation and autonomy had significant changes during stage 1. In the beginning, the users were not interested in plants and vegetables in water. They understood that it is very easy, but they didn't have a reason to do it. They started to participate because of the trust and personal connection with the researchers. However, during the process of stage 1, they gradually developed an interest in those plants and became highly autonomous. The handcraft decoration and sweet potatoes added to the prototype show that the users were developing interest and autonomy in this research and started to personalize the experience by bringing in their own specialties into the "community water garden". The harvest of vegetables also showed a very high level of autonomy for the users. The target users associate themselves with the research topic from different perspectives via personal experiences, thus their motivation to participate in the workshop is diverse. See Figure??

In summary, stage 1 successfully aroused targeted users' interests and promoted social interaction within the community. Surprisingly, the users brought their own elements into the prototype and enriched the whole experience. The personal connection and trust with the Hokkori volunteer group are significantly important. The group gave a chance for the researcher to bring the prototype to the community and actively participated in stage 1 by introducing the prototype to other visitors, putting decorations on, taking care of the plants, and harvesting the vegetables. Helping the research gives them a feeling of achievement and "ikigai". The autonomy of Hokkori group, the social connection with other visitors, and the communication that connects personal experience with the research topic is the key elements of success. From the research perspective, building trust in the community, and involving users in the design process are good starting points to introduce the new topic in the community.



(a) Workshop setup



(b) Participants and host

4.2. Stage 2: Workshop day

4.2.1 Process

Stage 2 is the final workshop that happened on 17th November at Hokkori center. In total 22 residents living in Yonamoto complex joined the workshop. Most of

them came with their friends and sit together as a group. Few of them came alone and sit with other groups. The workshop started at 14:00 with a greeting opening from the volunteer group leader Haishi-san and the researcher.

The first step of the workshop is to introduce some basic information about water planting. We prepared some slides including the simple history of water planting, methods of water planting, merits of water planting, and the vegetables that can be water planted. A colleague in the research group spoke for me as an event host because of the language barrier.

The second step of the workshop is to make a water planting kit. We prepared pet bottles, knives, tinfoil, stickers, and vegetable roots that we used eatable part to cook the dishes. The vegetables we provided are carrots, white carrots, green onion, pineapple, and bean sprouts. The participants were asked to cut the pet bottle, warp it with tinfoil, put the vegetable roots into it, and decorate the bottles with stickers.

The third step of the workshop is to eat dishes cooked by Hokkori volunteers together using the vegetables we planted. The volunteer group used their own recipes to prepare fried rice balls, meatball soup, and fried bean sprouts.

4.2.2 Findings

The prototype had a significant change because of the contribution of the volunteer grannies. Before the workshop day, the prototype was a small box. See figure 4.5. On the workshop day, the Hokkori volunteer group set up the table and expanded the plants 3 times larger than the former prototype. See figure 4.6(a). Those plants were contributed by people who were inspired by the “community water plants garden” and started water planting at home. The researcher didn’t know that so many people started trying out by themselves even before the workshop. This information shows that the pre-workshop stage was a success, and also the workshop stage was a chance for participants to bring what they plant into the spotlight. The participants developed their interests and had an expectation on the workshop day.

During 1 step, the participants listened carefully and wrote notes about water planting history and method. Some of them seem to come from the area that has water-planting factories. When the host mentioned the factory in Japan, some



Figure 4.6 Step 1: Participants reading the handout and listening to the introduction

participants reacted by nodding and talking with people nearby about it. This shows that participants were learning new knowledge and developing an interest in the topic; some related themselves more to this topic than others.

During step 2, some participants had some difficulties cutting the pet bottles and wrapping them with tin foil, because of the hand agility. The participants sat together and helped each other to finish the cutting and wrapping, even though they didn't come together as a group. This shows that the workshop built bridges between different social groups and increased communication.

During the step 2 decoration part, the participants were putting character stickers on bottles. Some of them put their own name on it, and others gave a name to the plants. This shows the participants had a sense of ownership and attachment to the water planting kit they made.

During step 2, except for the vegetables we prepared, one of the grannies from Hokkori volunteer group brought some purple perilla to the workshop and shared it with others. Other participants loved purple perilla and were very happy to add it to their plants' collection. This shows the autonomy of the participants to expand the water planting category and explore new plants. It proved that we successfully provided a chance for the elderly to develop new expectations in daily life.

During step 3, the Hokkori volunteer group helped with preparing all the dishes made from their own recipes, and participants all loved those dishes. This is a co-creation that can build community cohesion. The volunteer group felt a sense of achievement seeing that everyone enjoyed the food. The other participants feel a sense of gratitude to the volunteer group for preparing.

4.3. After workshop

After the workshop, the researcher kept visiting the Hokkori center weekly for 2 weeks. The setup of the workshop with all the plants was kept the same for these two weeks. On the Hokkori cafe day, many visitors who didn't join the workshop showed interest in this setup. The visitors who came to the workshop would tell others what we did on that day and would talk about how their plants doing now. It shows that the whole design process brought a new topic for social interaction

and a new activity to see and do in daily life.

In summary, making use of the existing human resources and specialties are the key elements of success in stage 2. For the Hokkori group, playing their specialty of cooking and organizing event gave a sense of achievement, and subjective happiness thus promoting a feeling of “ikigai”. When introducing a new activity into the community, making use of the existing specialties of the participants personalized the whole design hence decreasing the alienation from the research topic.

4.4. The change of autonomy level of participants

During the whole design process, the participants’ autonomy level had unexpected changes. In the preliminary field trip, the researcher found out that the elderly in the Yonamoto danchi didn’t really want to join planting activities because it was too much work. When the experiment started, the Hokkori volunteer group grannies joined the pre-workshop stage experiment mainly because of the personal connection and mutual trust with the researcher. However, during the pre-workshop stage, the participants’ autonomy levels were gradually increasing. The evidence includes the personal experience of sharing conversation, the personalized elements added to the prototype, and the extension of the prototype on the workshop day. Finally, on the workshop day, the participants fully accepted the planting activity and even started to share with others their experiences.

The research method, the AIDA model, played an important role in the process of raising autonomy. Putting the decision point in the later part of the design process, gave the researcher chance to observe and adjust the final design. Thus gradually turned a not-so-wanted activity into a fun activity in the community. To start, making use of the social capital and human resources that already exist in the local community is also a crucial method.

4.5. Questionnaire data analysis

In total there were 22 participants joined the final workshop. 1 of them is at 60s, 7 of them are at 70s and 12 of them are at 80s, 2 without answer. Only

one participant is male out of 22 people. The questions we asked are mainly about four areas, hobby and planting experience, eating habits, interests in water planting, the expectation level of water planting, and general satisfaction with the workshop.

When asked about hobbies in daily life, participants mainly mentioned radio gymnastics, jogging, eating, handcrafting, dancing, and writing poems. There are 17 participants who had experience in planting vegetables and flowers in soil and most of them did planting for more than 10 years. It shows participants have personal experiences that related to this topic, yet very different from water planting.

To examine if the participants feel lonely when eating everyday meals. The question asked on a scale of 1-5 is, “do you often feel you don’t know what to eat for a meal” and “how often do you eat alone”. When participants choose a number above 3, which is written as “normal” on the questionnaire, we consider the frequency as often. There are 4 people who often don’t know what to eat, and 9 people often eat alone. However, they are input from different participants. Thus the researcher thinks there is no evidence to say the participants feel lonely while eating alone every day.

To test out if the pre-workshop design successfully draws people’s attention. The question asked “did you notice the water planting garden at Hokkori since October?” and “if yes, did you talk about it with others and what did you talk about?”. 18 participants answered yes, 2 say no, and 2 without answer. The participants answered yes, and they answered “what is this plant?” “I didn’t know it can be water planted!”, “We all squealed and enjoyed it when it grew even a little. Especially when something unexpected grows.” This shows very positive feedback about the pre-workshop stage.

To see the level of expectation of water plants to grow and help participants to picture their growth in the future, we asked: “where are you going to put the plants after bringing them home.” On a scale of 1-5, “if it grows, would you share this information and happiness with others”. 15 participants answered the question and mostly planning to put it next to a window or in the kitchen. 13 participants said they will share the happiness with others, and 2 participants specifically mentioned “share with grandchildren”, “I want to teach my friends

about water planting”. For most of the participants have a positive expectation of water planting and look forward to seeing it grows. This is an essential feeling for “ikigai”, a life worth living.

When asked about the overall satisfaction with the workshop, on a scale of 1-5. 18 participants chose the above 3 and 4 people didn’t answer. When asked about any comments and suggestions, participants said “I learned that green shiso is possible, so I thought I’d give it a try.”, “As a one-person family, I feel happy to enjoy this planting activity.”, “Thank you very much for the delicious food.” Overall, the participants enjoyed this workshop and felt gratitude.

Figure 4.7 Step 2: Make water plants kits



(a) Purple perilla



(b) Wrapping pet bottle with tinfoil



(c) Decorating the bottle



(d) The output



(e) Happy grandfather



(f) Happy grandmother

Figure 4.8 Step 3: Eat together



(a) Hokkori volunteers are cooking



(b) Haishi-san showing the vegetables they harvested from water planting



(c) Volunteer showing rice ball made from Haishi-san's recipe



(d) Participants enjoying food



Figure 4.9 After the workshop: Residents are talking about plants

Chapter 5

Conclusion

5.1. Conclusion

In conclusion, this research designed a process to attract more elderly residents to join planting-related community activities. The whole process includes drawing target users' attention, developing their interests, promote actions to participate in the water planting activity. During the design process, the researcher changed the topic from normal soil planting to water planting. This turning point made the planting activity much easier and more interesting thus decreasing the cost and obstacle for the elderly to plant. Starting from a simple prototype, the target user was gradually included in the design process and took initiative to design many elements in the final workshop.

The motivation for the elderly to join the activities are diverse. The Hokkori volunteer group, they joined because of the trust and personal connection with the researcher. As the design goes on, they gradually feel enjoyment and connection in this water planting topic and started to contribute their own perspectives including handcraft, plants, recipes, and dishes into the design. They started to exercise autonomy since the participatory design part. And they started to actively include other visitors to Hokkori into this research topic. For other elderly besides Hokkori volunteer group, their motivation to join the workshop differs according to their personal experiences related to planting, gardening and eating. This research topic gave them an opportunity to talk about their personal stories with researchers and other residents.

The easy method and low cost of water planting also played an important role to attract elderly. The material we used are very common in people's daily life that they can easily start planting by themselves. The idea of plant consumed vegetable roots into water are also good for cyclic utilization and environment.

The eating together part gave participants a reason to start water planting, a goal to expect while planting, and a opportunity to interact with the community. The whole design built up the community cohesion and introduced a new planting method to the elderly. The water plants grows very fast thus give the elderly something to expect and feel excited about in daily life. All in all, the research design gave a feeling of "ikigai" and promoted the well-being of elderly who living in Yonamoto complex.

5.2. Limitations of the research

There are several limitations of this research. Because of the limit of time, we didn't measure how it goes after participants brought their plants home. The time span for those plants to grow is usually 1-3 months. During this process the participants may lose their interest in plants or they may face some problems regards of taking care of the plants. Although the research ends with a workshop, participants' objective feelings towards water planting is not ended. It will also affect their impression of the whole research activity.

What's more, the motivations of the participants to take care of the plants after the workshop are unknown. Because of the limited time, this research put the harvest and eat part ahead of planting in the workshop. It is to give participants motivation to join the activity and an image to expect when they grow these plants by themselves. However, after the workshop ends, what would be their motivation to continue this activity and how it differs according to different persona would be a topic that needs further discussion.

Regards of data collection, this research used a questionnaire as one of the methods after the workshop. However, the elderly don't like writing because of the restriction of eyesight and hand flexibility. Future works should consider using a more elderly-friendly way to collect data.

5.3. Future works

5.3.1 Community garden

For the future works, this research provided an idea of using hydroponic plants as a way of mutual planting in the community. Community gardening has always been a widely discussed topic. Using water planting as a new form of community garden may give a lot of possibilities in the future. The hydroponic garden can be placed indoors and will not be affected by weather and seasons. The venue and layout of the garden can be easily adjusted by the designer, thus making the whole community garden more inclusive to those residents with disabilities. The hydroponic plants grow faster than normal plating, which could be applied to educational activities for children's lives in the community.

5.3.2 Elderly community activity

The diversity and complexity of the elderly's motivation to join community activities are worth to be further exploring. Because the researcher was deeply involved in the whole design process, it is hard to identify the influence of personal connection between the researcher and participants. The influence on their motivation and experience in the whole activity should be further discussed. As mentioned in chapter 3, different personas have different motivations when making the decision to join a community activity. When we talked with participants, all of them tends to talk about their past stories, starting from the water planting topic. How important is their personal experience when deciding to join a community activity is also an interesting topic.

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Appendices

A. Workshop information on community newspaper

