Envisioning our shared outdoor space

A co-design project in residential aged care

PROJECT COMPLETION DECEMBER 2024

SWINBURNE UNIVERSITY OF TECHNOLOGY

Martin Luther HOMES

Envisioning our shared outdoor space

SWINBURNE UNIVERSITY OF TECHNOLOGY
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Project Overview

This co-design project was conducted in collaboration with local aged care provider Martin Luther Homes* aiming to envision the use of a new outdoor space with residents. At the beginning of July 2024, the management team decided to demolish three residential units and a block of garages near the community hall and redesign the outdoor space for residents. Because the Swinburne research team had built rapport with management and the residents since the beginning of our collaboration in 2021, we suggested including the residents in a co-design process so that the area would meet their needs and interests in innovative albeit affordable ways.

We conducted the co-design project with residents from two main units in the aged care centre, the retirement village and the assisted living units. We anticipated these two groups of residents would mostly use the area and it was closely located to them. The project was finalised on the 11th December 2024, after conducting 17 workshops. The first and the last workshops were organised as an idea sharing event by inviting the whole community. The project received ethics approval from the University's Human Research Ethics Committee.

The research project was funded by the Australian Research Council (Discovery Project DP 230100796).

A bird view of the area (left: before demolish; Right: after demolish)

**https://martinlutherhomes.com.au/*

Participants & Attendance

We invited all residents of the retirement village and the assisted living units to a first workshop event to explain the project and encourage them to participate in the co-design of the area. 22 residents attended this workshop and contributed ideas for the use of the outdoor space. 25 residents and 3 staff joined in the final idea sharing event.

14 participants regularly attended our weekly co-design workshop sessions to flesh out ideas and create a holistic concept for the space. Ten of the participants were from the retirement village and four from the assisted living units. Gender breakdown was four males and ten females. Age ranged between 70 and 91 with the majority of participants in their late 80s. Five residents had been part of previous projects focusing on technology learning and were familiar with co-design and the use of their laptops and iPads. All participant names are pseudonyms. The participation in these workshops varied as residents sometimes had appointments or went on holidays. Workshops had between seven and ten participants.

The project was run by a multidisciplinary team from Swinburne University of Technology with complementary skills in design, co-design, landscape design software engineering and psychology - all have expertise in Human-Computer Interaction research.

Participants in the first workshop (photo taken with drone)

The involvement of experts

Residents in the design sessions became more hesitant over time to make decisions on detailed designs. For example, they felt unsure about what exact plants should be chosen to fulfill the requirement of low maintenance. Also in terms of exercise and other activities they wanted to be sure that what they planned was possible without supervision and was safe for them. In addition it was important to understand where there would be shade during the day.This knowledge influenced decisions on the positioning of benches

In order to base the design on informed choices, we invited three experts to help the residents with their design ideas providing their knowledge. The experts consisted of a landscape architect, a physiotherapist, and a professor of architecture with expertise to model digitally shades for different seasons and times of the day.

Astrid Huwald

Landscape architect

Vid Jatunarachchi

Physiotherapist at Martin Luther Homes

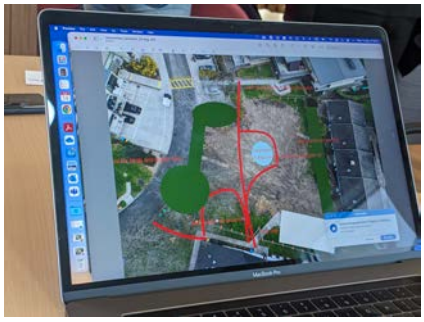
Marcus White

Professor of Architecture and Urban Design at the Swinburne University of Technology

Technologies introduced and used

No.	Topic of the session	Technologies introduced and used
1	Afternoon tea event	Drone, PowerPoint (PPT)
2	Design the pathways	Digital drawing, PPT
3	Design the pathway and discuss other elements	Digital drawing, online search, PPT
4	Moodboard - Feelings desired for the area	Online search, PPT
5	Persona creation	Online search, Airdrop, speech-to-text, PPT
6	Find photo for persona; Create a male persona	AI tools: GPT-4o, Copilot, PPT
7	Concrete designs to support characters	Online search, PPT
8	Plants and rotunda	Search using speech in Google
9	Measuring space and discuss plants/activities	Measuring app on smartphone, PPT

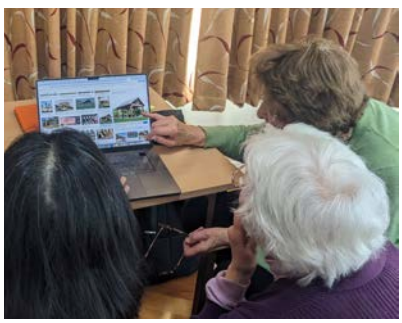
The drone used in the project



Drawing pathways on aerial view photo

Search using speech in Google

Create a persona together using AI tools

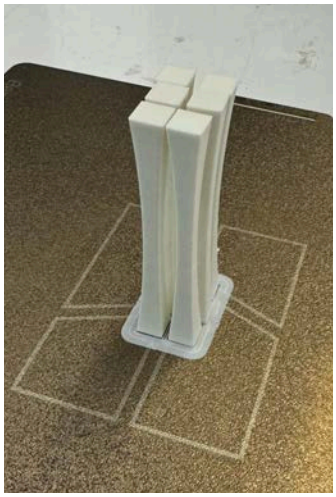


Search for images to generate ideas

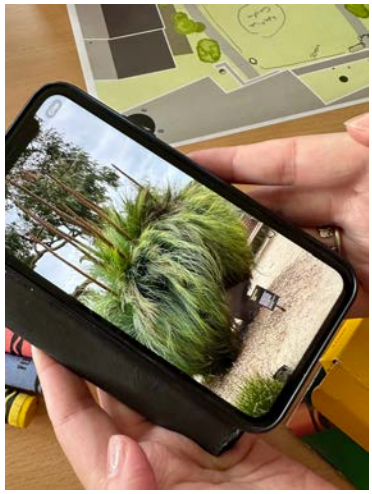
A key part of the co-design project was the introduction and use of technologies by the participating residents in the sessions. People less familiar with or not interested in technology use were grouped together with the tech-savvy residents contributing equally to the design discussion. We use the term technologies very broadly here. It refers to different devices, applications and functions.

No.	Topic of the session	Technologies introduced and used
10	Demonstrate models and design the rotunda	Model creation videos, online search, PPT
11	Discuss the final event, plants and seats	Online search, PPT
12	Astrid's presentation about plants	Camera on smartphone, online search, PPT
13	Present the ideas and progress to management	Drone, PPT
14	Discuss design of rotunda and plants	Laser cut videos creating the models (rotunda and the map)
15	Design of rotunda, plants and execises	Laser cut and 3D printer videos
16	Vid's presentation about exercise	Online search, PPT
17	Final activity planning	AI tool: Copilot, Photoshop
18	Final activity	Drone, Polaroid photos, PPT

3D printers in the Swinburne Protolab



Model part printed by 3D printer



Participants searching for plants with smartphone

Co-design workshops

Inviting the whole community

In a planning session one week before the project, we renamed the design project “Community Area Visions” with five residents from previous research. We designed a flyer together, and two residents helped us distribute it to residents’ letterboxes to invite them to join the first workshop. This event aimed to create interest in the project and also to collect residents’ interests and goals about the use of the area.

Collecting interests and goals about the outdoor space

In the first workshop, 22 residents living at the retirement village and assisted living units joined the afternoon tea group discussion. During this event, we clarified that the project aimed to generate ideas about the use of the outdoor area. We introduced a range of technology tools to support the co-design process. For example, we demonstrated the drone used for the aerial view pictures of the outdoor area.

We handed out sticky notes to collect participants' ideas about the outdoor space. Wooden blocks were used to represent these ideas and then put on a draft map of the area. The higher the blocks were stacked, the more popular an idea was. One staff member commented after the first workshop:

"You all did a wonderful job, great presentation, and very good visual demonstration. It seemed that all residents were enjoying it and were happy to participate with great ideas and comments. Well done!"

-- Retirement Village Coordinator

Sorting ideas into main themes

We sorted the ideas into five initial themes after the first workshop, acknowledging potential overlaps between them:

Plants and Animals:

Shrubs, native shrubs, more trees, lawn + garden beds with native plants, room for avocado tree, hanging baskets, plants attracting native butterfly (e.g. sword-grass brown butterfly).

Pathway and seats:

Native plants with a pathway, walkway, curved path leading from living units to hall, circular bench around tree, tables, seats, benches, seating in middle, somewhere to sit, bench near church, sheltered seating.

Covered areas and hedges:

Sails for shade, pavilion with comfortable seats, tables + seats under cover, pavilion, heating for pavilion, shade cloth, hedge.

Physical activities and games:

Table tennis, pool, fountain from bush garden (bird bath), pond, fitness trail, mini golf, screen, dog kennel.

Social activities and food:

Edible plants around pavilion, tea rooms + some trees, drinking fountain, fountain with pool, an open pavilion with BBQ kitchen, BBQ bar, picnic table with chairs

Categories of activities

We sorted these ideas into three categories: social activities, plants and landscaping, and physical exercise. Pathways was seen as a separate topic that was necessary for the overall planning of the space and was included in the discussion of each category.

Creating a moodboard

For detailing ideas for the categories, we introduced the moodboard method into the co-design process to help participants brainstorm the design of the area with two questions:
How do you want to feel about this area?
What do you want this area to look like?

Participants were grouped into small teams to work with different categories. They could use their own technology devices to search for images and build a moodboard; we also provided magazines and scissors for participants not interested in technology use.

Moodboard for native plants made with images from magazines

The moodboard on plants represents

- colours residents want to see in the space
- native animals the plants should attract through many blossoms
- fragrances they wanted to smell (e.g. sweet)

One participant selected a Chinese-style rotunda, which she preferred as the core of the mood board, and the high contrast blue and red as the primary colours. She also considered the layout of the seats in the rotunda.

Another participant preferred a more open structure of the rotunda surrounding it with plants. This would allow the rotunda to blend in better. An example of a plant was climbers going up to the poles.

Moodboards about rotunda made with images found on the Internet by residents

Creating personas and scenarios with GenAI

In the co-design process, we found the group experienced difficulties envisioning how the area would look. In particular they struggled turning rough ideas into concrete designs and how the different categories of ideas could be combined in the space. Addressing these difficulties, we decided to employ the persona and scenario methods.

To introduce the concept of persona to residents, we decided to avoid using design jargon. We presented personas as characters representing a group of residents with a shared interest rather than one individual. We showed an example of a researcher's persona to help participants better understand the use of personas. Some participants grasped the concept quickly. Ming helped us explain the concept to her peers:

“It's an example of the residents. We try to create 3 or 4 characters to represent us.”

-- Ming, Resident from the retirement village

The persona needed to represent participants' interests in the outdoor space by addressing one of the three main activities we identified from previous workshops: doing exercise, gathering to socialise or enjoying plants and the landscape - all connected and supported through a network of pathways. The research team prepared questions for participants to think about the activities the persona would like to do in this area:

What does the character want to do? What are their goals?
How does the character want to feel?
Where is this taking place? Which part of the garden?
How often does it happen (time of day, day, month, year)?
Who do they want to go with/be with?

In one session, participants created three female characters to represent their interests and needs. Participants selected images of Martina and Mary online. Another group used a photo of one group member's photo, with her consent for the character Phoebe. We learned it was crucial for participants to find images that can represent the personas well. Each small group spent substantial time selecting images for the persona by considering the persona's personality, look and interests. Here are the three personas participants created:

Name: Phoebe

Age: 82

Occupation: retired

Status:

widow

Bio

Born in Latvia, speaks 3 languages

Retired teacher has been an active gardener but now has physical difficulties.

Needs to use a walker

Likes flowers, reading, walking

Quote:

You are never too old to give things a go

Frustrations:

Decreasing mobility

Goals:

To get more mobile and to go outside - and willing to try more activities

Name: Mary

Age: 85+

Occupation:

Accountant

Status:

One her own

Bio:

Mary is an outdoor person, she has plenty of windows with a view and wants a nice view onto the new outdoor area. She is limited in the distances she can walk and also does not want to go too far away by herself.

Quote: "I want to listen to native birds and enjoy the sunshine"

Frustrations:

Most areas around MLH are hilly, most of the time she is bored and wishes for more things to do and get to know some more people with similar interests.

Goals:

She wants to get some exercise (safely because it is a confined space) and outdoor activities – accessible areas, look at different sort of flowers, have a cup of tea and talk to some of her friends/ meet other people, she likes a nice place to sit

Name: Martina

Age: 75+

Occupation: Retired

Status:

Care Apartment Resident

Bio:

Martina lives in her own apartment, but likes to communicate with others as much as possible., and join in activities.

Martina also enjoys her quiet time, reading and listening to music.

Quote:

"I enjoy sitting with other residents over coffee, and just observing our lovely garden surroundings."

Frustrations:

Sometimes I fall asleep, and it is too late to go outside.

Goals:

I want / love to sit in the garden, breathe in deeply & enjoy the fresh air.

I love taking regular / macro photos of the many flora and fauna

The idea of using GenAI was also adapted from a previous project where we received positive feedback from participants about their experience using GenAI technologies. With the objective of a persona representing a group of people rather than one individual resident while being concrete, we decided to introduce GenAI (ChatGPT-4o, Copilot) to the group to help them visualise the personas. Although the AI tools helped with generating an image to match the persona, it was still a compromise about which image would represent the persona best.

Images created with GenAI tools of the three personas

In addition, the need for a male persona was raised to ensure the diversity of the personas representing the distribution of males and females in the community. Therefore, we encouraged Bobby to help create that persona as he was the most active male in the group.

Bobby understood the concept once he created the male persona. When he shaped the male persona based on Martina, he highlighted that there were not many differences between females and males besides that, in his experience, males were not as communicative as females :

"There's nothing on there (the persona of Martina) that literally wouldn't apply to me...I'm trying to think of characteristics of an old man. From my experience here, it's hard to get men to join in things, much less so for women. Men don't tend to talk to each other as much as women do."

-- Bobby, resident from the assisted living units

Then, they adapted Martina to bring the persona Martin to life, and then used the GenAI tool to create an image of this male persona.

Characters - Martin

Bio:
Martin lives in his own apartment, but likes to communicate with others as much as possible, and join in activities.
Martin also enjoys his quiet time, reading and listening to music.

Frustrations:
Sometimes I fall asleep, and it is too late to go outside.
Martin would like that other men joined more activities and talked more to each other at MLH. There are fewer men, and they are less likely to join activities, and men don't talk as much.

Name: Martin
Age: 75+
Occupation: Retired
Status:
Care Apartment Resident

Goals:
I want / love to sit in the garden, breathe in deeply & enjoy the fresh air.
I love taking regular photos of the many flora and fauna
Gardening, reading, walking. Interests are similar to women, but men participate less.
He wants to have opportunities to meet other men with similar interests.

After deciding on the images for the four characters, the teams worked on using AI to create a scenario with the characters being the main actors. Similar to the concept of persona, where we did not want to use jargon, we introduced the scenario as a mini-story of the character using the outdoor space to help participants perceive the meaning of it.

To create the mini-stories with the characters, all the teams revisited the answers they created in previous workshops about the activities the persona was interested in. They pasted the text or uploaded a screenshot of the answers into the AI tools as prompts. Compared to generating images in GenAI tools, participants found that the process of creating a text-based story was more satisfying and editable. The final scenarios are presented in the next chapter.

At the end of Workshop 2, participants shared their experience of using the GenAI tools and their outcomes. They agreed that AI was helpful in the process, and they had fun with it. However, the result from the tool was found to be unpredictable.

“It will take time to get used to it. That's so many changes, we have to just keep trying, because we don't know what's going to happen.”

-- Ming, Resident from the retirement village

To present the persona and scenario in the final event, one researcher created some scenes based on each scenario with GenAI tools.

The scenario of Mary

Every morning, Mary steps outside, feeling the warmth of the sun on her skin as she strolls through the garden. She enjoys taking slow, peaceful walks, resting on the benches in between to admire the view and breathe in the fresh air. The outdoors make her feel calm and connected, giving her a sense of wellness and positivity.

Often, she spends time near her favourite spot – the exercise corner. She dreams of turning it into a miniature golf area where she can enjoy a gentle game or two, especially when there isn't much else to do. Mary loves the footpath near the BBQ and the covered area that offers just the right amount of shade, making her walk pleasant, even on warm days. Sometimes, she'll stop to check the raised veggie boxes, ensuring everything is growing well. The nearby trees sway gently in the wind, adding to her sense of tranquility.

Once a day, Mary makes sure to get out into the garden, appreciating the changes that the seasons bring. In summer, she watches her family play miniature golf when they visit, sharing laughter and stories. On quieter days, she might just sit on a bench and enjoy the peaceful scenery, knowing the garden is a place for both activity and relaxation. When she's feeling sociable, Mary hopes to bump into someone else taking a walk. But she is also content strolling around on her own, letting her mind wander. On days when she's feeling a bit lonely, she might call a friend for a chat or wait for a family member to stop by, looking forward to the company while always appreciating the outdoor space that brings her joy.

The scenario of Martina

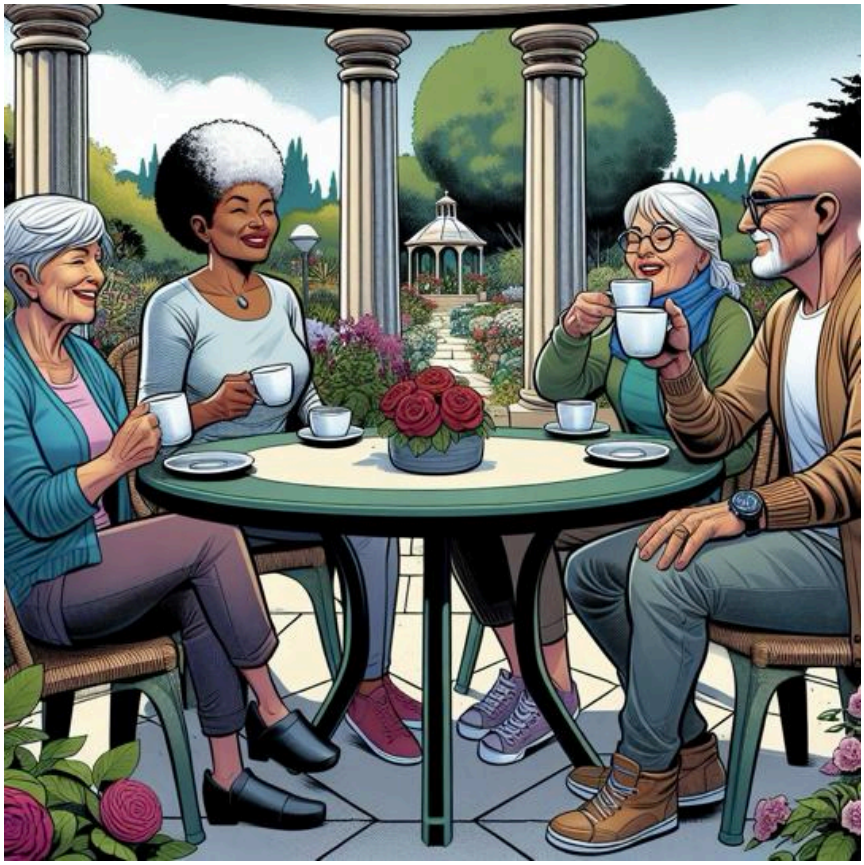
Martina, a vibrant woman in her late seventies, finds immense joy in the simple pleasures of life. Living in her cozy ILU/Care Apartment, she cherishes her independence while staying connected with her community.

One of her favorite activities is participating in discussion groups about native plants suitable for their garden. These gatherings are not just about learning; they are a sensory delight for Martina.

On a sunny morning, Martina joins her fellow residents, family, and friends for a garden outing. The group strolls through the lush garden, filled with vibrant flowers and greenery that attract birds and bees. Martina loves to look, touch, and smell the plants, taking in their colors and designs. She feels relaxed and comfortable, her heart filled with joy and a renewed interest in life.

As they walk, Martina and her friends discuss the best plants to attract pollinators. They point out different species, sharing tips and stories. Martina's eyes sparkle with excitement as she observes a bee buzzing around a bright yellow flower. She feels a deep connection to nature and her community.

After about an hour, the group settles on a bench, enjoying the serene atmosphere. Martina sips her coffee, feeling content and happy. The outing is a perfect blend of learning, socialising, and appreciating the beauty of nature. Martina returns to her apartment with a smile, looking forward to the next garden adventure.



The scenario of Phoebe

Phoebe, a retired teacher, has always valued being part of the community. Now at 82, despite her decreasing mobility, she is determined to remain active and engaged. Every week during the summer, she joins a discussion group that meets at 11am in the rotunda, a peaceful place nestled in the garden she adores. The group offers her a chance to connect with others, share her thoughts, and maintain her sense of identity. This has become one of her cherished routines.

In the afternoons, Phoebe enjoys tea in the rotunda, a perfect setting to enjoy a quiet moment amidst the company of others or simply savour the beauty of nature.

Once a week, she looks forward to participating in game activities. Whether it's word games, Rummikub, Canasta, or Chess, these sessions allow her to challenge her mind, have fun, and feel the joy of friendly competition. Despite needing space for her wheelchair in the rotunda, Phoebe's enthusiasm for these activities remains undiminished.

On particularly pleasant days, Phoebe enjoys sitting on the circular seat that surrounds the big scarlet oak, reminiscing about old times or chatting with a close friend. It's moments like these that remind her how much she values companionship and the simple pleasures of life.

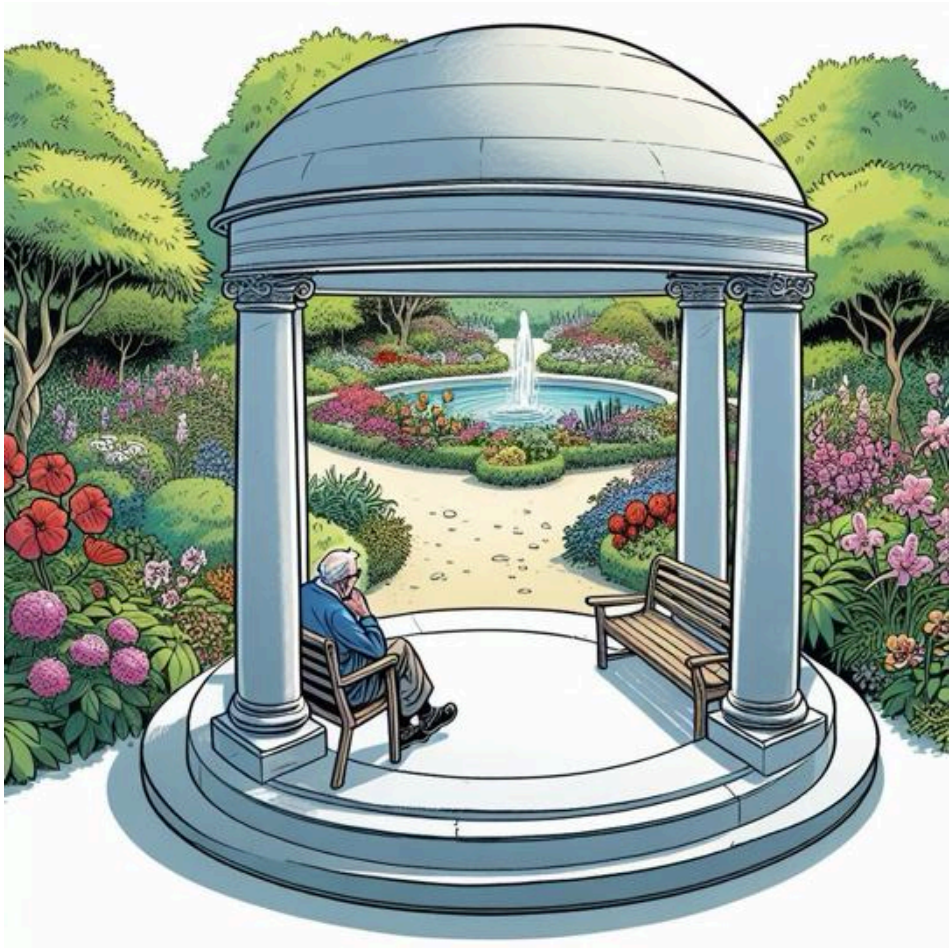
The scenario of Martin

Martin, an 82-year-old resident of Maple Leaf Haven, cherishes his cozy apartment and the village's beautiful garden. Using his walker, he makes his way to the outdoor space, a haven of native Australian plants. The garden is his sanctuary, a place where he can breathe deeply and enjoy the fresh air.

One day, Martin decides to start a garden club, hoping to encourage more men to join him. He invites his neighbours, explaining how rewarding it is to spend time outdoors and to appreciate the beauty around them. However, despite his enthusiasm, not many men show interest. Most of them prefer to stay indoors, and the few who come did not return the following weeks.

Undeterred, Martin continues to visit the garden alone. He spends hours tending to the plants, taking photos of the vibrant flora and fauna, and enjoying the peaceful surroundings. Though he wishes for more company, he finds solace in the garden's tranquility.
Occasionally, a curious passerby stops to chat, and Martin shares his knowledge and passion for gardening. These brief interactions bring him joy, even if they are fleeting. Martin realises that while he can't change others, he can still find happiness in his own pursuits.

As the sun set, Martin looks around at the thriving garden. He feels a deep sense of contentment, knowing he has created a space where he can connect with nature and find peace, even if he is often alone.



Idea development

After the workshops focusing on persona and scenario creation, the research team summarised the infrastructure and elements appearing in the descriptions which the personas needed for pursuing their favourite activities. The summarised elements helped participants to identify concrete design ideas and contributed to further co-design discussions: Mary would like to have mini golf and some veggie boxes in the area; Martina engaged in spending time observing the garden surroundings and smells; in Phoebe's story, the rotunda and circular seats around trees are essential; Martin would like to see native plants in the garden.

In the next workshop, we presented the four personas again to participants and highlighted what these personas wished for: a rotunda, circular seats, garden beds for native plants and vegetables, and physical activities that can support intergenerational interaction, such as mini golf. We suggested to participants to familiarise themselves with the personas and their stories to identify topics in which they were interested to further develop details of the planned outdoor infrastructure.

After the introduction, we split into three small teams again. The research team provided each small team with a copy of an A3 size map to mark down their ideas.

Pathway design

The pathway design was an important topic throughout the whole co-design process. A new design needed to consider the existing pathways to use them best and save resources. The pathway should connect the buildings around the open area, and residents should be able to enter the area from multiple directions. In addition, the pathway needs to allow residents to walk around the area for accessing the garden and exercise areas.

To design the pathway, we provided a hard copy of a draft map of the area and also a digital version that could be modified working on laptops and tablets. During the workshops, participants drew possible pathways on the maps and discussed the pros and cons of these ideas.Then, the research team transferred all ideas to one map and sought the next round of discussion with residents. In addition, the research team made sure that the pathway plan showed the accurate location of the existing trees and dirt tracks (desire paths made by pedestrians over time to shortcut to certain areas).

By considering the width of the pathway, participants suggested a nearby public garden to the research team as an example. The research team measured the width of the pathway from the garden, which is 1.7 meters. Referring to that, participants decided that 1.7 meters is also suitable for our case because two residents with walkers are able to pass each other easily.

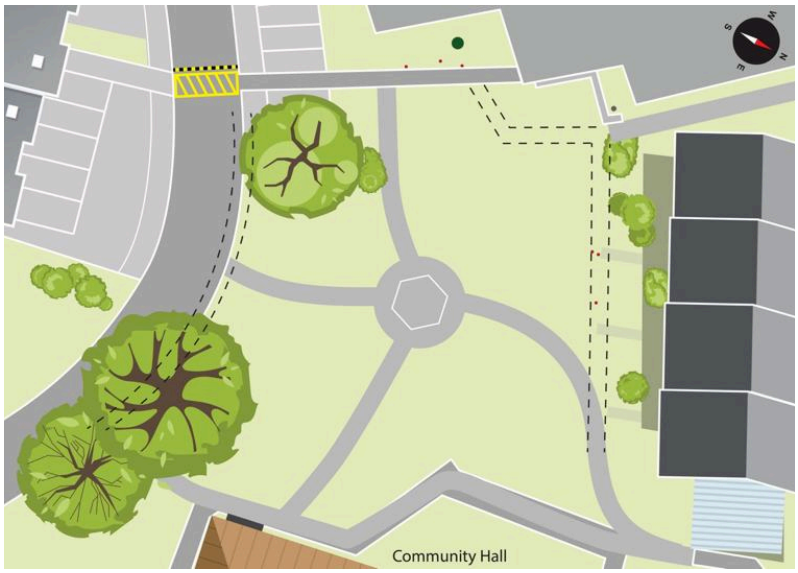
Two researchers measuring the width from the garden participants recommended

Overall, the pathway was updated seven times until the completion of the project; in the following are some versions with changes over time and the final agreed layout for the suggested pathway design.

The digital map, the first version

The digital map, the fifth version (dotted line represents an idea still in discussion)

Participants draft based on the fifth version



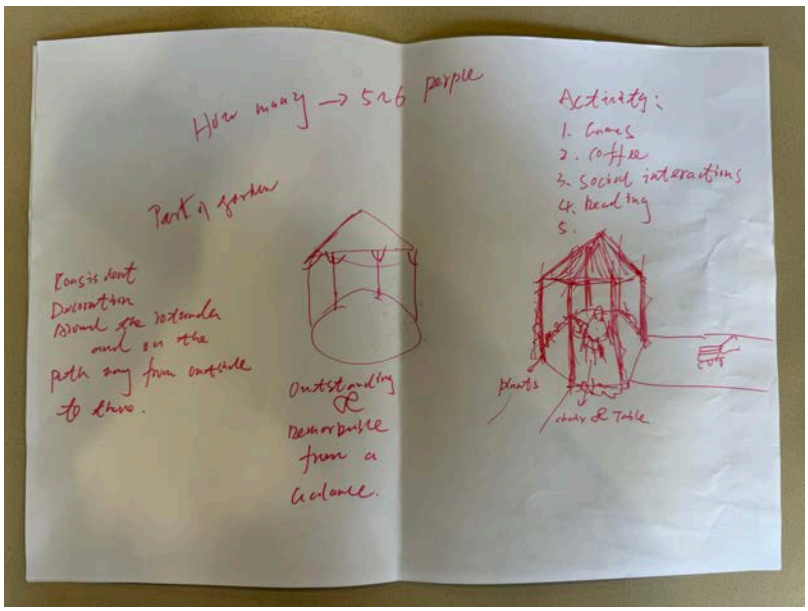
Final version of the digital map (dotted line represents ideas still in discussion)

Rotunda design

The persona and scenarios highlighted the need for a rotunda in this area. It is a space to support social activities for residents, a place for them to rest and enjoy time outdoors.

To concretise the idea of the rotunda, some participants started with a hand sketsched draft, and some created a moodboard about how the rotunda could look like.

A moodboard about the rotunda including the inside layout with benches (top left conner)



A sketched draft of the design and size of the rotunda with possible surrounding plants

The research team also took some photos of a nearby garden, which was suggested by participants, to gain further insights on the design and size for the rotunda.

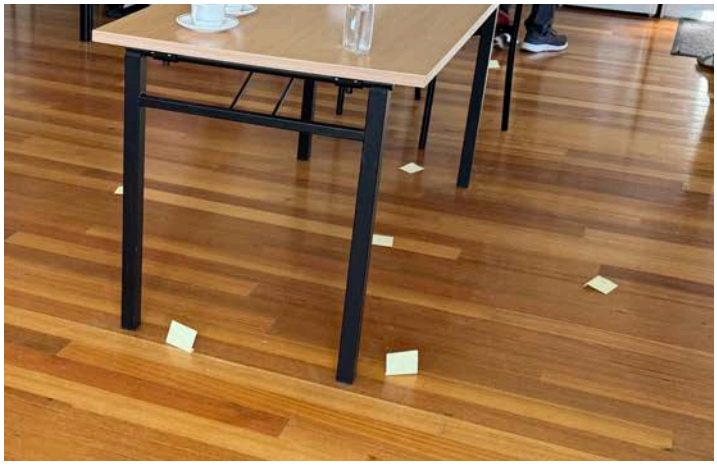
A photo of a rotunda from a public garden participants recommended

However, the size of that rotunda was too large for the residential outdoor area, and the style was considered too modern. Therefore, one resident team searched for examples from the internet by considering the style from the moodboard.

Rotunda styles residents agreed on, image from internet

To generate and present the ideas, the research team introduced different technologies to the co-design process. Firstly, the research team used a measure app with a smartphone to measure the size of the area, which is around 36.5 X 35.5 meters.

Based on this, the participants decided the diameter of the rotunda should be 5 meters, which would fit 5 to 6 people. The research team put post-its on the floor to mark 5 meters in the activity room to simulate the size of the rotunda and help residents to see how much space this would take.



Then, the research team brought 3D models into the workshop sessions to help participants visualise their ideas. These models were built with Cricut, a paper-cut machine used for paper models with several colours; and a laser cut machine from the Protolab at Swinburne to build a wooden model based on participants' ideas. The research team explained all these technologies to participants by playing a recorded videos of how these machines worked and printing the parts used for the models.

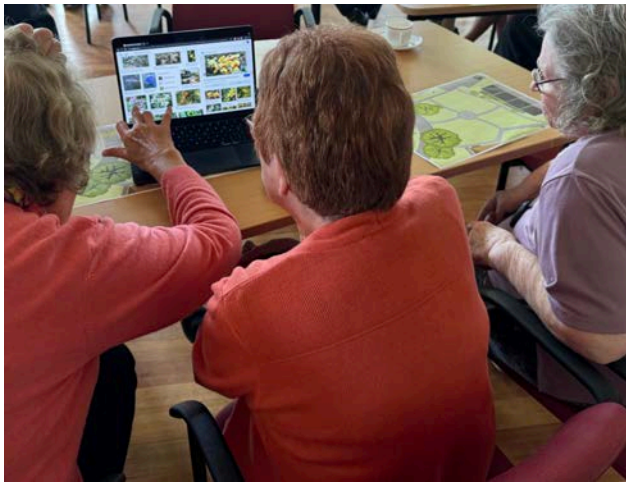
The research team also introduced 3D printing to the group to represent more of the ideas for the rotunda. For example, the research team built a rotunda model referring to the design of a rotunda recommended by participants.

Although most participants discarded the `modern' design, the 3D printing technology raised interest and discussions among the group members. All models were also prepared for the final event to be exhibited to the wider resident community.

Garden design

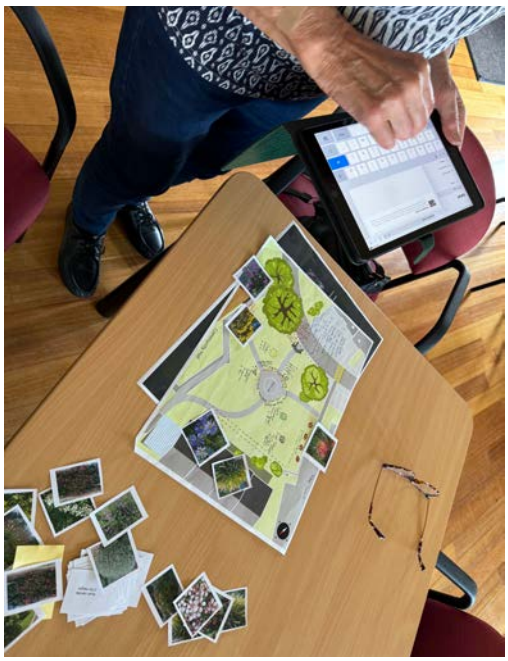
Considering the maintenance needed for plants, the participants searched possible plants online and discussed the location of these plants in the area. The native plants they considered were:

- Banksias
- Callistemon (bottle brush)
- Grevilleas (check low and medium height)
- Acacias (some quite small ones, yellow flowers)
- Mint bush
- Leptospermus (wax flowers)
- Lemon myrtle
- Lilly pillies
- Curry plant
- Creeper purple flower

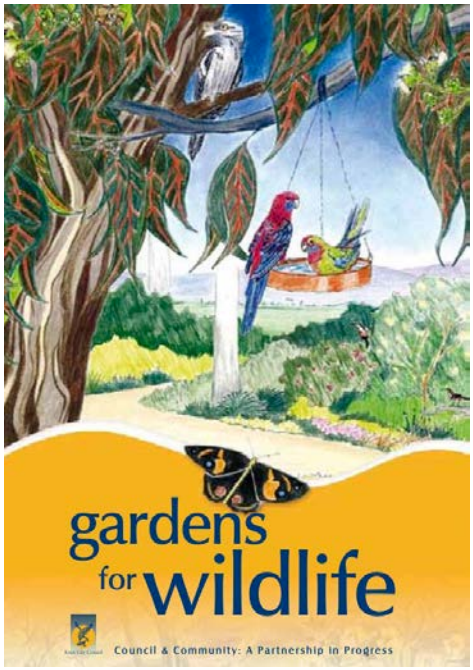


Aiming for attracting native animals of the area, such as the sword-grass brown butterfly, participants also suggested planting the food plants of the butterfly being saw-sedge or sword grass in the area.

For the suggested plants, the research team prepared some plant cards for participants to discuss the layout on the map.



While planning the plants in more detail, we realised there was a lack of knowledge of professional landscaping and native plants among the residents and the research team. Therefore, the research team invited landscape architect Astrid Huwald to one workshop. She gave a presentation about the horticultural considerations of garden design. Astrid also gave us some materials for 'armchair travel' to help the research team and the residents gain better ideas about plants and animals.



The book and brochure given by Astrid

Astrid suggested two concepts for the design of the garden that could be applied to this space, `the borrowed landscape' by considering the view around the area even it is not a part of the space, and the 'garden room' considering hedges and height of plants to emphasise the characteristic of the area as a safe and private garden.

If we're building on this concept of the borrowed landscape, you start with the big things that you can't move, and one is where are the views, where are the opportunities.

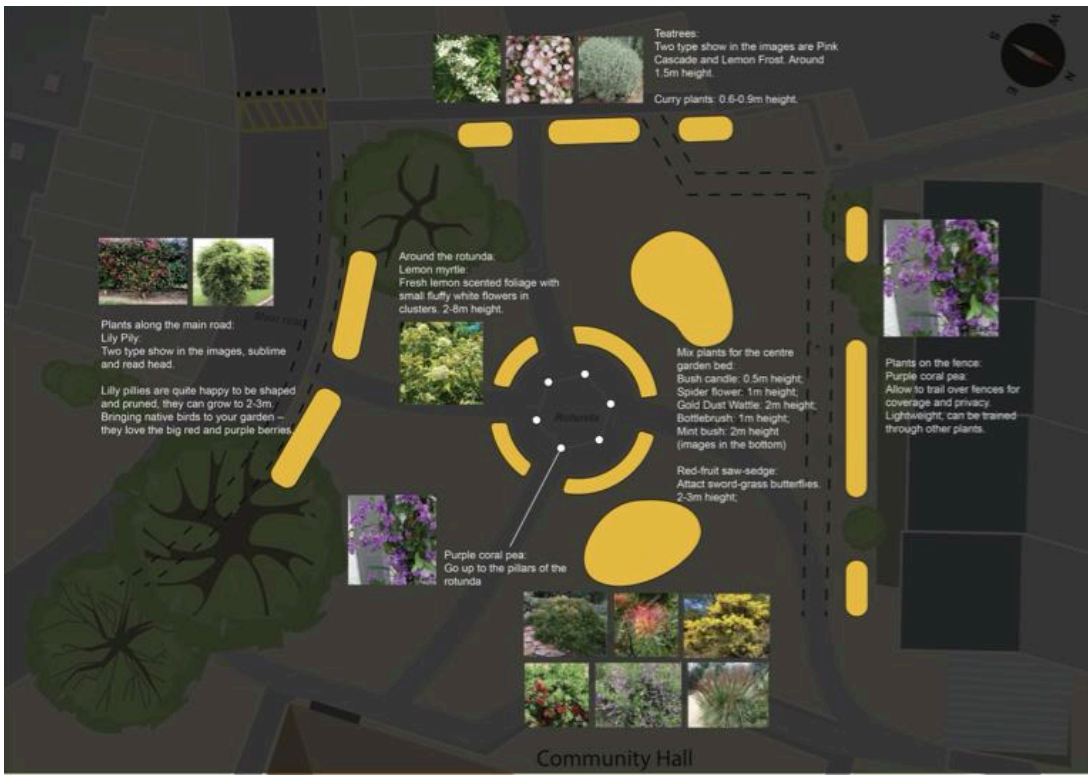
Go back to this site, and now that you're allowed to walk on the grass, and put a few chairs there, that bit of the Dandenongs as you come out. We love views to the horizon, even if we're not going to walk up that mountain, but you have a mental journey up that mountain. We're at a certain age, everybody's not running around, you're not climbing the mountain, but it's great to have that mental journey as you sit, always looking at the mountain.

-- Astrid, the landscape architect

The Complete Gardener_ Monty Don_ Penguin Random House 2021

Inspired by Astrid’s presentation, participants discussed the possible garden beds around the area: As the pathway separated the area into four sections, participants would like to only have two main garden beds and leave the other area open for a better view.

There could be garden beds along the roads with hedges to cover the garden area from the main road and also from residents units. Participants suggested climbers around the rotunda to provide some shade and low fragrant plants for a sweet aroma. We updated these garden beds on a map with the possible plants.



Participants adapted the idea of hedges adding 'open' screens on the apartment side rather than plants by considering the growing time and efforts to maintain it. Arches should be at the beginning of the pathways connecting to the main road. Also arches would provide clear visual entry areas into the community space. The research team discussed the design of the screen and arch and then built models to present the ideas.

A arch suggested by one participant with an image found by one participants

The arch model

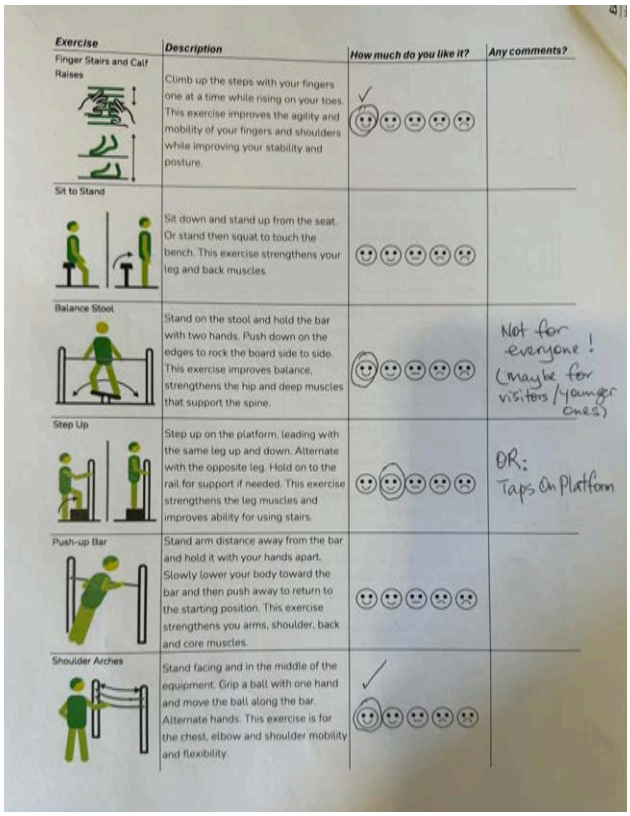
Exercise area design

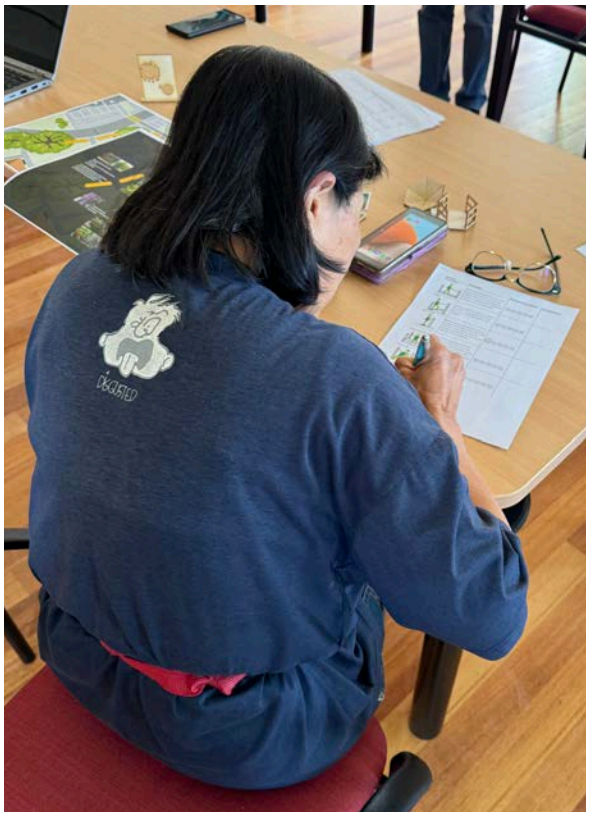
Inspired by very early ideas of having mini golf and swings, residents wanted this area built with the functionality of supporting physical exercise. Developed on that idea, participants searched for information about senior exercise infrastructure online.

``There should not only be sitting and eating - we should get up and move as well"

--Wendy, Resident living in care apartment

The research team suggested a website about a seniors exercise park supported by the National Ageing Research Institute (NARI). We discussed the exercises with residents and selected the ones we thought could apply to the area. Following the discussion, we ran a survey about the possible activities for the whole group. In the survey, participants could rate these exercises and also give open feedback.





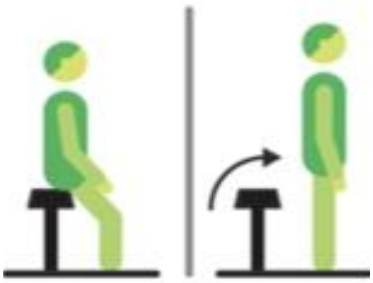
Considering residents' health conditions and mobility levels, we invited the physiotherapist Vid Jatunarachchi to participate in one workshop to discuss the exercises that residents could do and the feasibility of the ideas borrowed from the seniors exercise park.

"Exercise that might sound scary for some, I could imagine in some cases it might just be as easy as walking. It's literally movement and for some people exercise might be just standing up and going for a walk, but for some people it might be some balance sort of exercises, for some other people it might be lifting some weights."

-- Vid, the physiotherapist

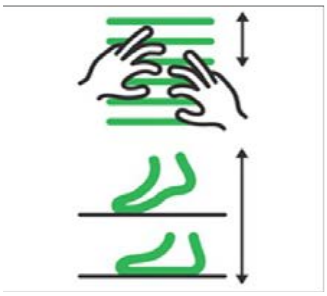
We also went through the possible exercise list with Vid. He suggested five of them by considering the level of difficulty and most residents' mobility level. Five exercises* that could be done by most residents safely by themselves are shown below.

Hand Roll



Sit to Stand

Shoulder Arches

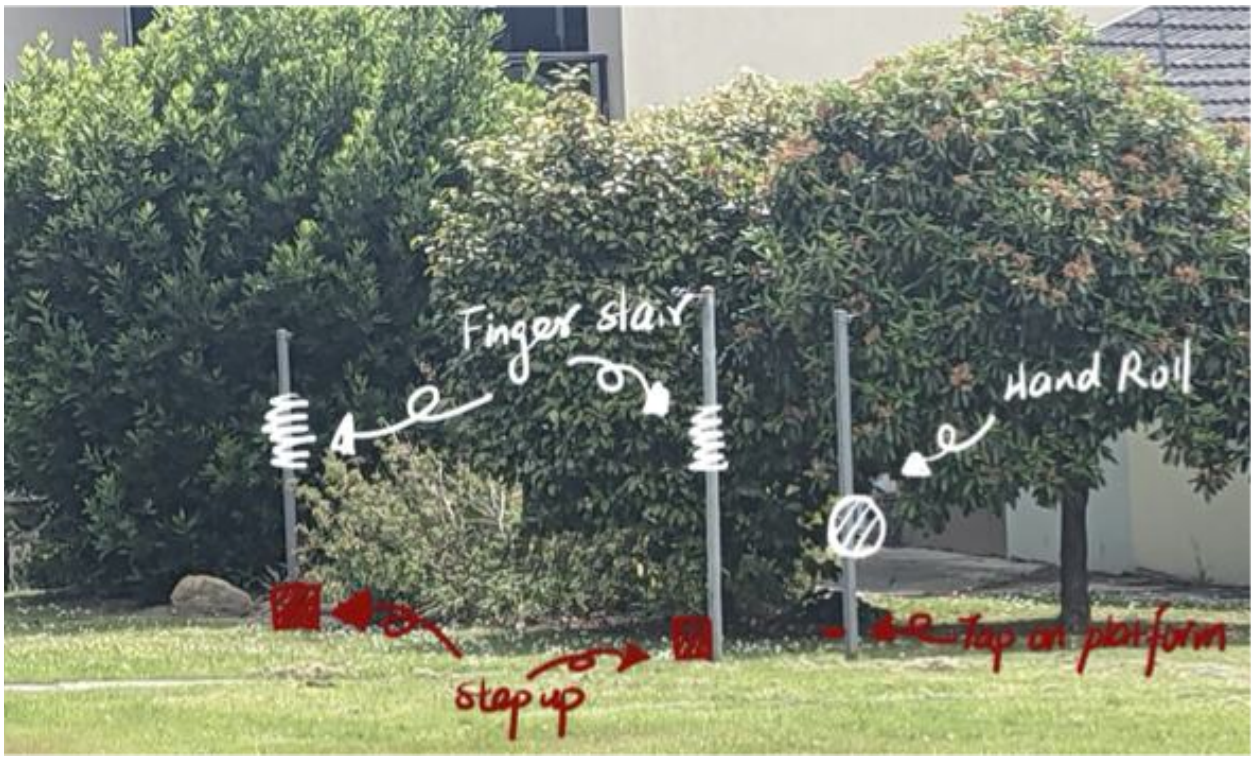


Finger Stairs and Calf Raises

Step Up

*https://www.nari.net.au/Pages/FAQs/Site/enjoy/Category/exercise-resources

With these ideas in mind, we discussed the location of the exercise equipment with participants. Some poles around the area were used for hanging laundry. Participants proposed reusing these existing poles by installing exercise equipment to save resources. To visualise their ideas, we drew a draft.



We also updated a digital map about the possible locations of the `exercise corner'.

In the discussion, Vid also highlighted the social function of exercise:

“In terms of the social aspect, I think that's really underrated. I think having an outdoor space where you can exercise and then also have that social network is what actually brings people back the next week rather than going oh I'm just going to go out and do a few step ups. It's more about community as well and saying oh you know I'm going to go see Bobby and Emma and we're going to do a few exercises together. And that in a sense that that's the motivating thing behind the exercise.”

-- Vid, the physiotherapist

Besides the social aspect of physical exercises, participants brought up the ideas about mini-golf and swing again as activities for visiting family members. One resident who strongly believed in the idea of a swing also told us she could donate a swing in the area if the idea would be approved.

The Exhibition!

At the end of the co-design project, the research team and the participants decided to present the main ideas in a final event through an exhibition format to the wider resident community. With the experience of using GenAI to create personas and scenarios, the research team suggested using an AI tool again to design a flyer to advertise the event. In the last workshop, participants selected one flyer created by the AI tool, and one researcher edited the content in Photoshop. A staff member helped us print copies for distribution; some participants volunteered to put them into residents' mailboxes and hang them up in the community area.

The final event was well attended, with 15 residents of the retirement village and assisted living units present, three management members and three lifestyle staff members. In addition, residents invited relatives and volunteers. The final event started with a short introduction presentation; the research team also invited people to share their experiences about the project and the ideas they wanted to emphasise. After the introduction, each participant got three tokens to “vote” for the ideas they were interested in. With the tokens, the audience was encouraged to circulate to four separate stations focusing on topics of personas, plants, exercise and pathways with rotunda. Each station was facilitated by one researcher. The stations included 3D models, sketches, maps, and videos to present how participants generated these ideas.

The introduction

Mary reflecting on her experience

The ‘tokens’ given to participants

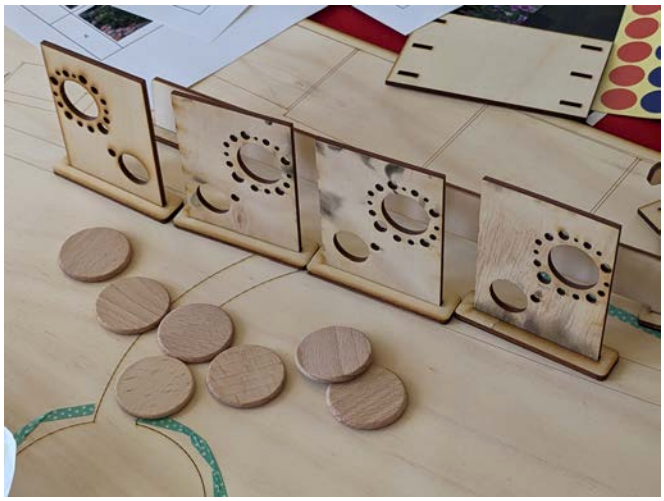
Persona station

The first station presented the personas and scenarios. Besides using the token to vote for the four ideas, participants could read the stories of each persona, and they could vote for the persona they liked best for the use of the space by placing a sticker on the photo frame of the AI-generated image of the persona.

Management liked personas that would show the aged care homes as innovative, lifestyle staff loved the variety and options for residents to do things they loved by themselves, and residents chose a persona they could identify with.

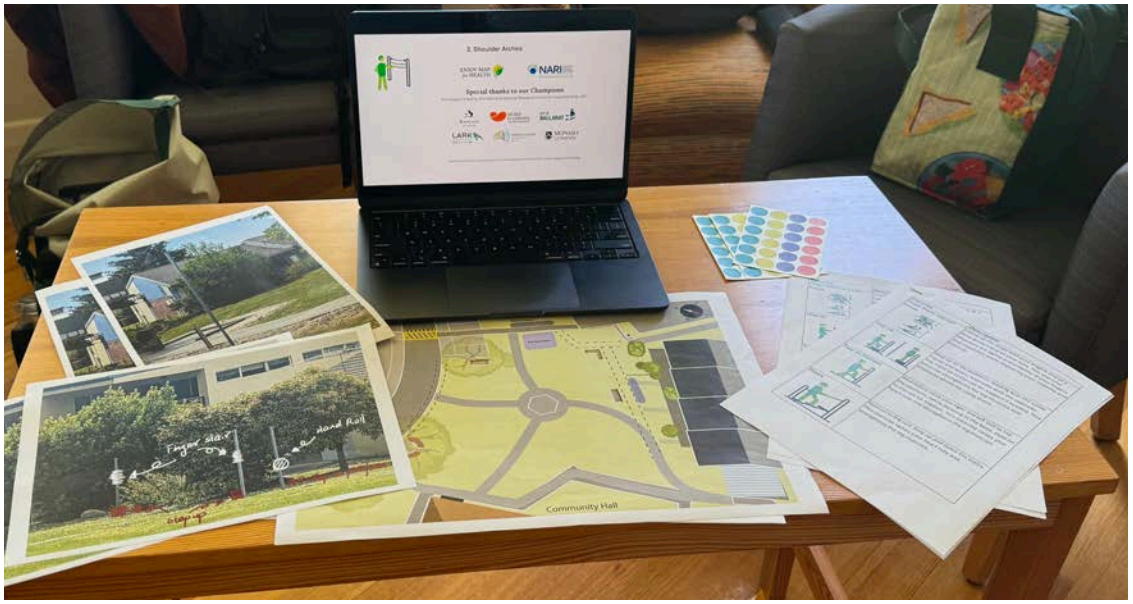
Plant station

The second station presented the ideas about plants and garden beds participants developed during the co-design workshops. Attendants discussed these ideas with us. In particular the arches were well liked.



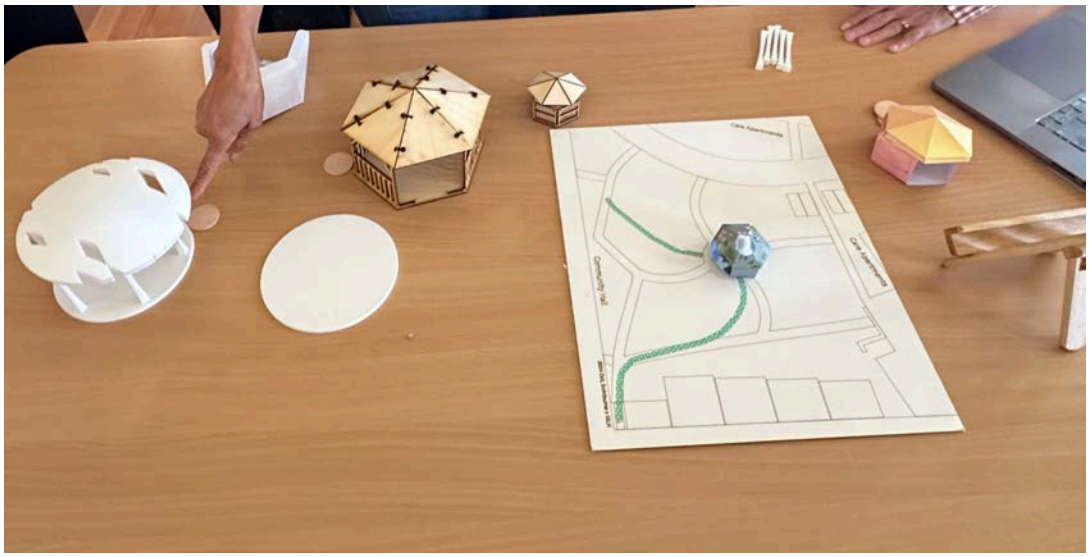
Exercise station

The third station presented ideas about exercise with a map about the possible exercise corner, a draft about reusing the existing poles, a list of the selected exercise infrastructures, and short videos for each exercise listed. Like the persona station, participants were asked to use stickers to show their preference for the exercises listed.



Pathway and rotunda station

The fourth station combined the ideas of the pathways and the rotunda. We presented an updated pathway map and prepared a few models of the rotunda in different scales and styles.



To encourage attendants to move to the outdoor area and experience some of the ideas in the outdoor space, the research team also simulated the size and location of the rotunda by putting chairs in the centre of the outdoor space and marking the pathways on the grass using spray paint. During the event, it was the first time for many residents in the area after the demolition as the area had been off limits for walking on and fenced off during our co-design activities while the ground had not been levelled and grass gown.

They were excited about these ideas, enjoyed the weather and sat in the chairs in the middle of the area while imagining the activities in the rotunda or simply enjoyed the view.

Reflections

We kept visiting Martin Luther Homes after the project. We met one participant in the co-design project, Bobby during one visit. He was chatting with his friend by sitting on his walker in the area. He told us:

“If I were to ask what I would do now, I would continue to do a nice lot of shrubs along here. And also down that side. The rest of it I would leave open. Just sitting here looking up there is very sort of peaceful and a nice view.

It's a beautiful open space. It's nice to be in. You don't want clutter. It's all out there.”

-- Bobby, resident from the assisted living units

After the project, one relative of one of the resident participants sent us an original construction map of the area that she found in her mother's estate. She thought these old original plans from the early 60s would be helpful when realising the ideas that came from the co-design project. The map shows the locations of the electrical cabling and sewer pipes that cross the proposed area. The map is also a testament to the long involvement of the resident with the history of Martin Luther Homes.

In February of 2025, part of the idea about the pathways was realised in the area: it extended the existing path to improve the access for residents living on that side and also a shortcut for residents across the area.

Concluding remarks

We thank the residents and staff members of Martin Luther Homes who greatly contributed to this work, as well as the aged care management who provided support in conducting this research.

In loving memory of Christel Huwald, her contributions and companionship have been invaluable to our research.