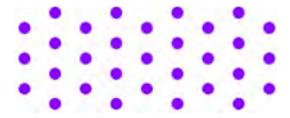


WhatMatters: Design Process Summary Document



May 2021–June
2022

Health
Design
Lab.

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CIHR + MITACS

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June 2022

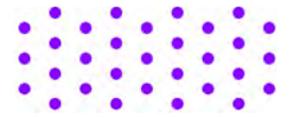
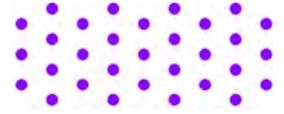


Table of Contents

01	Intro	page 2
02	Workshops	page 4
03	Feedback & Synthesis ..	page 26
04	Prototype 1	page 30
05	Prototype 2	page 36
06	Prototype 3	page 44
07	ADI Poster	page 56
08	Final Mockup	page 58



01 Intro

Summary

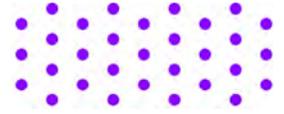
WhatMatters is a mobile app designed to support patient-centered care delivery in long-term care homes and hospitals for people living with dementia. Throughout 2021 and 2022, the Health Design Lab has been part of the WhatMatters project, a collaboration between academic researchers and students in Computer Science, Engineering, and Nursing at the University of British Columbia, Simon Fraser University, and University of Waterloo, healthcare professionals working at Vancouver General Hospital (VGH) and Villa Cathay (a long-term care home), people with lived experience of dementia and their families, and Raccoopack Media (a mobile app development studio). The WhatMatters Mobile App will allow people with dementia and their family members to curate videos, music, and photos to provide entertainment, social connection and comfort. Accessible via the app, staff can then support them by providing curated person-specific, personalized content and resources. The app will have the potential to prevent behavioural events (physical and verbal aggression) and provide the staff with the means to help the patient/resident feel safe, confident, and comforted — a crucial way to honor personhood.

The Health Design Lab's role in this project was to design the first stage of the WhatMatters app, which involved tasks such as: conducting user research, synthesizing gathered data, creating multiple prototype

iterations, and user testing the working prototypes. During the beginning stages of the project, workshops were conducted with people with lived experiences of dementia, their loved ones, and healthcare professionals, in order to better understand the problem space and the needs of our users. The information gathered was then synthesized and used to begin the prototyping phase of the project. HDL members worked closely with Raccoopack Media to design and develop multiple iterations of the app and ensure that the user's needs and wants were being met, while keeping things feasible in regards to the timeline. The app was then user tested with healthcare professionals working at VGH and Villa Cathay. During these user tests, staff members and residents interacted with the app and tested its various features. Through the co-design process, we gathered information and feedback, which was used to design and refine three prototype iterations and a final mockup of the app, which is now ready for clinical testing. Additionally, this project was showcased at the 35th Global Conference of Alzheimer's Disease International. For this conference, the design and research teams collaborated together to create a digital poster that could be accessed on the conference's website.

The HDL team on this project included RAs: Eva Egeberg, Garima Sood, and Chelsea Burke led by Caylee Raber.





Timeline

September 2021

Workshops 1 and 2 completed

October 2021

Synthesis of information gathered during workshops

November 2021

Workshop 3 completed and app user flow being finalized

December 2021

Development of app wireframes and Prototype 1

January 2022

Prototype 1 design finalization and user testing mockups

February 2022

Finalizing Prototype 2 design and development

March 2022

User testing Prototype 2 and designing and developing Prototype 3

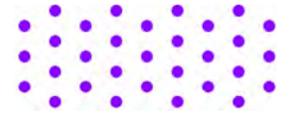
April 2022

User testing prototype 3

May 2022

Wrapping up Prototype 3 user testing and designing final app mockup and ADI poster





02 Workshops

Intro

The project began with us conducting workshops with family partners, healthcare staff and residents in long term care. The family partners included people with dementia, the family members/caregivers of people with dementia and experienced researchers in the field of dementia. We collaborated with multiple healthcare staff from two different sites in Vancouver, one general hospital and one long term care home. The residents we connected with were living in the long term care home we had staff connections to. Through these workshops we were able to better understand our user group by listening to first hand user experiences/stories and having conversations with those who are experts in the field. All this feedback contributed to us gaining a better understanding of the space we were designing within.

The total number of participants for the workshops was 14 staff, 8 family partners, and 9 residents.

Double 3 Robot

As part of our collaboration with the UBC IDEA-Lab, we had the opportunity to equip the Double 3 for our remote workshops at Villa Cathay and VGH. In a way, we were participating in an early stage experiment on utilizing robots as a means of remote communication. The Double 3 is a video-based robot that allows users to control and navigate the robot in a remote location by simply clicking a link. It allows users, such as designers and researchers, to engage in a physical presence during the times they cannot be at the location in real life. Using this, we could observe our co-designers perform assigned tasks, follow them around the facility and have a face to face interview with them afterwards.

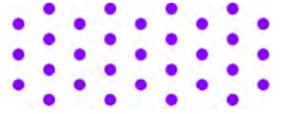




Double 3 Robot
<https://www.doublerobotics.com/>

5





Workshop Round 1

Family Partners

Questions we explored:

- How do family/loved ones share or translate comfort for their loved ones in care?
- What brings people living with dementia comfort?

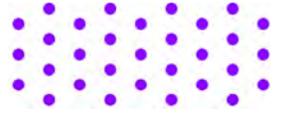
Methods we equipped:

- Virtual workshop with family partners through Zoom
- Open discussion around the question
- Used Miro board to visualize what objects and interactions of comfort could look like for people living with dementia in care settings

Session insights:

- Family partners shared examples of what brings comfort to their loved ones living with dementia. These examples included: Nature, music from a particular culture or era, photos of family and important memorabilia
- When generating a deeper dialogue about the significance of these examples, we found out that people living with dementia feel calm and comforted when they experience a sense of:
 - Pride: Moving forward towards something generates a sense of pride
 - Restoration: Feeling of healing and regenerating
 - Feeling of belonging: being seen and being a part of something bigger like a collective culture or a time period
 - Routine: Feeling a sense of stability and structure
 - Feeling of home: A sense of safety and familiarity





Workshop Round 1

Staff

Questions we explored:

- What brings people living with dementia comfort?
- How do staff care for and bring comfort to residents in care settings?

Methods we equipped:

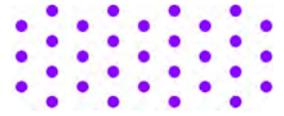
- Virtual workshop with staff from VGH and Villa Cathay
- Open discussion around the question
- Used Miro board to share how residents express their needs and to visualize what objects and interactions of comfort are for residents.

Session Insights:

- Staff had a great deal of insight on what makes residents feel calm and comforted
- They shared examples such as: Looking at family photos, listening and sharing happy moments, having conversations, and in some instances being left alone, etc
- Most importantly, we wanted to understand staff experience when providing care to residents (in distress), in order to identify challenges and opportunities surrounding it

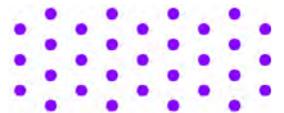
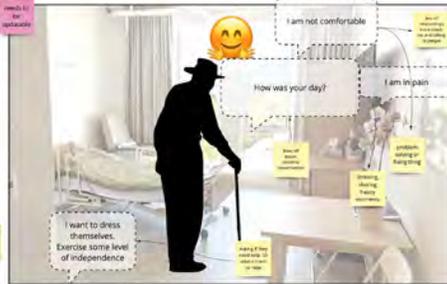
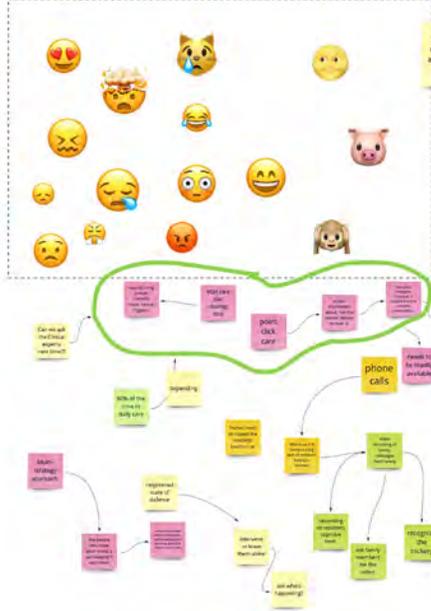
- We found the following:
 - Redirecting and distracting tactics are frequently used by staff to comfort residents in distress.
 - How shared family video/audio content is received by residents depends on their cognitive levels and distress level.
 - Sharing video/audio content as a way to calm residents in distress, works best when residents are experiencing mid level distress.
 - Due to the pace of care work, staff are less able to make lasting relationships with residents. They interact through quick check- ins.
 - Staff that know detailed needs about particular residents will put information in the care home database but these notes are not easy to access because: Case notes are long and front line staff don't have much time to read through them regularly
 - The interface of the database is not easy to navigate
 - They recommend that case notes, which reveal insights about residents, should be tangible, easy to access, readily available and updatable





Synthesis Facilitate comfort

Emotions





Workshop Round 1

Long-Term Care Residents

Questions we explored:

- What brings people living with dementia comfort?

Methods we equipped:

- Two residents with their daughter were interviewed at Villa Cathay, Joey, the care coordinator and their daughter translated our questions for the two
- We facilitated the conversation using the Double 3.

Session Insights:

- Reminiscing on old memories seemed to keep residents engaged.
- Residents wanted to talk about what they are proud of, this included:

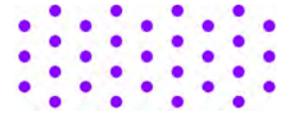
-Reminiscing about past experiences and talking about current activities like singing and playing games

-One resident who didn't speak much was most ecstatic when asked about her wedding photo

-She wanted to share about her wedding dress.

The workshop was facilitated with residents and their daughter. The daughter shared with us that she does what she can from a distance but relies on the staff to provide day to day actions for and insights about her parents.





Lets test these objects, visuals, sounds (modes)
of comfort on this person in this room

Relaxed

Soothe

Grounding

Comfort

Safety

Calm

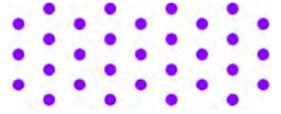
Serene

(does not have to be items displayed here)



Residents Workshop 1 Outcomes
September 2021





Workshop Round 2

Family Partners

Questions we asked:

- How do family partners relate to care staff caring for their loved ones?
- How do family partners relate to mobile and tablet interfaces?

Methods we equipped:

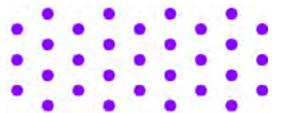
- Virtual workshop
- Open discussion around the question
- Miro board to for documentation

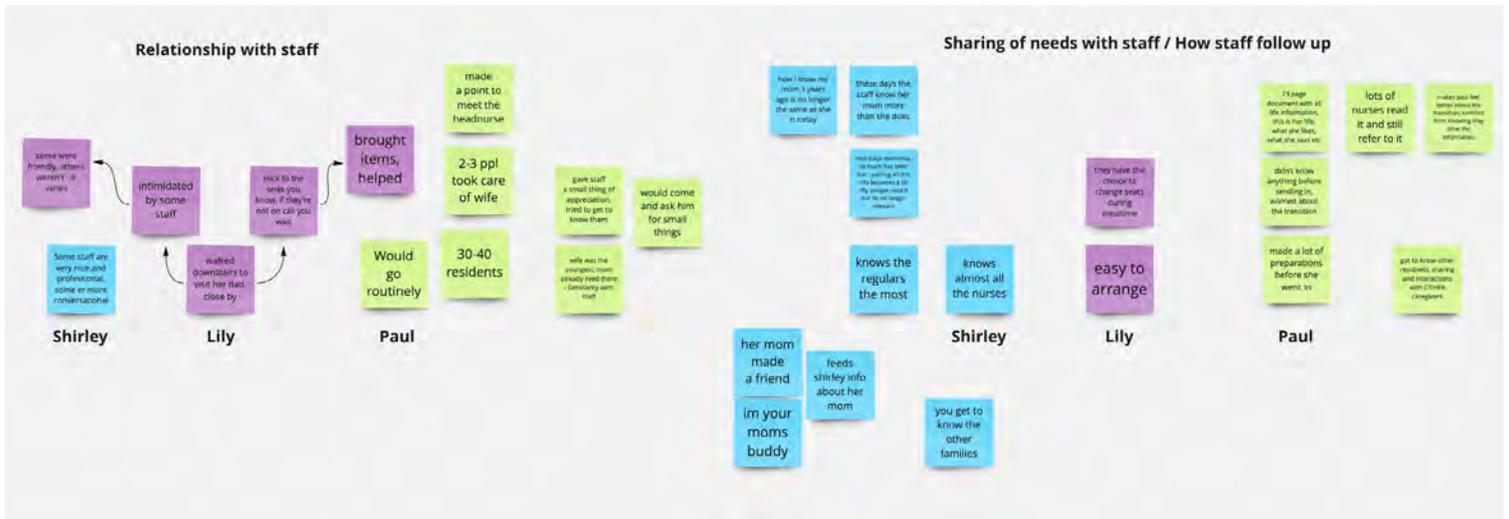
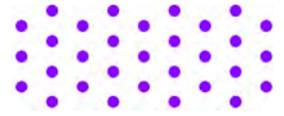
Session Insights:

- Family partners rely on staff to implement care needs of residents as expressed by themselves
- Family partners rely on staff to provide information about their loved ones' well-being, as staff sometimes know more about residents as they see them on a day-to-day basis
- Staff involvement and relationship to residents and their family members varies
- Staff turnover makes it hard for family members to develop relationships with staff
- The family partners we interviewed expressed varying degrees of comfort with mobile

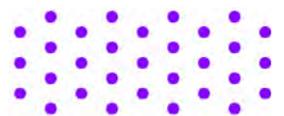
apps. It's not fluid, but they can all get by or have family members to assist them

- When using a phone, moving between multiple apps and browser websites is challenging for some of the family partners
- Not having to remember passwords is key





Family Partner Workshop 2 Outcomes
September 2021



Staff

Questions we asked:

- Further details about health databases that staff use in a care setting
- What are different staff responsibilities in meeting resident needs?
- How do they respond to residents in distress?
- What type of technology do staff generally have access to?

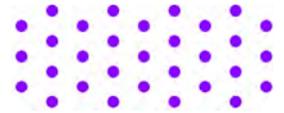
Methods we equipped:

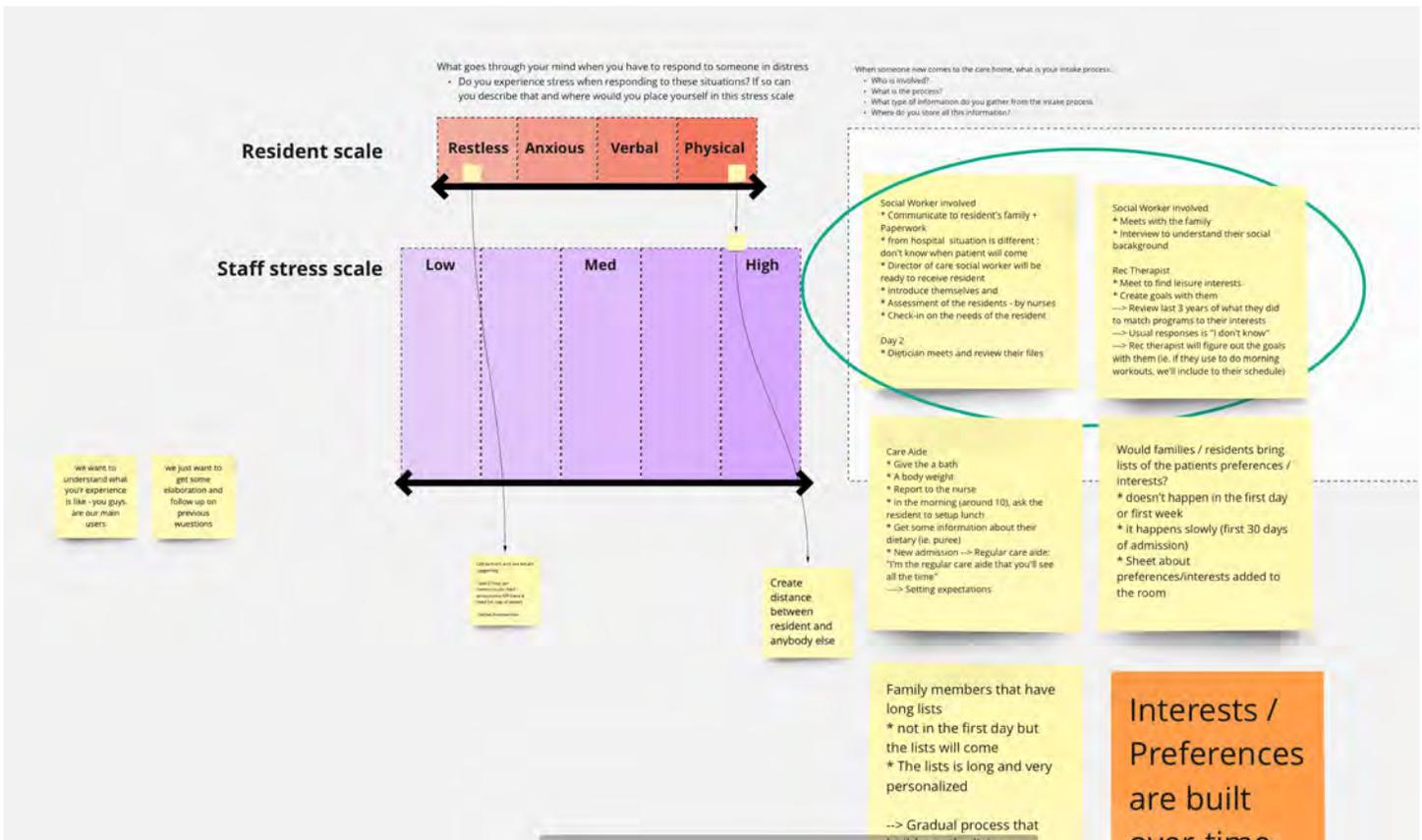
- Virtual workshop
- Open discussion around the question
- Miro board for documentation

Session Insights:

- When residents are in distress, staff have to manage their own stress response in order to intervene in the situation
- Experience level of a staff impacts how well they can respond to a resident in distress all while managing their own response
- Staff frequently exchange information between each other about residents verbally because it's the quickest way

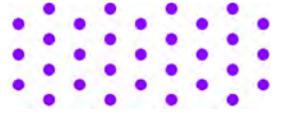
- Some staff are less inclined to use internal databases for information sharing, because information found in the database can be lengthy, lack visual cues and isn't the most user-friendly
- This is the case with databases for both Villa Cathay and VGH Willow Pavilion
- Having technology around to bring care and comfort to residents helps the staff. This is because iPads allows staff to move around and manage their time
- For residents, having access to technology allows them to feel connected to family through phone calls, photos and videos
- Many also play music and movies from iPads and may even use apps for games or religious content
- Some people have their own Youtube playlists





Staff Workshop 2 Outcomes
 September 2021





Workshop Round 2

Long-Term Care Residents

Questions we asked:

- What type of visual and audio content do people living with dementia respond to most? and how do they respond?

Methods we equipped:

- We dropped off a set of vibrant photos and questions to Villa Cathay.
- Joey had conversations with 4 residents where she showed them photos and asked them how they felt about them.
- We witnessed the conversations using the robot and had a debriefing conversation

Session Insights:

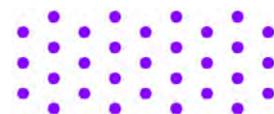
- Residents responded best to culturally relevant content and content that reminded them of their past
- Again, triggering old memories seems to be an important way in how residents interact with visual photos and content
- Reminiscence seems to be inevitable
- We noticed that while residents were being shown content on an iPad, they would interact with the screen in some instances, wanting to touch or swipe the screen

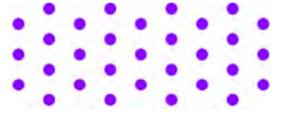
- Resident attention span while looking through content lasted a few minutes. This might have been due to the context of the interaction that was for research purposes





Residents Workshop 2
Joey interacting with a resident
September 2021





Workshop Round 3 Family Partners

Questions we asked:

- Envisioning the user case scenario of family partners sharing information about their loved ones to care staff, using a digital platform

Methods we equipped:

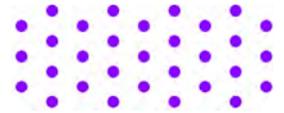
- Virtual workshop
- Shared first iteration of app prototypes
- Asked family partners to upload images to their phones to test which methods are easiest
- Asked for feedback

Session Insights:

- Simplify profile setup
- Need more clarity in the questions asked when setting a profile and how those questions will support care staff using the app to provide comfort adequately
- We heard from staff that residents living with dementia respond to staff intervention during moments of distress based on their level of dementia.
- We also heard from family partners that dementia scales are fluctuating depending on the day.

- Family partners urge designers to consider privacy concerns especially thinking about the types of questions asked to build the resident profile
- Some family partners will have the time to curate a profile but others who have kids and are busy might want presets for customization





<p>Q. What brings discomfort</p> <h3>What brings discomfort</h3> <p>What type of content makes Dave feel agitated or brings them discomfort?</p> <input type="text" value="Type here.."/> <p>Next</p>	<p>Q. Favourite way to experience</p> <h3>Favourite way to experience content</h3> <p>Visual</p> <ul style="list-style-type: none"><input type="checkbox"/> Photos<input type="checkbox"/> Images<input type="checkbox"/> Home videos<input type="checkbox"/> Entertainment videos eg. movie, youtube, TV etc, <p>Next</p>	<p>Q. Favourite way to experience 2</p> <h3>Favourite way to experience content</h3> <p>Audio</p> <ul style="list-style-type: none"><input type="checkbox"/> Songs<input type="checkbox"/> Sounds<input type="checkbox"/> Instrumentals<input type="checkbox"/> Voice recordings <p>Next</p>	<p>Q. Dashboard</p> <div><p>Dave Long Sweet-Hill long term care home</p><p>88 years Sweet-Hill Early stage</p></div> <p>Dave's library</p> <p>Photos</p>   <p>More...</p>
<p>Role</p> <h3>What is your role?</h3> <p>I am a...</p> <input type="text" value="Family partner"/> <p>Next</p>	<p>Name</p> <h3>What is the name of your loved one?</h3> <input type="text" value="Dave"/> <p>Does your loved one already have an account?</p> <p>Next</p>	<p>Sign up</p> <h3>Create an account for Dave</h3> <p>Username _____</p> <p>Email _____</p> <p>Password _____</p> <p>Next</p>	<p>Set preferences</p> <h3>Set Preferences for Dave</h3> <p>Next</p>





Workshop Round 3

Staff

Questions we asked:

- Envisioning user case scenarios of staff using a digital platform to share content to distressed residents.

Methods we equipped:

- Virtual workshop
- Asked staff to role play use scenario of the app
- Asked questions around the usability of the app, what would work and what wouldnt.

Session Insights:

- Reiterated the value of an app- to help staff who don't know residents easily can find basic information about residents and bring them comfort and care
- Setting up the app in moment when responding to a distressed resident has to be very quick
- Residents usually don't need a lot of varied content. A few links are generally enough to comfort residents.
- Staff would like to have photos of residents with their names on the app to quickly recognize them.
- Family would like to see that their loved one is watching the content and how they feel when watching the content



Workshop Prompt

Resident

If you are a resident imagine that you are in distress.

- Express your state of distress or discomfort to the staff

Staff

Respond to the resident in distress by using the What Matters App

Step 1

First you have to locate the account of the resident. There are two ways of doing that. Role play using both ways of locating the account.



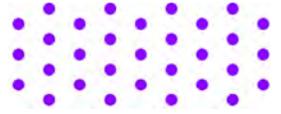
Step 2

Next you will find visual or audio content (photos, videos, songs etc) to show the resident to bring them comfort. You have two ways of doing this. Either:



- Find content that is already uploaded on your phone/ ipad
- Find content on the internet.

Share the with the residents



Workshop Round 3 Long-Term Care Residents

Questions we asked:

- How do residents respond to digital content to feel calm and connected to their loved ones?

Methods we equipped:

- Joey asked family of 4 residents in the care home to share visual and audio content that their loved ones at villa cathay like
- She uploaded these on her ipad and shared the content with residents
- We witnessed the conversations using the robot and had a debriefing conversation with Joey

Session Insights:

- Residents want to touch the screen when they recognize the content
- Resident felt uplifted when they were able to recognize the images shown
- Personalized images seemed to work better than generic photos
- Switching between media was a bit abrupt for residents, smoother transition might be needed
- Joey curated the photos in a way that would be easier to consume
- Residents felt more engaged when they were showed larger and vibrant photos





residents want to touch the screen when they recognize the content

Resident felt uplifted when they were able to recognize the images shown

Personalized images seemed to work better than generic photos

Joey curated the photos in a way that would be easier to consume

switching between media was bit abrupt for residents. Smoother transition might be needed.

Residents felt more engaged when they were showed larger and vibrant photos

Questions for Joey:

For all the people you spoke to, what is their cognitive level generally?

Mrs Chen, feels much better today. Photos of travel- where she recognizes the clothes. And flower arrangement that she made- she didnt remember very well. But she seemed happy and had a smile on her face.

Mr. Guo- family photos worked really well. He just naturally reached to people he knew.

Music- **Why?** unless the resident asks or you are certain that the piece will calm them down. Depends on the situation and the person.

Marc- he is more soft spoken. He just said a few words about the photos. Didnt tell a lot of stories.

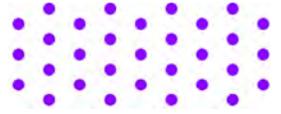
Joey's perspective

Curated the photo in a way the way that they want to them to consumed. Organized the photo. Photos to music was a bit a of a switch. Not more than 15 minutes.

Any big changes in mood?

- A difficult to gauge this because we are prefacing this as a research project. Mr. and mrs. chen there was somewhat different, but they were ready for a new activity. Some photos they seem more engaged- bigger and colourful photos.





Findings

Factors to be Considered

Factors that impact staff :

- Distress level of residents
- Cognitive level of residents
- Time available to respond to distress
- Time available to learn about residents
- Family partner support
- Technological comfort
- Staff's own stress level
- Availability of technology incl. Ipads

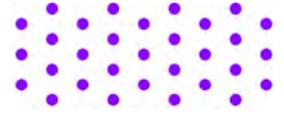
Factors that impact family partners :

- Time available to support care of loved one
- Access to care home staff
- Consistency in care home staff
- Technological comfort
- Personal stress level and well- being
- Changing needs of loved ones and beings able to keep up with their changing needs

Factors that impact residents:

- Cognitive level
- Distress level
- Access to care home staff
- Consistency in care home staff
- Content type
- Relationship with the loved ones





Key Takeaways

We found that different stakeholders had different priorities, expectations and use case scenarios for this app:

1. -Family partners were keen to use WhatMatters so that they could share care information about loved ones (with staff)
-For many family partners, they felt a sense of purpose and connection to their loved ones in sharing visual and audio content
-Staff hoped to use WhatMatters to acquire quick information about the residents, including their names and some basic information, such as their comfort needs
-Staff would access content to distract residents or connect them to family when they are lonely
-They also wanted to use the app to ask for more content from family when needed or provide quick feedback about it
-Residents were interacting with the content as a way of reminiscing about old memories
2. -It isn't necessary to use too much audio/visual/recorded content when comforting residents in distress
- Opportunity to change content frequently will be stimulating for residents in early stages of dementia and will help family partners feel connected and a part of the residents care support
3. A feature to provide feedback on how someone in a care setting feels when they view shared content might be helpful for families, so that they can know when their loved ones have looked at shared images/videos/recordings and how they are liking it
4. Having basic information about a resident in the app, such as a photo, name and basic needs will better help staff care for them when they are in distress. This may include information about what brings them comfort, as described by family members during the first workshop, ie. what brings residents feeling of pride, restoration, belonging, routine and home
5. In order for staff to intervene with WhatMatters when residents are in distress, the information provided in the app should be limited, quick to access, but enough to briefly learn about the residents (especially for those who are a new or doesn't know the resident too well)
6. Staff would benefit from accessing residents support/ family network through the app, in case they want to further connect with them
7. Staff would like quick access to the resident's favourite content





03 Feedback & Synthesis

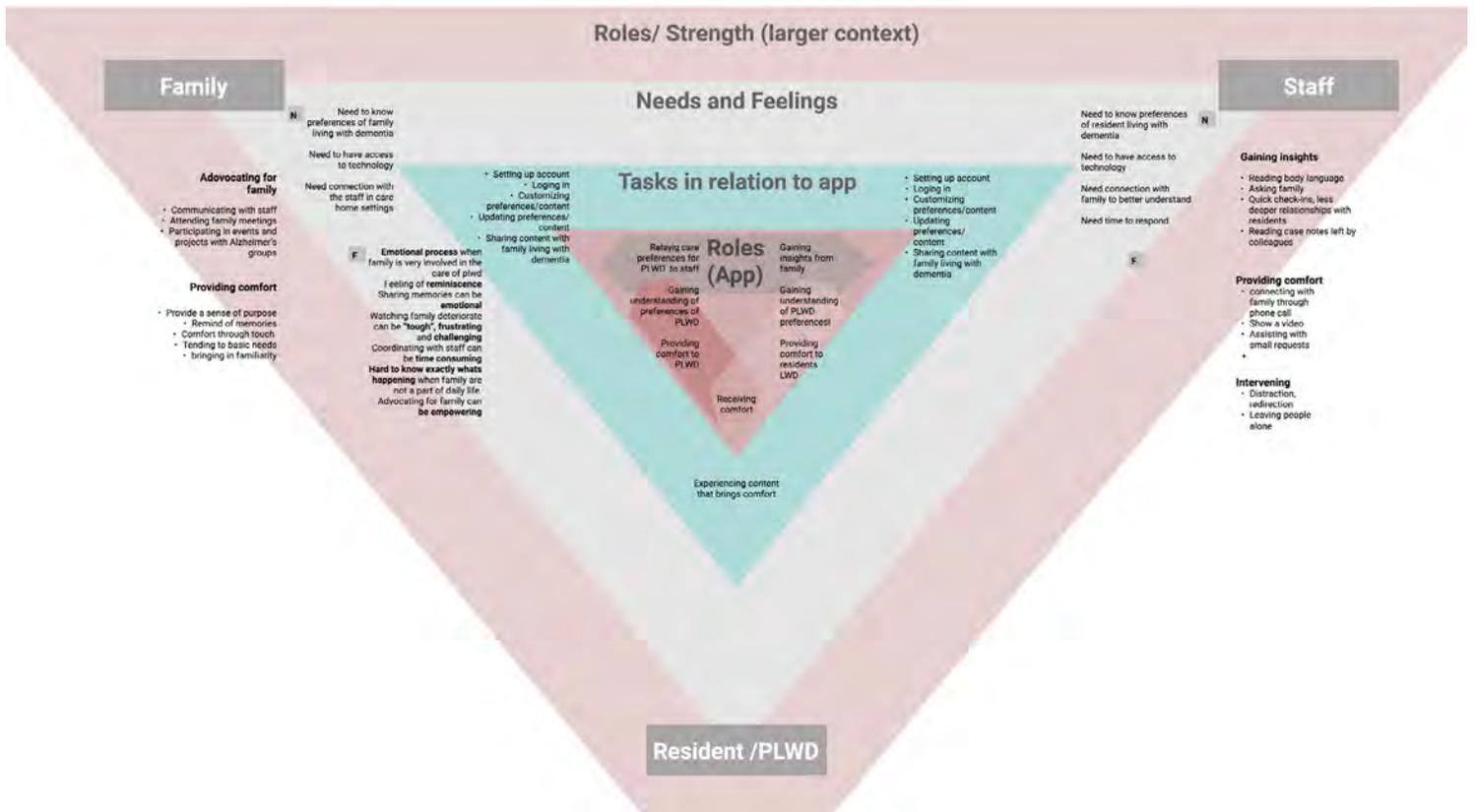
After finalizing the workshop stage, we now had enough information to start the synthesization process. We went over our findings from the different sessions and started mapping out patterns and themes.

Various personas were created, representing different user groups, based on the co-designers we had previously engaged with and what they had shared with us. The personas were especially helpful when it came to reflecting on different use case scenarios and different ways people might interact with WhatMatters.

As we were designing for 3 different user groups, we recognized that there would be a variety of user stories involved. People would all have different needs and goals for the app and the stories helped illustrate that in a tangible and clear manner.

An exploration into unique user flows was conducted as the final part of the synthesis. As a part of this, we created a solid feature list and mapped out different ways our user groups might interact with them.





User Stories
October 2021

Current Relationship roles



Design Principles

- All stakeholders**-- Developing a **collaborative** platform to bring **comfort** to people living with dementia in care homes and hospitals
- Residents- Bring comfort** to resident using visual and audio content
- Staff- Easing moments** of response and intervention by staff when calming and comforting residents in distress
- Care Partners-** giving CP opportunity to **be more involved** in the comfort of their loved ones

Design Objectives

- Designing a **digital** platform
- Designing **interface** for staff and family partners
- Designing a user experience to ensure that **information about resident** can be **shared** between different care partners
- Make comfort **content easy to access**

Factors impacting staff

- Distress level of residents
- Cognitive level of residents
- Time available to respond to distress
- Time available to learn about residents
- Family partner support
- Technological comfort
- Staff's own stress level which is contingent on care experience
- Availability of technology incl. Ipad

Factors impacting family Partners

- Time available to support care of loved one
- Access to care home staff
- Consistency in care home staff
- Technological comfort
- Personal stress level and well-being
- Changing needs of loved ones and beings able to keep up with their changing needs

Factors impacting Residents

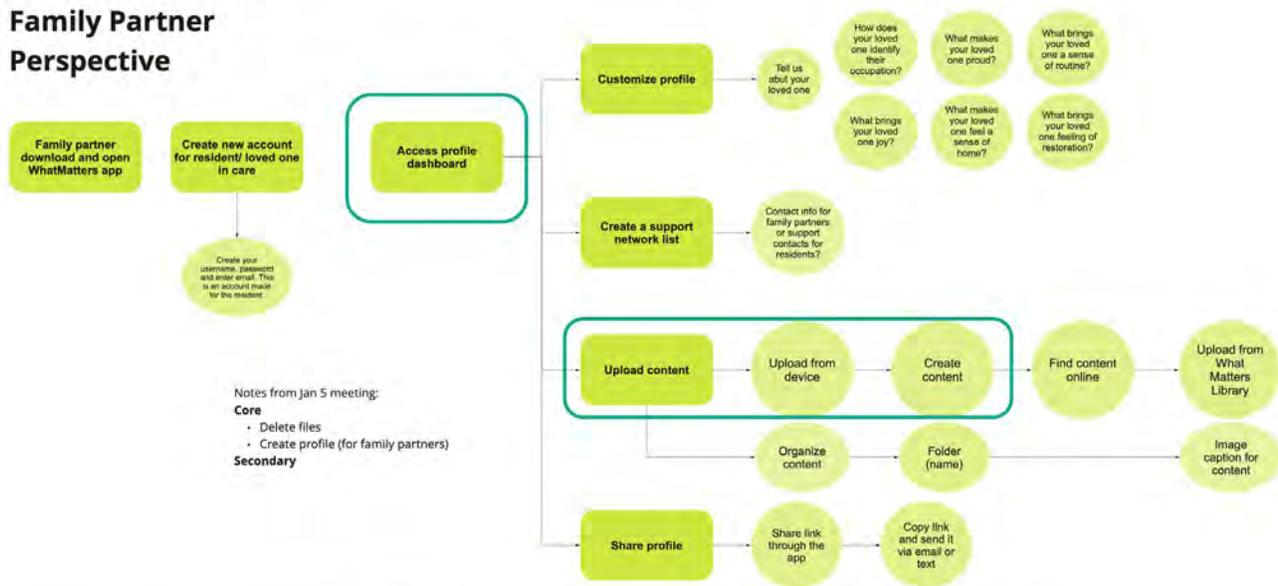
- Cognitive level
- Distress level
- Access to care home staff
- Consistency in care home staff
- Content type
- Relationship with the loved ones

Persona Research Synthesis
October 2021

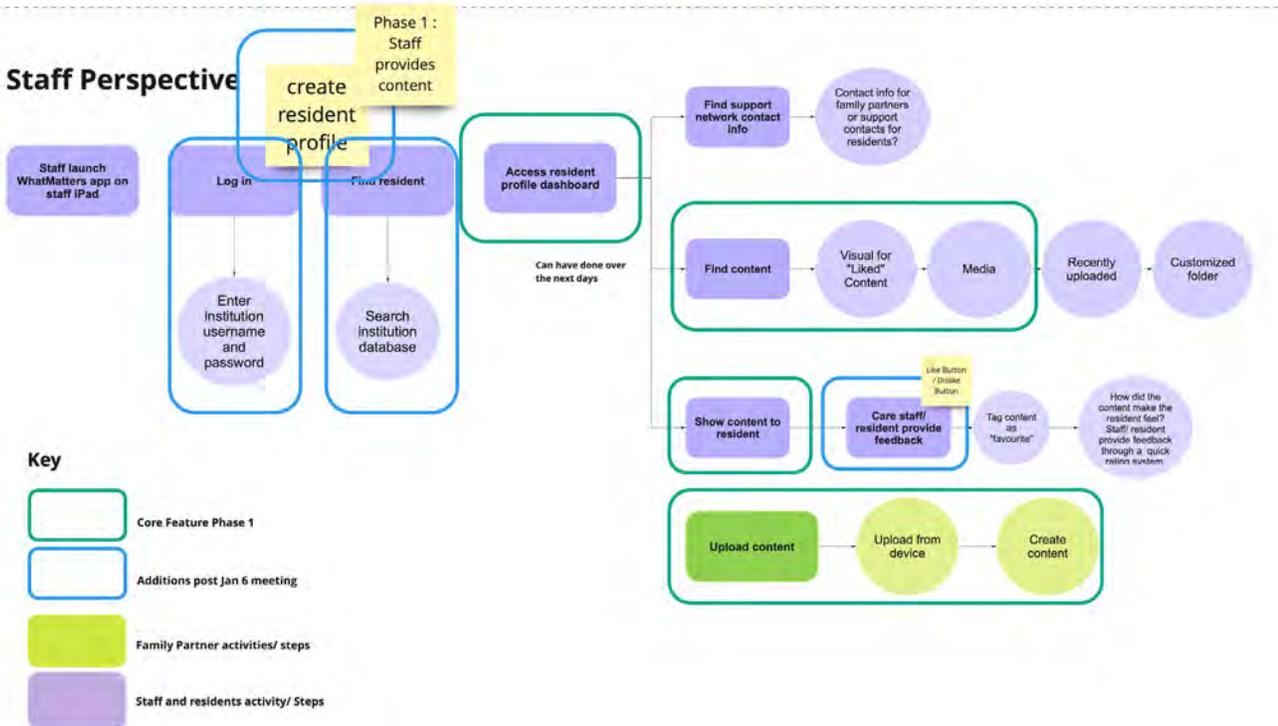


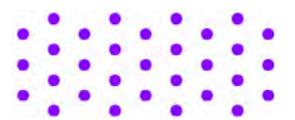
Core Features

Family Partner Perspective



Staff Perspective







04 Prototype 1

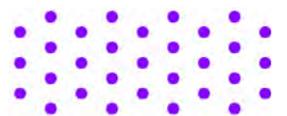
Prototype 1

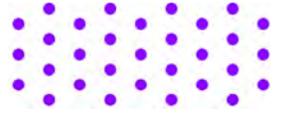
The first Prototype of the app was tested during our last workshop. It was an early iteration of the app and we wanted to get feedback as early as possible. Most of the feedback we received (on the prototype) was related to the language used in the app and the implications of the app's design making it too limited. As part of our idea of allowing people to create very customizable resident profiles, we had used a box-styled design theme to add suggestions for what information they could input. The participants in the workshop stated that the boxes felt somewhat limiting and had the potential to exclude more important pieces of information. The feedback was extremely helpful for us through the rest of the design process and we made sure to keep this in mind throughout the rest of the project.





Early Sketch of the App
October 2021





Prototype 1

As we continued making various iterations, it was important for us to keep the app's core features in mind.

WhatMatters core features are:

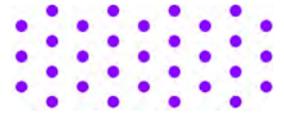
- Ability for family and (potentially) staff to upload images, videos and audio files
- Ability for staff to find a resident/patient profile, find the uploaded content(s) and show it to them as a way of bringing comfort in a time of distress

Based on this information, our design team crafted a list of features that we felt would be the most important ones to include as we started designing the app. The list was then proposed to the developer team, so that they could estimate an appropriate timeline and inform us about the feasibility of the different features. This process happened iteratively throughout the rest of the project, where we would meet with the developers on a weekly basis to discuss design and feature proposals and their feasibility. The developers were incredibly engaged and communicative throughout the process and ensured that our design visions made it through the different stages of iteration.

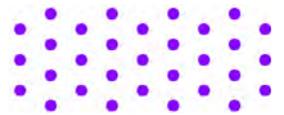
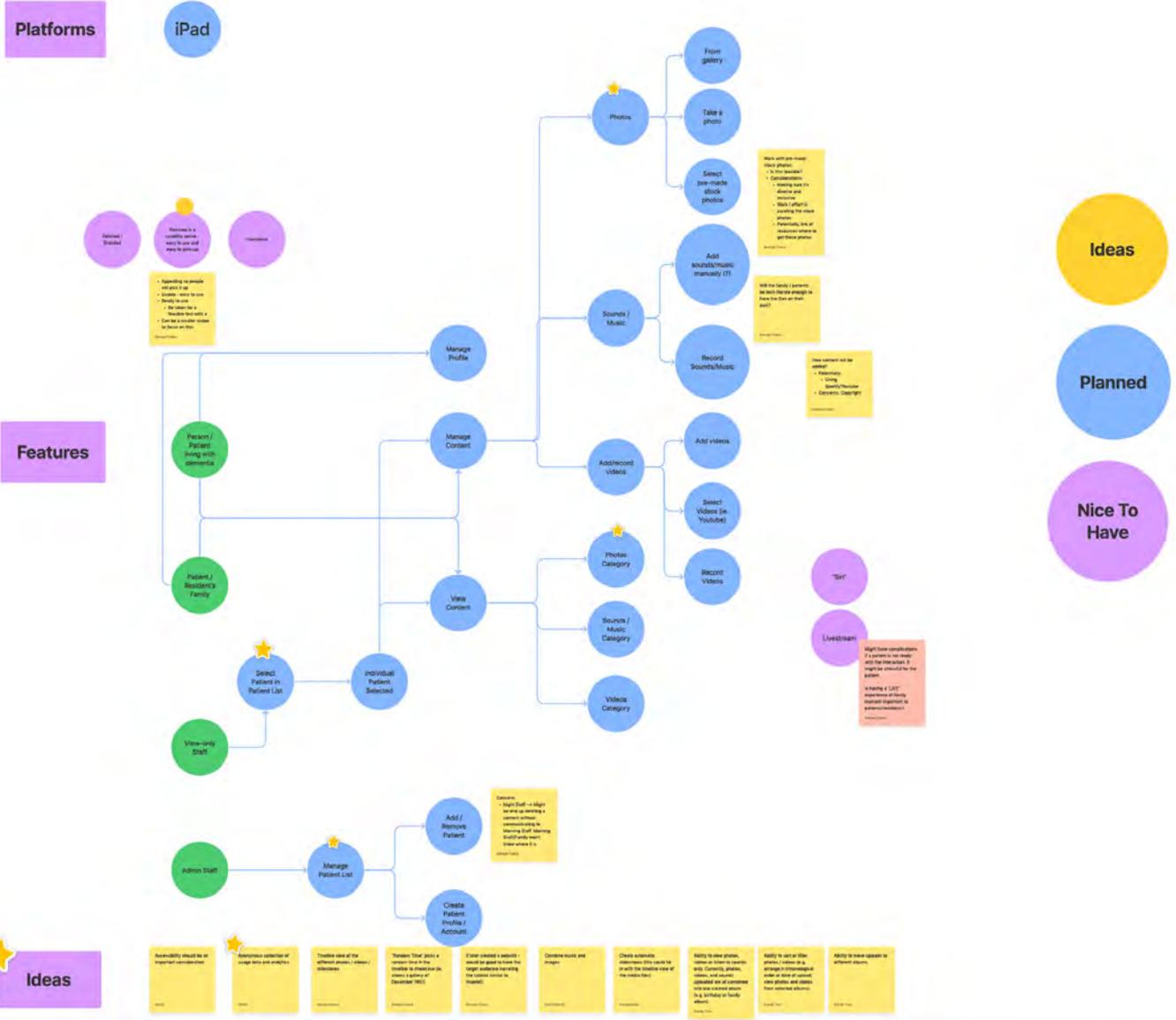
We had received a lot of feedback on the many directions the app could take through the past workshops. While selecting the core features, designing something that follows a “less is more” principle can be more

challenging than something that is filled with a variety of features. Alongside being rather feature-precise and light, the design also needed to be efficient and easy for people to use, especially for those who weren't too familiar with tech from beforehand. These requirements made it so that every step and micro feature of the app needed to be as polished as possible. As designers, it is our job to think ahead of users and provide them with the answers they need before they start questioning the steps of the app. One could say that this process applies to most app design, especially keywords such as “efficient” and “easy to use” - but we believe that this was especially important in this scenario, as we were working with users that have different comfort levels and experiences with technology. We recognize that WhatMatters might be someone's first introduction to tablets and apps. Using things that are unfamiliar has the potential to further aggravate a situation, especially if the app is difficult to use and navigate. For this reason, we made a conscious effort to design the app in a way that would be as user-friendly as possible. This app was created to help bring people comfort in times of distress, and in order to uphold this core aspect, we tried our best to design an app experience that would be as streamline and intuitive as possible for all users, regardless of their previous experience with technology.





App Feature List
October 2021





Tony Garcia

Profile

Tony is a
Dentist Photogra...

★ Sunshine Flowers
...brings Tony joy

● Music Grandson
...makes Tony calm and comforted

▲ Cooking Gardening
...makes Tony proud

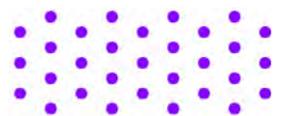
◆ Rain Quiet
...makes Tony feel restored and regenerated

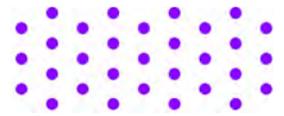
◀ Next

Upload



Resident Profile Screen
November 2021







Profile

Tony is a...

- Dentist
- Globetrotter

Nature Flowers Hikes

... Brings Tony joy

Nature Flowers Hikes

... Brings Tony joy

Tony's Gallery

FILTER

Recent uploads

+

Placeholder	Placeholder
Placeholder	Placeholder

View more...

Favourites

+

Placeholder	Placeholder
Placeholder	Placeholder

View more...

Folders

Tags

+

Placeholder	Placeholder
Placeholder	Placeholder

View more...

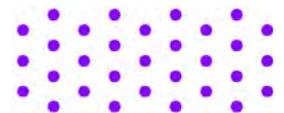
Tags

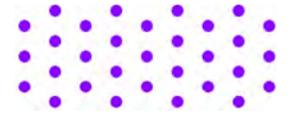
+

Placeholder	Placeholder
Placeholder	Placeholder

View more...

Resident Profile Screen
December 2021





05 Prototype 2

Prototype 2

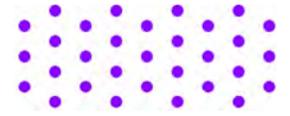
Our second prototype was designed and built into a fully functional version, which we tested remotely with staff from Villa Cathay long term care home and Vancouver General Hospital. The main features included a login screen, resident directory, resident dashboard, media viewing screen, and the ability to edit and upload media onto the app.

Although the user tests were conducted remotely, we were able to mimic the experience of being in-person with the help of the Double 3 Robot, a remote-controlled driving robot with video-call functionality. This helped us to interact with both residents and staff in real-time. We were able to observe them perform the assigned user-testing tasks and interview them about

the experience afterwards. Before the scheduled tests, we contacted the residents' family members, who provided media content and information that the developers used to create personalized accounts for each of the participating residents. The core features of the app that we tested were the ability for family and (potentially staff) to upload images, videos, and audio files, and the ability for staff to find a resident/patient profile, find the uploaded content and show it to them as a way of bringing comfort in a time of distress.

Residents and staff at both locations responded well to the app and provided great feedback, which we used to refine the prototype and transform it into Prototype 3, the final iteration.





WhatMatters

Log in

Username

Facility/personal username

Facility/personal password

LOG IN

[Create account](#) [Forgot password?](#)

Login
February 2022



Create profile

CANCEL

SAVE

Log in information

First name

Firstname

Residents first name

Last name

Lastname

Residents last name

Profile information

Profile photo



A photo of the resident

About me

Custom category title

Hey hey hey bla bla bla bigger font
bigger font hey hey

0/650 characters

Villa Cathay Care Home

Resident directory

+ ADD RESIDENT



Tony Garcia
Room 430



Orlando Orange
Room 225



Gigi Green
Room -



Brandon Blue
Room -



Mimi Magenta
Room 400



Ying Yellow
Room 401



Pat Purple
Room 402



Rin Red
Room 403





Tony Garcia
About me

My interests...

- Going for walks outside, by the beach
- Watching my old DVDs in my room
- Karaoke

I feel joy when...

- I interact with nature
- Talk to my wife Cindy on the phone
- Discuss my favourite show

I feel proud when...

- People acknowledge my wall of memories

My media gallery



Pastry party



Mountain bike



Park in London



Mimi



Ruth



Cooking show



Art



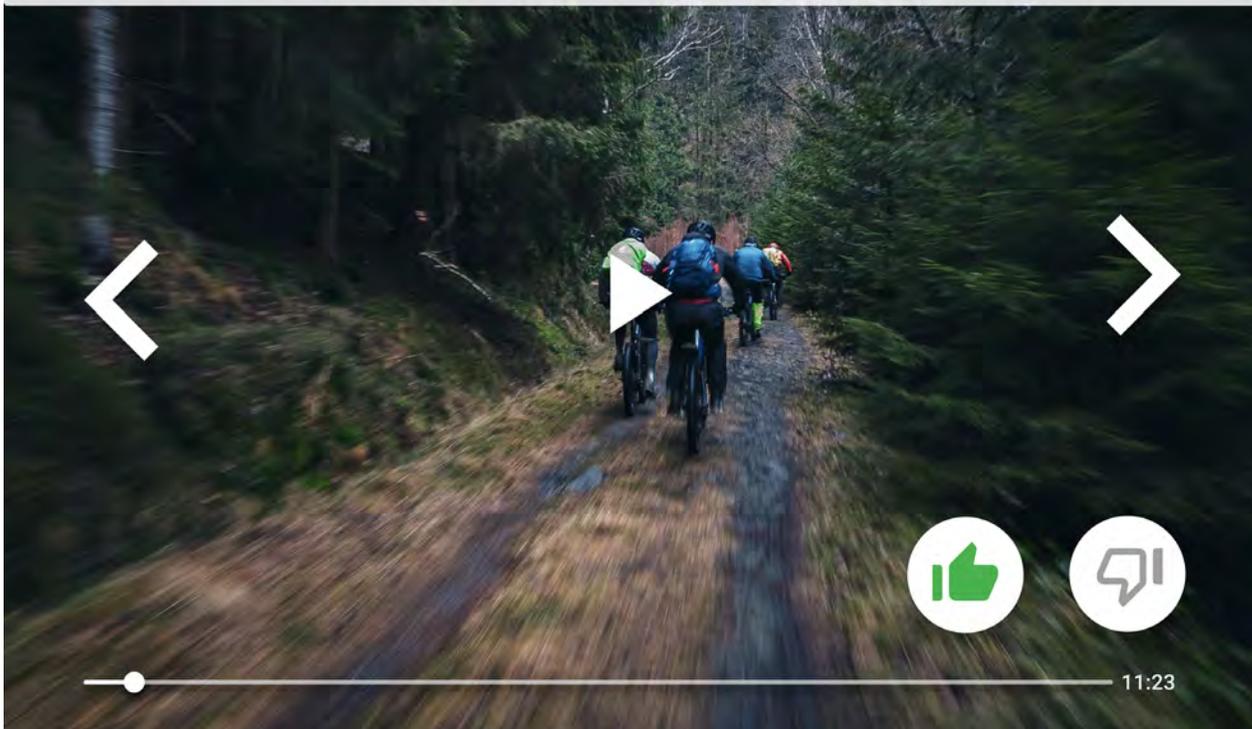
Ruperts living room



Bon Jovi concert 1985



Video of Jake enjoying a mountai bike ride in Whistler.





Tony Garcia

About me

My interests...

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- Watching my old DVDs in my room
- Karaoke

I feel joy when...

- I interact with nature
- Talk to my wife Cindy on the phone
- Discuss my favourite show

I feel proud when...

- People acknowledge my wall of memories

Add media

UPLOAD PHOTO/VIDEO

TAKE PHOTO/VIDEO

UPLOAD AUDIO

RECORD AUDIO



Tony Garcia

About me

My interests...

- Going for walks outside, by the beach
- Watching my old DVDs in my room
- Karaoke

I feel joy when...

- I interact with nature
- Talk to my wife Cindy on the phone
- Discuss my favourite show

I feel proud when...

- People acknowledge my wall of memories

Upload media

New upload

SAVE



Title

The sweet teddy 0/30 characters

A title for the media

Caption

The little sweet teddy bear relaxing peacefully.

0/350 characters

A caption for the media



Tony Garcia
About me

My interests...

bla bla bla bla bla bla
bla bla bla bla

I feel joy when...

I feel proud when...

Upload media

New upload

SAVE



Add a photo to accompany the audio

Title

Amazing Grace 12/30 characters

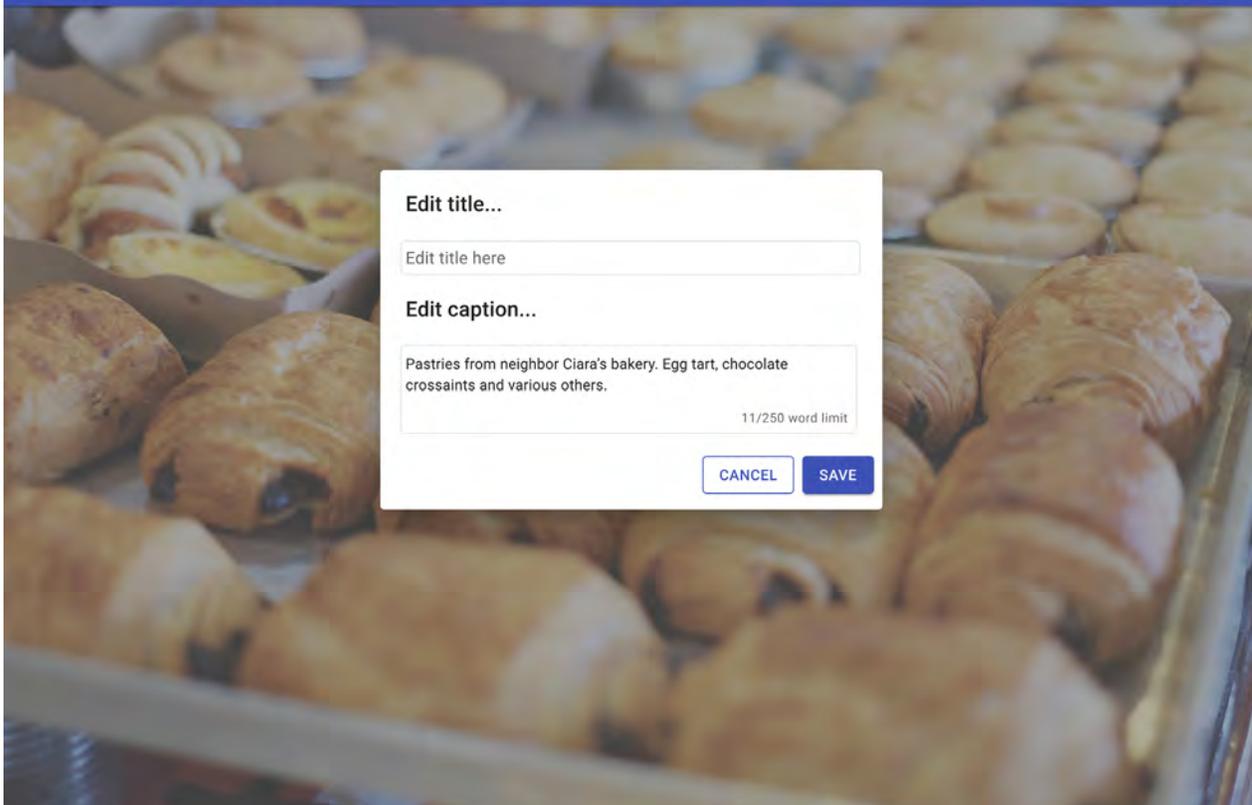
Title is already taken, please choose another

Caption

One of Tony's all time favourite songs. He will sing once he hears it.

0/350 characters

A caption for the media



Edit title...

Edit title here

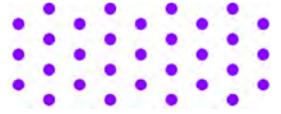
Edit caption...

Pastries from neighbor Ciara's bakery. Egg tart, chocolate crossaints and various others.

11/250 word limit

CANCEL

SAVE



User Testing

Online test with one staff from VGH at Purdy Pavillion:

1st resident:

- Felt excited to see cover art from his favourite western series: prompted him to explore
- Felt excitement seeing his own profile picture and other familiar faces
- Staff had to leave mid user test, resident became slightly disoriented
- After finishing, he wanted us to come back later and continue

2nd resident:

- Conversations around various images but one clear want and need, which was to see photo of his wife
- Slight impatience during media loading times
- Staff referred to “about-page” and asked a specific question listed there, which the resident is known to like being asked (question: Who is the most handsome?)
- Staff liked the simplicity of the UI design
- Made a heart shape in the air when seeing image of his wife
- Seeing an image made the resident want to see his wife immediately

Online test with one staff from Villa Cathay:

1 resident pair:

- Familiar pair we’ve met during past workshops
- Increased engagement from the wife, such as pointing at screen and engaging in conversation
- Played video with sound: Resident sang

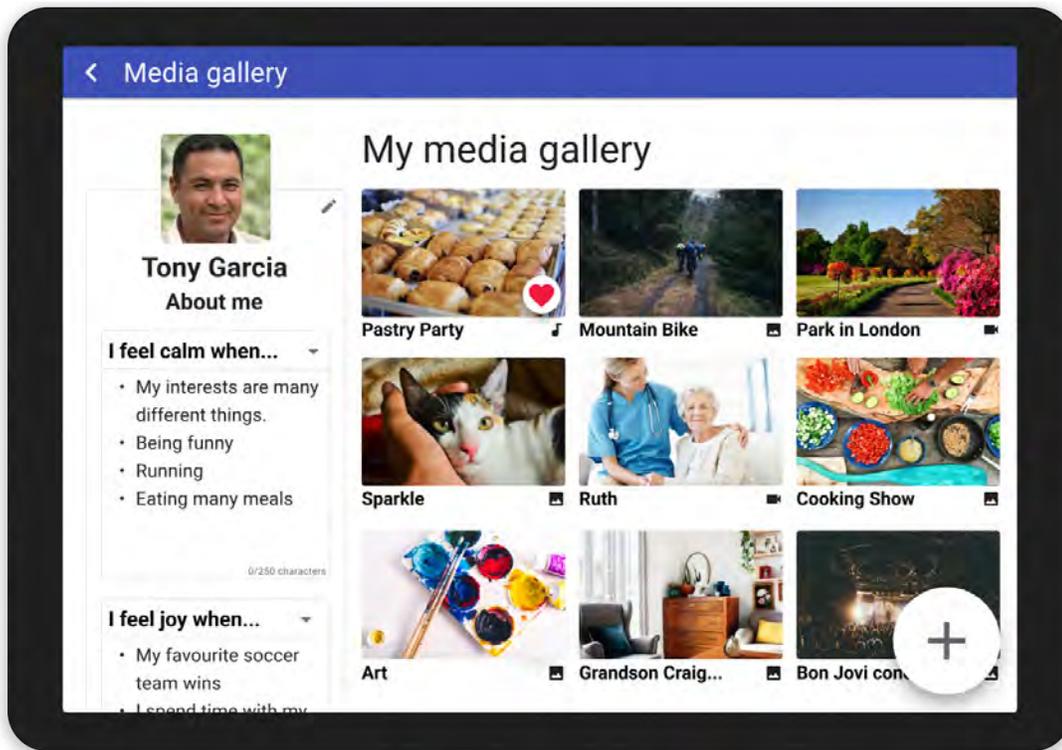




User Test Interaction
March 2021



User Test Interaction
March 2021



Prototype 3 iPad Mockup
March 2022

06 Prototype 3

Prototype 3

After completing the user tests for Prototype 2, we met with the development team and Lilian to determine which features should be added to Prototype 3, and which ones could be mocked up later or added to future iterations of the app. The features we chose to include in Prototype 3 were the ability for staff to create resident profiles, ability for family to add content for residents, ability for family and staff to edit the resident profile, ability for family and staff to edit the title and caption of existing media, adding a loading icon for when media is being fetched/downloaded, replacing the tap function with swipe functionality, increased loading speed, media icons added to the gallery, PIN lock screen, bigger and bolder fonts and larger profile picture, heart replacing

the thumbs up, and ability to hide the different About sections. The bolded features were new additions that were not present in Prototype 2. Prototype 3 went through the same process of user testing as Prototype 2, to which new staff members were introduced to the app. This gave us new insights and more feedback to make the final tweaks to our final mock up, which will be proposed for use when the app enters its next stage - clinical testing, with various family members, residents/patients and staff.

[Click on the image on the following page to be taken to the FigJam board.](#)





Product Backlog

Things that we can do now in Prototype 1 or a future phase

Impact: 1-5



Design Scope: L M S

Dev Scope: L M S

Design synthesis

Main features

1. 2. 3.

JF = Jeff
JY = Joey

Secondary features

1. 2. 3.



5. 6.

7.

Design synthesis

Main features

1. 2. 3.

JF = Jeff
JY = Joey

Secondary features

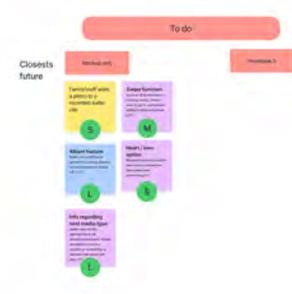
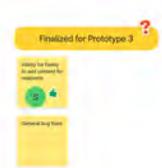
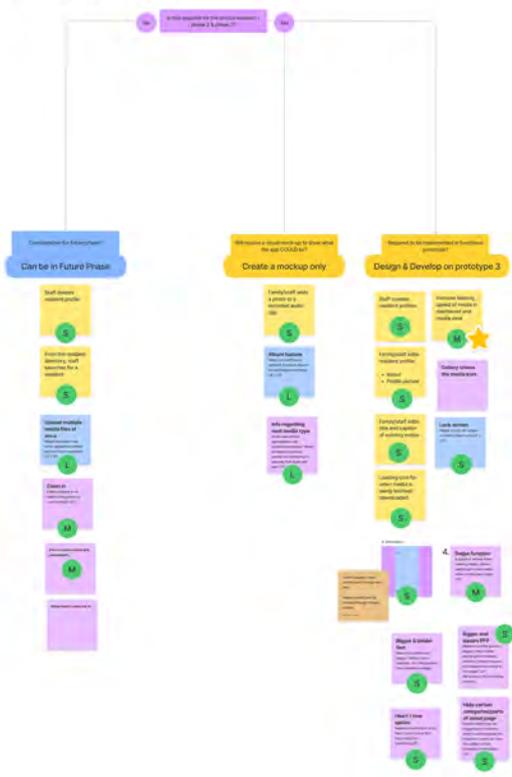
1. 2. 3.



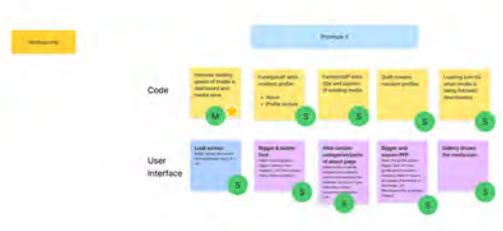
4. 5. 6.

7.

Prototype 3 Backlog Activity



Later future
May



WhatMatters

Log in

Username
Facility/personal username

Facility/personal password

LOG IN

[Create account](#) [Forgot password?](#)

Villa Cathay Care Home

Resident directory

+ ADD RESIDENT

 <p>Tony Garcia Room 430</p>	 <p>Mimi Mathiasen Room 400</p>
 <p>Jack Chevapravadumrong Room 221</p>	 <p>Carlos Sanchez Room 323</p>
 <p>Caitlyn Jacqueson Chevapravadumrong Room 110</p>	 <p>Gillian Elisabeth Jacobsen Room 402</p>



Tony Garcia
About me

I feel calm when... ▾

I feel joy when... ▾

I feel proud when... ▾

My interests... ▾

My media gallery



Pastry Party



Mountain Bike



Park in London



Mimi



Ruth



Cooking Show



Art



Grandson Craig...



Bon Jovi con



Tony Garcia
About me

I feel calm when... ▾

I feel joy when... ▾

- My favourite soccer team wins
- I spend time with my wife
- Doing art activities with my nieces and nephews

I feel proud when... ▾

My media gallery



Pastry Party



Mountain Bike



Park in London



Mimi



Ruth



Cooking Show



Art

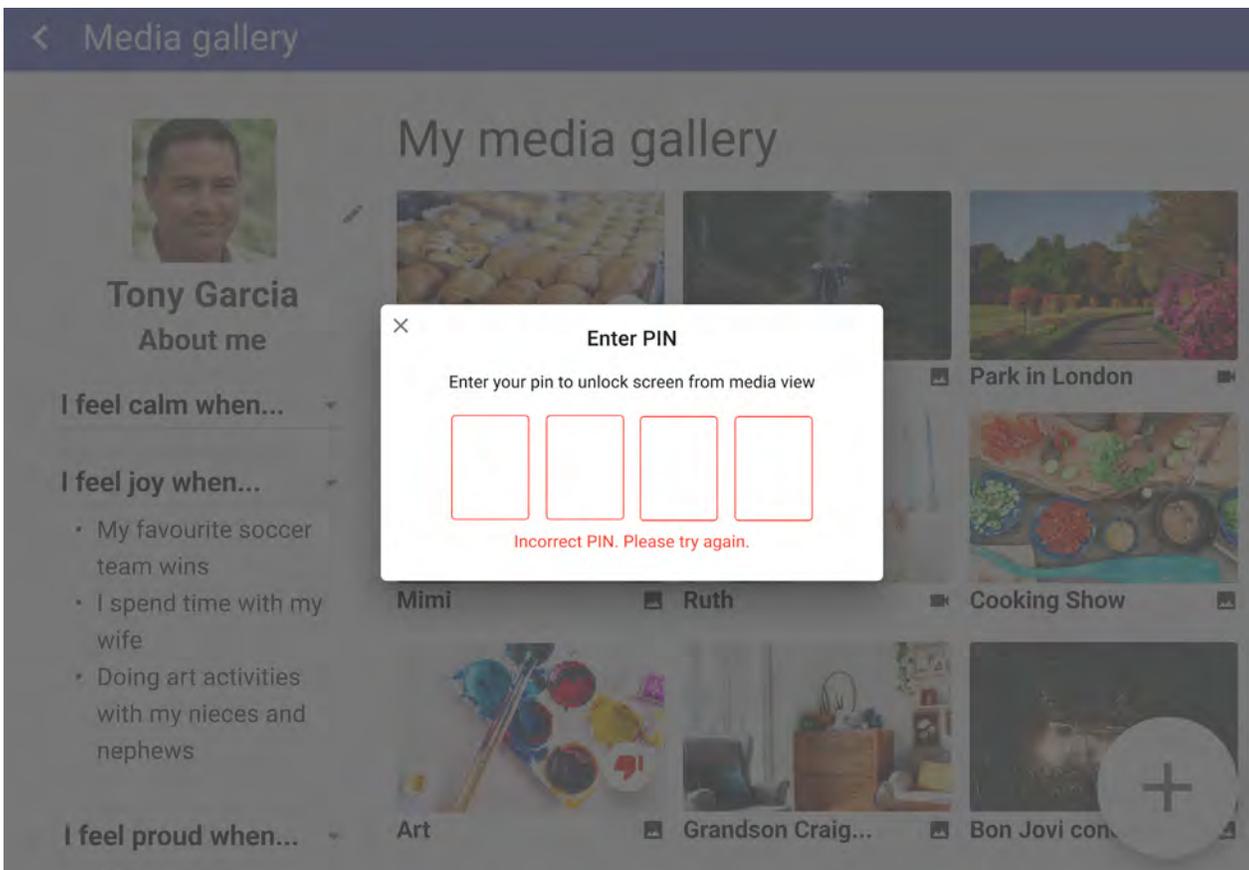
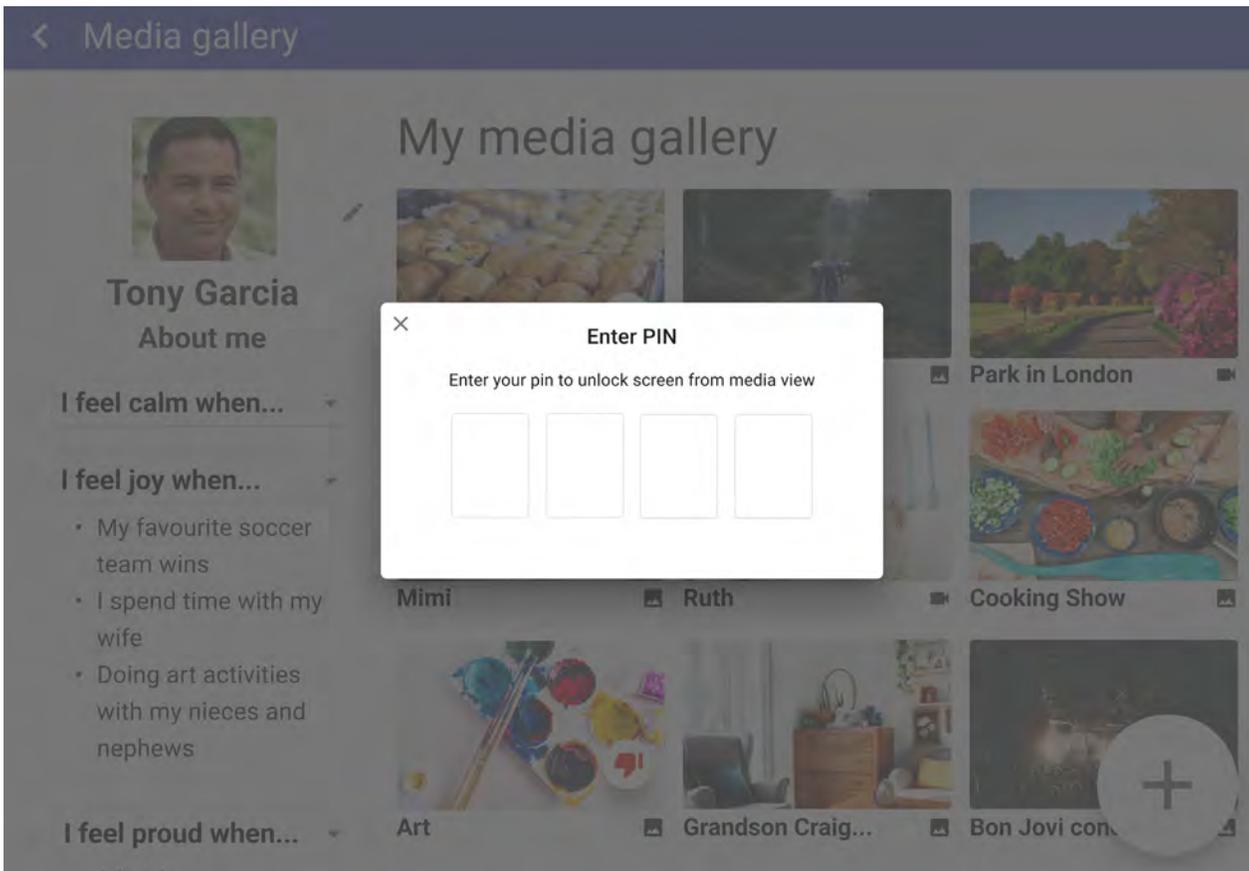


Grandson Craig...



Bon Jovi con







Tony Garcia

About me

I feel calm when... ▾

I feel joy when... ▾

I feel proud when... ▾

My interests... ▾

Upload media

📤 UPLOAD PHOTO/VIDEO

📷 TAKE PHOTO/VIDEO

🎧 UPLOAD AUDIO

🎤 RECORD AUDIO



Tony Garcia

About me

I feel calm when... ▾

I feel joy when... ▾

I feel proud when... ▾

My interests... ▾

Upload media

New upload

SAVE



Title

The sweet teddy 0/30 characters

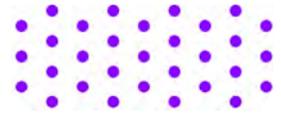
A title for the media

Caption

The little sweet teddy bear relaxing peacefully.

0/350 characters

A caption for the media



< Create profile

Create profile

CANCEL

SAVE

Profile photo



A photo of the resident

[Add photo](#)

[Remove photo](#)

First name

Tony

Resident's first name

Last name

Garcia

Resident's last name

Room number

430

Resident's room number

Facility Key

Vancouver General Ho... ▾

Facility key

About me

I am an active gentleman who loves to get in exercise when I can, such as walking around the hallway. But I also enjoys being reminded of past trips. I have many good memories of being outside with my family and friends.

0/650 characters

I feel calm when

- I listen to music
- Talk to my nieces and nephews
- I watch the sunset or pictures of it
- The light is dim

What calms the resident:

I feel joy when

- My favourite soccer team wins
- I spend time with my wife
- Doing art activities with my nieces and nephews

What brings the resident joy:

I feel proud when

- I show you my memory wall.
- I talk about my past trips and what I did
- I sing for you

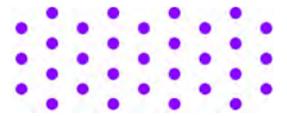
What makes the resident feel proud:

This interests me

- Watching soccer
- Telling jokes
- Running
- Eating many meals
- Dancing
- Singing

What interests the resident:

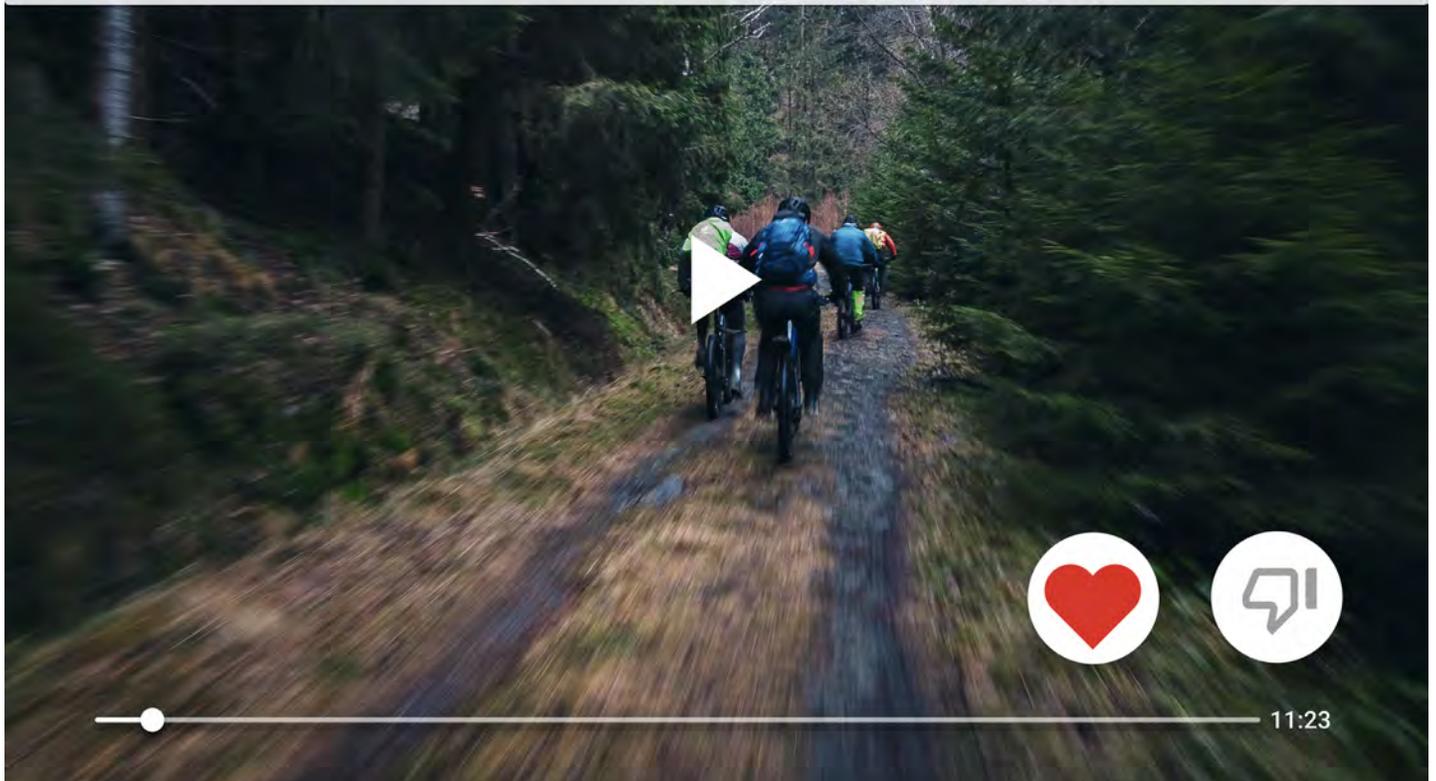




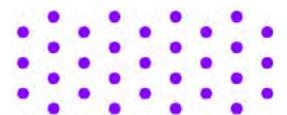
< Mountain bike



Video of grandchild Mick during a mountain bike trip in Alberta. Filmed using his goPro. A favourite video amongst the family.



Media Info View
April 2022





User Testing

Online test with one staff from VGH at Purdy Pavillion:

1 Resident:

- Resident responded well to media and seemed more comfortable and willing to share than normal
- Images of bible verses were shown to resident, and resident read them aloud
- PIN lock and ability to hide About section was well received
- Ability to zoom into images and other media is highly desired

Online test with three staff from Villa Cathay:

1st Resident:

- Familiar resident we had met before, with increased engagement
- He was excited about seeing the content and was introducing the people in the pictures; It brought him back to the past
- He controlled the iPad himself and explained things
- Played different music videos, in which he started singing and continued to do so for the rest of the user test
- Zoom-in functionality was desired

to help see media better

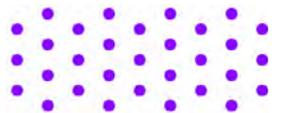
- App will mainly be used with staff but residents could be left alone to use the app themselves as well
- Tapping might be easier than swiping to navigate through media

2nd Resident:

- Resident was engaged and brighter; he's not always alert but was actively looking at photos.
- Staff saw app as a conversation starter
- Ability to customize About section categories is desired
- Conversation prompts in media captions could be helpful for knowing what residents respond best to
- Photos are added intentionally by loved ones so doesn't think there's a need to delete multiple media files at once

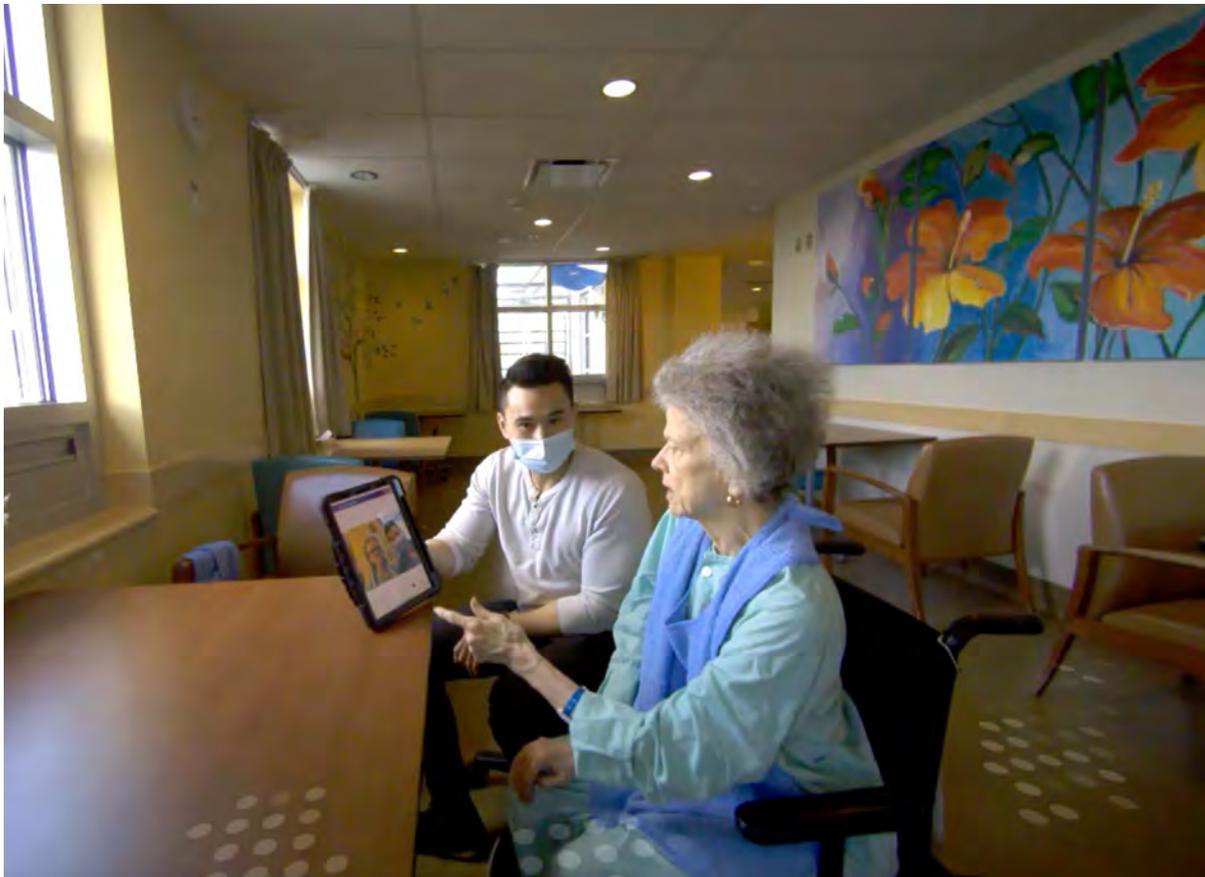
3rd Resident:

- Resident was engaged and talkative; mood was positive and light
- Occasionally engaged in conversation with us
- Zoom-in functionality was desired to help see media better
- "What orients me" would be a good option to add in About section; could come with accompanying media



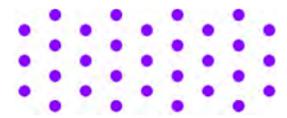


VGH User Test Session
April 2022

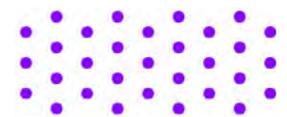


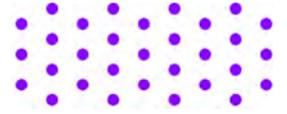
VGH User Test Session
April 2022





Villa Cathay User Test Session
May 2022





07 ADI Poster

ADI Poster

A poster showcasing the project was created for the 35th Global Conference of Alzheimer's Disease International. The design and layout of the poster were done by the design team and the research team provided the written elements. An accompanying video was also made by the research team, which includes an interview with Annette Berndt (Family Partner), where she speaks about her co-design experience in the project. When designing the poster, we as the design team wanted to create a simple and clean layout that would showcase the information in a way that was easy for viewers to read and understand, without being overwhelming. We also wanted to incorporate a variety of photos to help illustrate the app and show examples of some of the

workshop outcomes. The colours of the WhatMatters app were used throughout the poster to keep the project elements cohesive and connected.



WhatMatters - A mobile application to support person-centred care for people with dementia in care settings

Keywords: dementia, mobile application, technology, innovation, person-centred care, co-design

Introduction

The purpose of our study is:

- To provide **comfort** through **digital resources** (e.g., music and visual materials) for patients/residents with dementia in hospitals and long-term care homes.
- To use a **co-design** approach with users (patients/residents, families, and staff).
- To develop a **mobile app** prototype called **"WhatMatters"** to enable staff to deliver person-centred care in care settings.



Co-Design Workshop #1 with Family Partners

Methods

We conducted a series of virtual co-design workshops with acute and long-term care staff (n=10), clinical experts (n=3), residents (n=3), and patient and family partners (n=7) to understand: (a) what "comfort" means; (b) how care needs are communicated and provided for; and (c) how a mobile app may be used to support **psychosocial needs of people** living with dementia in hospital and long-term care settings.

Results

Thematic analysis has revealed three themes to inform the development of the mobile app, WhatMatters: (a) **familiarity brings comfort**, (b) sharing information between staff and families allows for **person-centred care** and **continuity of care**, and (c) **accessible and curated content** can evoke memories and create a comforting space.



Co-Design Workshop #1 Synthesis



Co-Design Workshop #1 with Staff Partners

Conclusion

It is necessary and feasible to work with users (including patient and family partners) and other relevant stakeholders to co-design a mobile app to support the delivery of person-centred care in hospitals and long-term care.

Our team

Uillian Hung, Jennifer Boger, Leanne Currie, Caylee Raber, Angelica Lim, Alison Phinney, Habib Chaudhury, Candy Tran, Ellen Guo, Mariko Sakamoto, Jim Mann, Annetta Berndt, George Padua, Nabel Silu, Joanna Ho, Sasha Yoo, Eva Egeberg, Garima Sood, Chelsea Burke



Project Funded by: CIHR IRSC

Scan for more info:



WhatMatters - A mobile application to support person-centred care for people with dementia in care settings

Keywords: dementia, mobile application, technology, innovation, person-centred care, co-design

There are more than **500,000** people living with dementia in **Canada** currently. By 2050, there will be **139 million** people living with dementia **globally**. **40%** of patients admitted into hospitals are people with dementia. Dementia related risky behaviors affect **90%** of people with dementia in care. It has resulted in **negative** outcomes for patients/residents and staff.

The WhatMatters app provides a **tool** for the network of support among the people with dementia, families, and health care staff. Staff and family are **empowered** to provide **psychosocial support** for people with dementia in care.

This digital solution can bring **comfort and joy** to people with dementia and **continuity of care** in the healthcare system.

It can improve patients'/residents' quality of life, empower staff to provide person-centred care, improve quality of care, and relieve family stress.

Usefulness: Co-designed by residents/patients and family partners, frontline staff in hospitals and LTC homes

User-friendliness: Accessible for people with dementia, family, and frontline staff

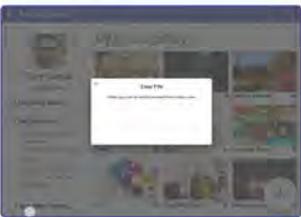
Feature Screenshots



Resident Directory



Resident Dashboard



PIN Lock



Upload Page

Our team

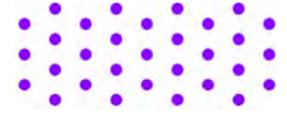
Uillian Hung, Jennifer Boger, Leanne Currie, Caylee Raber, Angelica Lim, Alison Phinney, Habib Chaudhury, Candy Tran, Ellen Guo, Mariko Sakamoto, Jim Mann, Annetta Berndt, George Padua, Nabel Silu, Joanna Ho, Sasha Yoo, Eva Egeberg, Garima Sood, Chelsea Burke



Project Funded by: CIHR IRSC

Scan for more info:





08 Final Mockup

Final Mockup

The final app mockup has been designed to show what the WhatMatters app could look like in future iterations, as well as showcase future features that could be added. These features include:

Resident Profiles and Directory

- Staff searches for resident in directory
- Staff deletes resident profiles

About Page

- Add customizable section (choose categories or type your own)
- Ability to edit certain parts of About page quickly without being taken to main editing page

Media

- Album sorting feature
- Family/staff add a photo to a recorded audio clip
- Information regarding next media type while in media viewing mode
- Pending or intermediate icon between heart and thumbs down
- To indicate that media should be viewed with support person
- Upload multiple media files at once

Other Features

- Hearts animation
- Center PIN window and make it bigger (easier for residents to tap X)

Additional Features that will not be mocked up but would be included in future app iterations:

- Zoom functionality (to see media details more clearly)
- Potentially change swipe back to tap when viewing media
- Adding conversation prompts into the media captions

We are hoping that the mock up will be included in future iterations of the app, with the goal of creating an even better experience for our users.

The following link will take you to a clickable version of the mockup in Figma:

<https://www.figma.com/proto/QN3DEaOFcv8d3RfJJihuwH/Final-Interactive-Mockup?node-id=1851%3A5473&scaling=min-zoom&page-id=501%3A2&starting-point-node-id=1851%3A5473>





< Create profile

Create profile

CANCEL

SAVE

Profile photo



A photo of the resident

First name

Tony

Residents first name

Last name

Garcia

Residents last name

Room number

430

Resident's room number

Facility Key

Vancouver General Ho...

Facility key

[Delete profile](#)

About me

I am an active gentleman who loves to get in exercise when I can, such as walking around the hallway. But I also enjoys being reminded of past trips. I have many good memories of being outside with my family and friends.

0/650 characters

I feel calm when...

- I listen to music
- Talk to my nieces and nephews
- I watch the sunset or pictures of it
- The light is dim

Category 2

I feel joy when...

I feel upset when...

I feel proud when...

I feel accomplished when..

I feel empowered when...

I feel engaged when...

Custom category

More options

Category 3

Choose a category and add information about the resident

Choose a category and add information about the resident



Villa Cathay Care Home

Resident directory

+ ADD RESIDENT



Tony Garcia

Room 430



Mimi Mathiasen

Room 400



Jack Chevapravadumrong

Room 221



Carlos Sanchez

Room 323



**Caitlyn Jacqueson
Chevapravadumrong**

Room 110



Gillian Elisabeth Jacobsen

Room 402

Villa Cathay Care Home

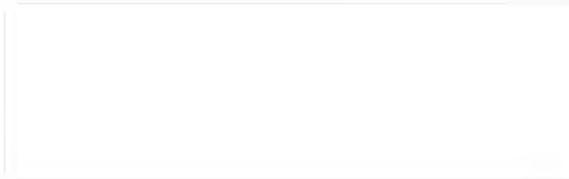
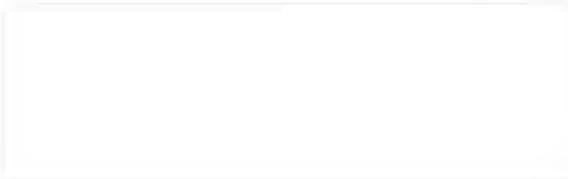
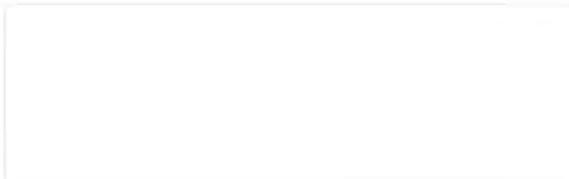
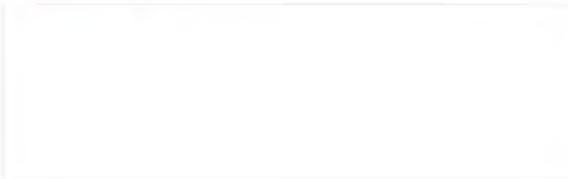
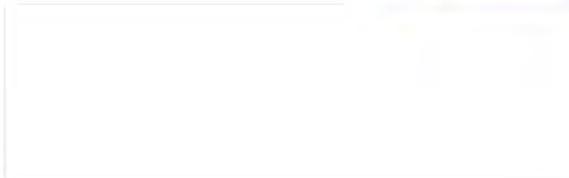
Resident directory

+ ADD RESIDENT



Mimi Mathiasen

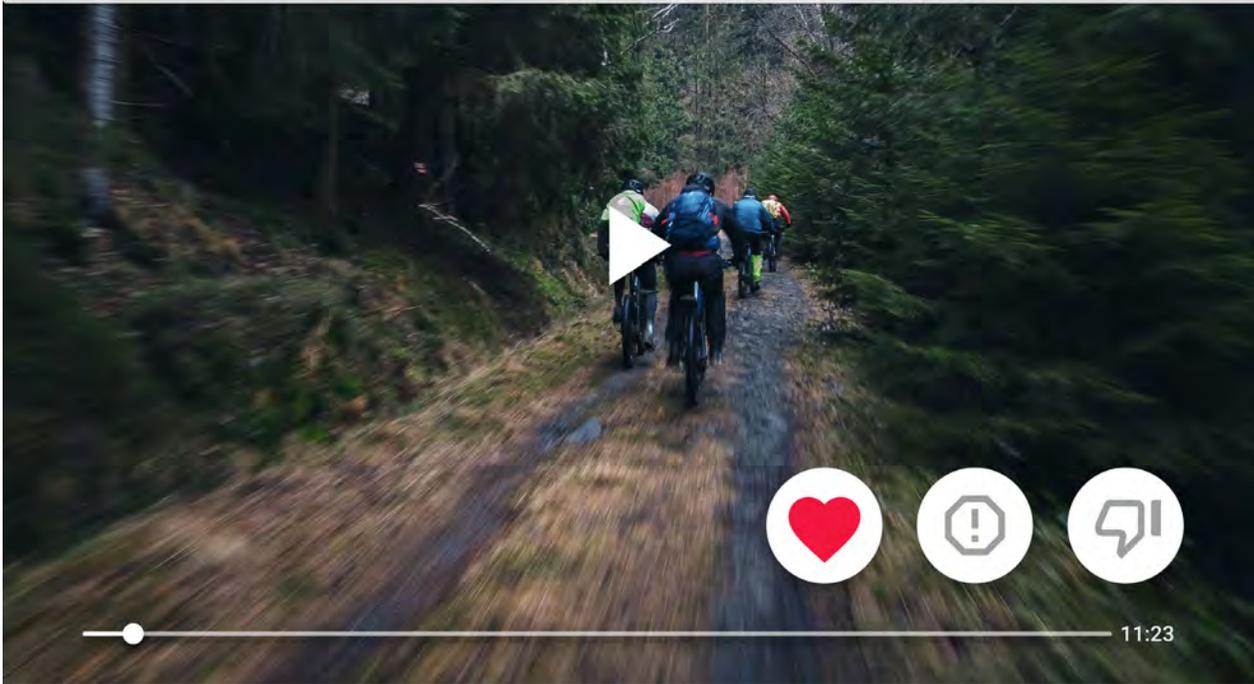
Room 400



< Mountain bike



Video of grandchild Mick during a mountain bike trip in Alberta. Filmed using his goPro. A favourite video amongst the family.

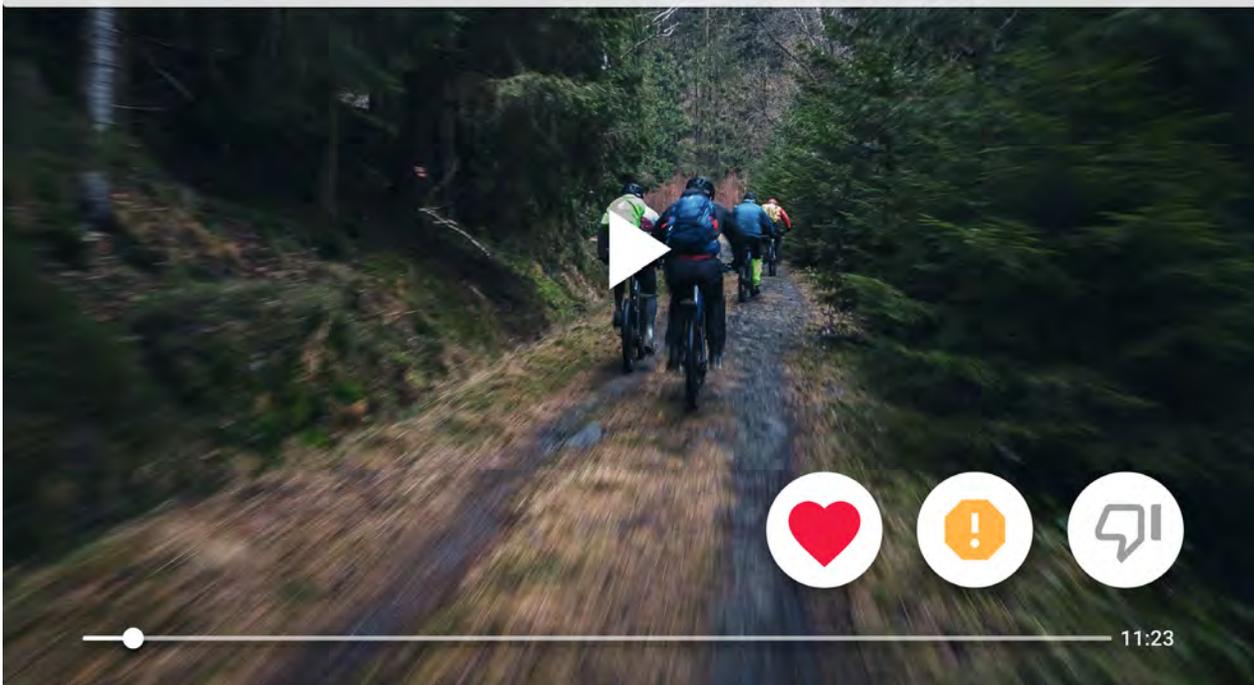


Media View
Updated Icons
May 2022

< Mountain bike



Video of grandchild Mick during a mountain bike trip in Alberta. Filmed using his goPro. A favourite video amongst the family.



Media View
Updated Icons
May 2022



Tony Garcia
About me

I feel calm when... ▾

I feel joy when... ▾

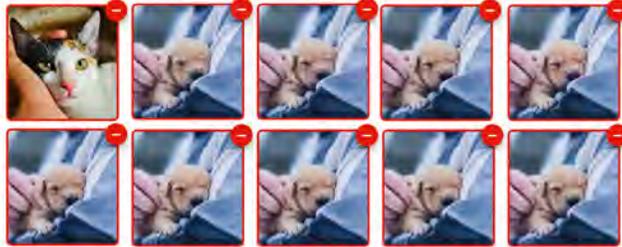
I feel engaged when... ▾

My interests... ▾

Upload media

New upload

SAVE



Title

The sweet puppy 0/30 characters

A title for the media

Caption

The little sweet puppy relaxing peacefully.

0/350 characters

A caption for the media

Press and hold down
on a thumbnail to
delete multiple files



Tony Garcia
About me

I feel calm when... ▾

I feel joy when... ▾

I feel engaged when... ▾

My interests... ▾

Upload media

New upload

SAVE



Title

The sweet puppy 0/30 characters

A title for the media

Caption

The little sweet puppy relaxing peacefully.

0/350 characters

A caption for the media

Tap on a thumbnail to
add individual titles
and captions



Tony Garcia

About me

I feel calm when... ▾

I feel joy when... ▾

I feel engaged when... ▾

My interests... ▾

Upload media

New upload

SAVE



Title

Maya the cat 0/30 characters

A title for the media

Caption

Robert's cat named Maya. She is 6 years old and loves tuna.

0/350 characters

A caption for the media



Tony Garcia

About me

I feel calm when... ▾

I feel joy when... ▾

I feel engaged when... ▾

My interests... ▾

Upload media

New upload

SAVE



Tap the plus icon to add an accompanying image to the audio file

Title

Singing in Stanley Park 0/30 characters

A title for the media

Caption

An audio recording of Minnie singing in Stanely Park.

0/350 characters

A caption for the media



Tony Garcia

About me

I feel calm when... ▾

I feel joy when... ▾

I feel engaged when... ▾

My interests... ▾

Upload media

New upload

SAVE



Tap the plus icon to add an accompanying image to the audio file

Title

Singing in Stanley Park 0/30 characters

A title for the media

Caption

An audio recording of Minnie singing in Stanely Park.

0/350 characters

A caption for the media

< Media gallery

My media gallery



Tony Garcia
About me

I feel calm when...

- My interests are many different things.
- Being funny
- Running
- Eating many meals

0/250 characters

I feel joy when...

- My favourite soccer team wins



Pastry Party



Mountain Bike



Park in London



Sparkle



Ruth



Cooking Show



Art



Grandson Craig...



Bon Jovi con...

< Media gallery

My media gallery

Recently Uploaded



Tony Garcia
About me

I feel calm when...

I feel joy when...

I feel engaged when..

My interests...



Pastry Party



Mountain Bike



Park in London



Sparkle



Food



Nurse



Art



Cooking Show

View more

Albums

FILTER

Favourites



Pastry Party



Mountain Bike

Pets

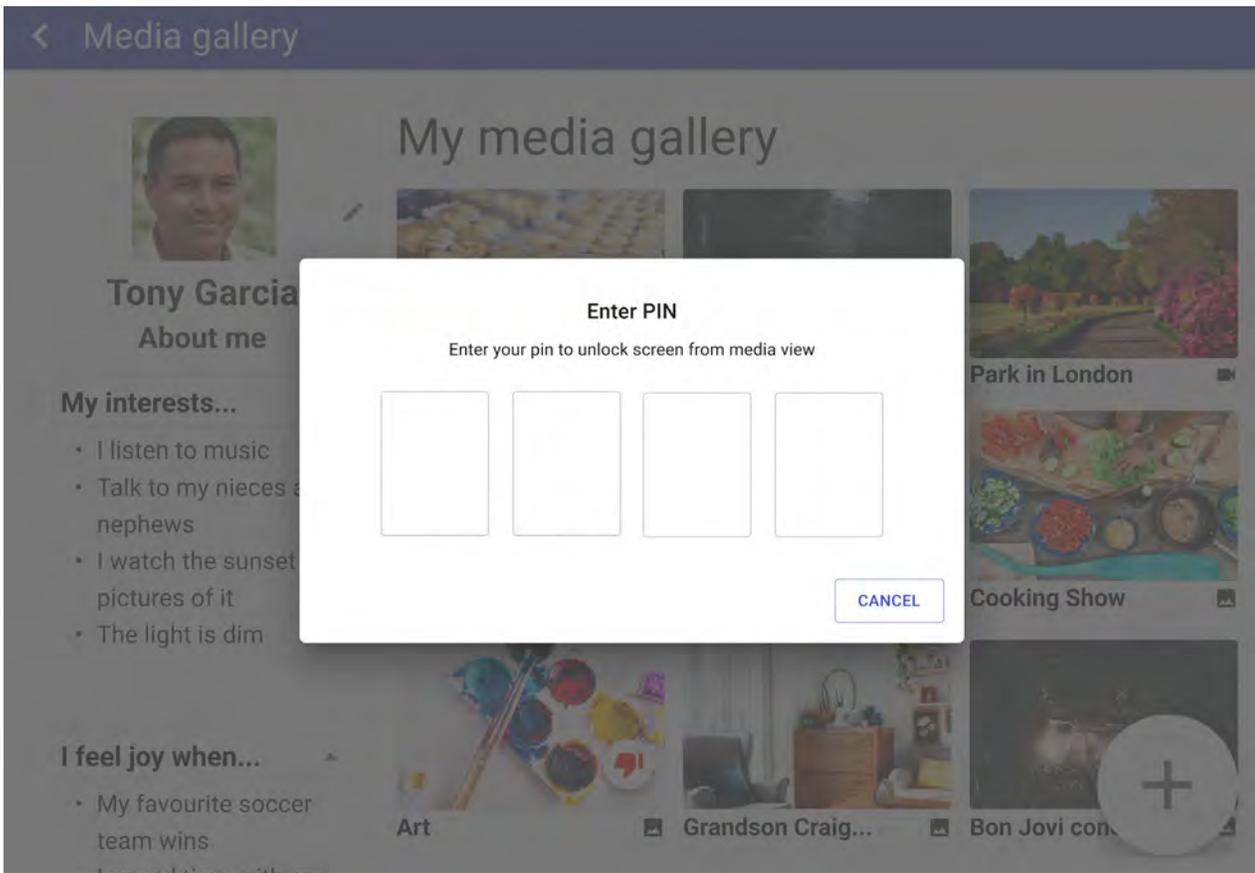


Sparkle

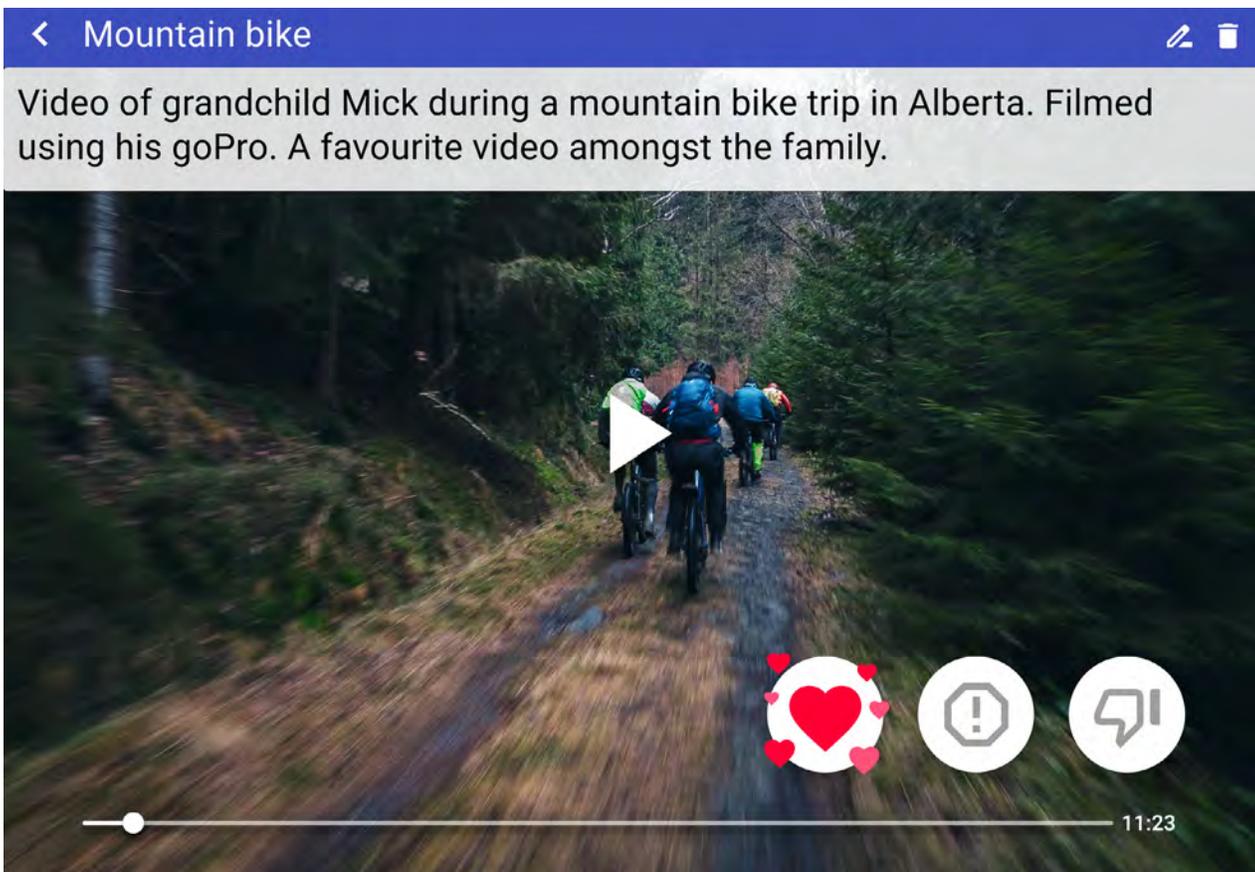


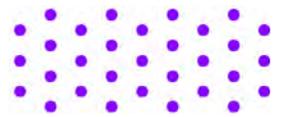
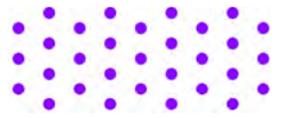
Sweetie

Larger PIN
May 2022



Heart Animation
May 2022





Emily Carr University of Art + Design

