

Embodied Labs Pilot Report

Front Porch Center for Innovation and Wellbeing

September 2020

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CENTER FOR INNOVATION
AND WELLBEING

Table of Contents

Executive Summary.....	3
Acknowledgements.....	3
Product Overview	4
Project Design	5
Project Results + Discussion.....	7
Challenges and Potential Improvement Areas	12
Conclusion.....	13
Future Directions	13
Further Reading	13
APPENDIX A: Sample Of Staff Responses During Embodied Labs “Reflect” Discussion	14

Executive Summary

The Front Porch Center for Innovation and Wellbeing (FPCIW; fpciw.org) piloted Embodied Labs (embodiedlabs.com), an immersive virtual reality (VR) training platform with lab experiences where the viewer assumes a first-person perspective of older adults experiencing different aging challenges. Over the course of a year, FPCIW deployed four Embodied Labs VR kits across seven Front Porch Senior Living Communities to promote the growth of greater empathetic care, awareness, and education among staff and caregivers.

The Embodied Labs VR platform delivers immersive experiences via a VR-ready gaming laptop, tethered VR head-mounted display or headset, and propriety software. The “labs” and modules are professionally produced and allows the viewer to experience what it’s like to have aging challenges such as hearing and vision impairment, Alzheimer’s Disease, end of life and terminal cancer, Lewy body dementia, and aging as a LGBTQ senior. Embodied Labs provides a four-step curriculum to engage the learner:

1. Prepare with informational slides to understand the context of what they’re about to see.
2. Embody the older adult in VR.
3. Reflect in a discussion group afterwards to process what was experienced.
4. Apply to daily practice.

A pre- and post-VR assessment is built into the program to measure changes in knowledge and understanding.

The pilot results showed significant positive impact, including the following highlighted statistics of approximately 130 users between July 1, 2019 and February 30, 2020 viewing the vision and hearing impairment training, “The Alfred Lab”:

- 16% increase in understanding how vision and hearing impairment affects residents’ daily lives
- 95% increase in understanding the perspective of older adults with hearing and vision loss
- 173% increase in agreement that individuals with low-vision can live meaningful fulfilling lives

Trainees overall expressed deeper understanding of older adult experiences living with different aging challenges. Community leaders observed greater engagement among their staff members as well as improved problem-solving and empathy for challenging behaviors. Based on the results of this Phase I deployment, FPCIW recommends Embodied Labs as a valuable tool for staff training to cultivate an empathetic culture of service and care to improve the lives of older adults.

Acknowledgements

FPCIW would like to acknowledge and thank Embodied Labs for their partnership and continuous support as we explored the impact of the training platform across our communities. We would also like to thank all the Front Porch communities who participated and supported the Embodied Labs trial period and especially to our champions who helped organize and promote the program among staff. An enormous thank you overall to all Front Porch staff members across the communities who provided valuable feedback and engaged in important, enriching conversations about empathy for the residents and families for which we provide care.

Product Overview

Embodied Labs (embodiedlabs.com) is a company based primarily out of Los Angeles. CEO Carrie Shaw was inspired to create Embodied Labs based on her experiences of caring for her mother who developed early-onset Alzheimer's Disease. Wishing she could better relate to and understand her mother's challenging experiences of the world around her, Carrie found her lightbulb moment when using a pair of plastic safety glasses and duct tape to visualize her mother's left "visual neglect" impairment and how it affects her everyday interactions. Later on, Carrie took this experience and expanded it into a high-tech immersive solution covering a range of pertinent topics on aging to better prepare and foster understanding among formal and informal care partners ranging from students, family members, caregivers, and healthcare professionals.

Embodied Labs creates a proprietary training software platform for virtual reality (VR) made up of "labs" covering different thematic subject matters (e.g. Alzheimer's Disease), and named after the main character in the experience. Each lab is made up of several modules that break down the broad thematic subject into smaller lessons exploring different stages or aspects. The curriculum promotes a "Prepare, Embody, Reflect, and Apply" method. Trainees "Prepare" by taking a pre-assessment to review existing knowledge and learn the context of the experience they will soon be viewing. Then trainees "Embody" by putting on the VR headset and become the older adult. Trainees "Reflect" by taking a post-assessment and discussing with the trainer/facilitator and/or in a group with fellow trainees about gained knowledge, understanding, and empathy of the older adult experience and health condition. Finally, trainees "Apply" their new knowledge and understanding to their everyday work.

The following Labs were available during our pilot project period:

- **The Alfred Lab** – Embody an African American man with low-vision (macular degeneration) and hearing impairment
- **The Beatriz Lab** – Embody a Latina woman through all the stages of Alzheimer's disease
- **The Clay Lab** – Embody a Chinese American man with terminal cancer going through end-of-life
- **The Dima Lab** – Embody a Lebanese Muslim woman with Lewy body dementia/Parkinson's disease and transition of care from home to community care/senior living

Embodied Labs updates with new training content in the form of new features and new content quarterly, ranging from practical skills delivering end-of-life conversations to new topics pertaining to older adult challenges.

The main components of the Embodied Labs kit include a wired VR headset, VR headset sensor, VR-ready gaming laptop PC, and a Leap Motion controller for hand tracking all packaged in a hard-shell protective traveling case. At the time of this project, Front Porch used the Embodied Labs version with the Oculus Rift VR headset. However, at the time of this report, Embodied Labs has upgraded to a different headset.

During the period of compiling this Phase I report, the world experienced a global pandemic with the outbreak of COVID-19, a highly contagious respiratory virus that required state-mandated stay-at-home orders, physical distancing, and other quarantine measures. These guidelines were designed to prevent its spread and protect the most vulnerable populations including those who are immunocompromised and older adults who are disproportionately fatally affected by this virus. In response to the challenges

of physical distancing while still completing staff training during the COVID-19 pandemic, Embodied Labs rolled out a strategy called “Distributed Group Mode” where Embodied Labs experiences can be “driven” by a trainer with the equipment while the training group views and discusses the experiences on a video conferencing platform (e.g. Zoom). FPCIW has not been able to test this feature at the time of this report.



Project Design

The goal of the Embodied Labs project was to provide empathy training to promote high quality empathetic care among Front Porch and Front Porch community staff, caregivers, family members, volunteers and other stakeholders in the care of our older adult residents. Our objectives were as follows:

1. Measure and demonstrate the impact of immersive, empathy-building training and experiences.
2. Develop a replicable and sustainable adoption model for Front Porch Communities staff and families.
3. Gain support and commitment from community leaders to adopt Embodied Labs.

Our adoption approach was multi-pronged, and involved multiple stakeholders and departments. While the primary target training group tended to be frontline care staff (RNs, CNAs, formal caregivers), staff members from administrative, dining, housekeeping, security, and more also participated. FPCIW discussed the pilot and project activities early on with community executive directors and our Front Porch quality assurance teams to build involvement and feedback on the training sessions. As each community had the opportunity to hold on to the Embodied Labs kits for about two weeks following our initial training sessions, the community champions had the opportunity to reach additional staff members who were not able to attend the first series of trainings.

The FPCIW field project coordinator collaborated with residential and care staff leaders, including executive directors, directors of health services, directors of nursing, and directors of staff development

at each Front Porch community to identify at least one staff team/department to undergo training via the Embodied Labs platform. The goal, at minimum, targeted approximately twenty unique care stakeholders per community or 200 participants in total for the project in eight months. Outcomes were measured via pre- and post-assessment surveys built into the Embodied Labs learning labs to measure change in behavior and understanding. Discussion groups as part of the Embodied Labs curriculum integrated qualitative questions to gather narrative about participants' experience learning with the platform.

Communities were provided two days of hands-on training with the FPCIW field project coordinator. On Day 1, the FPCIW field project coordinator trained the community champion on equipment setup, facilitation, and training structure. The community champion served as the superuser and lead trainer for the community, responsible for recruiting and scheduling training for other staff members. The FPCIW field project coordinator then led all of Day 1's training sessions with staff members, while the community champion assisted. On Day 2, the community champion took lead of the training sessions while the FPCIW field project coordinator supported as necessary to build the community champion's comfort and confidence in the curriculum and technology.

Training sessions were scheduled in one-hour windows with up to four staff members training at once using the four Embodied Labs kits that were available for the project. The structure of each one-hour training session was as follows:

1. Receive introduction to Embodied Labs.
2. Complete pre-assessment questionnaire.
3. View "Prepare" slides for context and background of the training experience.
4. Receive introduction to the virtual reality equipment.
5. View the training module.
6. Complete of post-assessment questionnaire.
7. Repeat 2-6 for the remaining module(s) of the lab.
8. Debrief in group discussion to reflect and apply learnings.

Afterwards, communities were able to keep the FPCIW Embodied Labs kits for up to two weeks to independently trial usage and train additional staff members.

The initial two-day training focused primarily on The Alfred Lab to educate about low-vision and hearing loss experiences among older adults. However, community champions were free to request viewing of additional labs and were able to explore additional labs during their extra week of independent use.

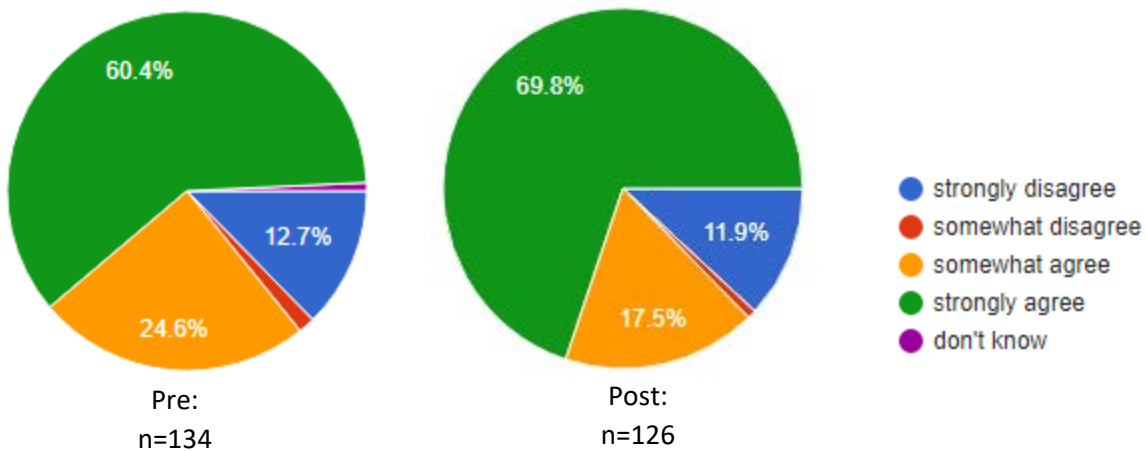


Project Results + Discussion

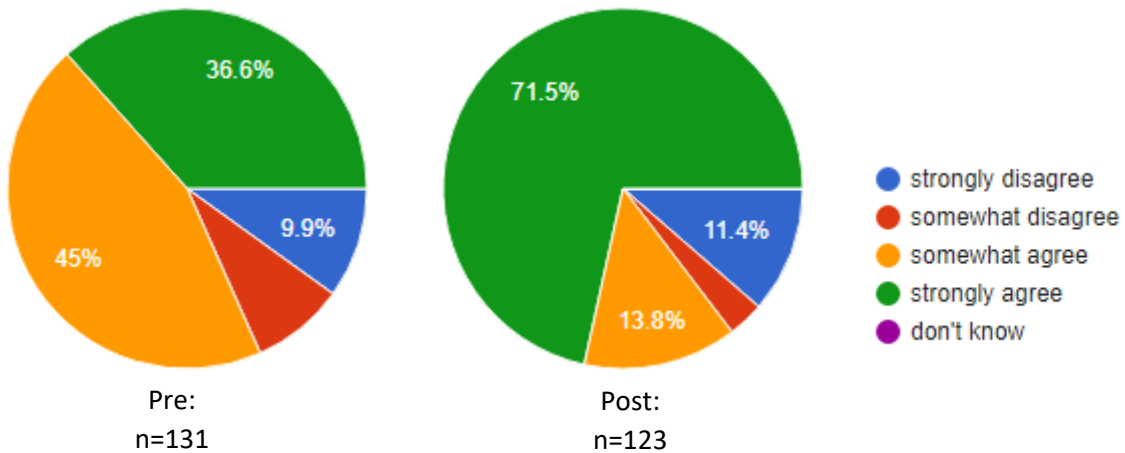
After eight months, over 300 individual training sessions were logged across Front Porch. This included seven Front Porch communities with staff members representing all departments as well as FPCIW interns. Sessions are counted as any time a training module is completed and is not distinguishing between unique and repeat users.

With the focus on The Alfred Lab as the constant across all community trainings, the following data will be focused on trainee responses after the two modules of The Alfred Lab: “I Am Alfred,” which focused on embodying a man with low-vision condition macular degeneration and hearing loss and “At the Periphery,” which highlighted interventions and technological advances in aiding individuals living with hearing and vision impairment. The number of responses completed between pre- and post- may not align perfectly as some participants may have skipped the question or missed filling out the surveys.

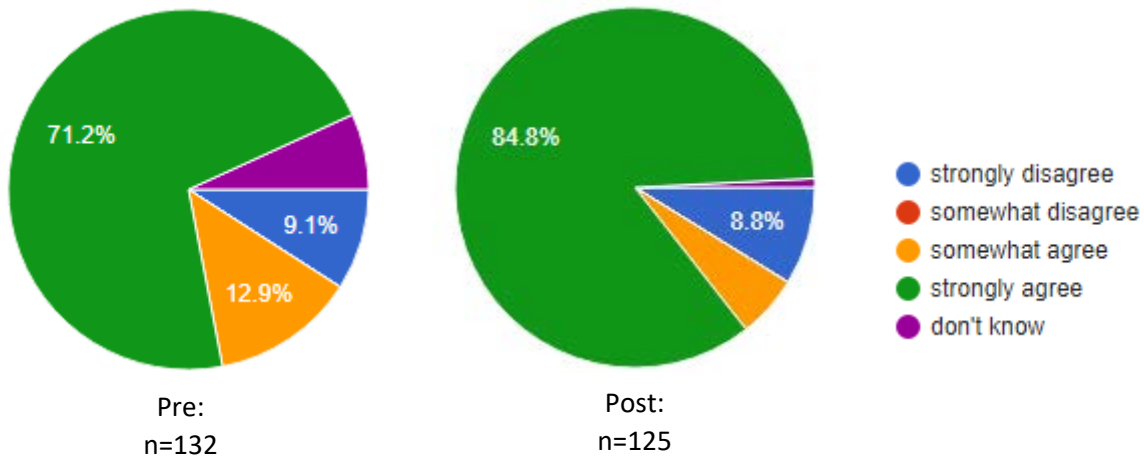
The percentage of trainees who “**strongly agree**” they “**understand how living with hearing and vision loss may impact the daily life of a resident**” increased from 60.4% to 69.8% after viewing The Alfred Lab: this represents a positive change of 9.4 percentage points, or **an improvement of 16%**.



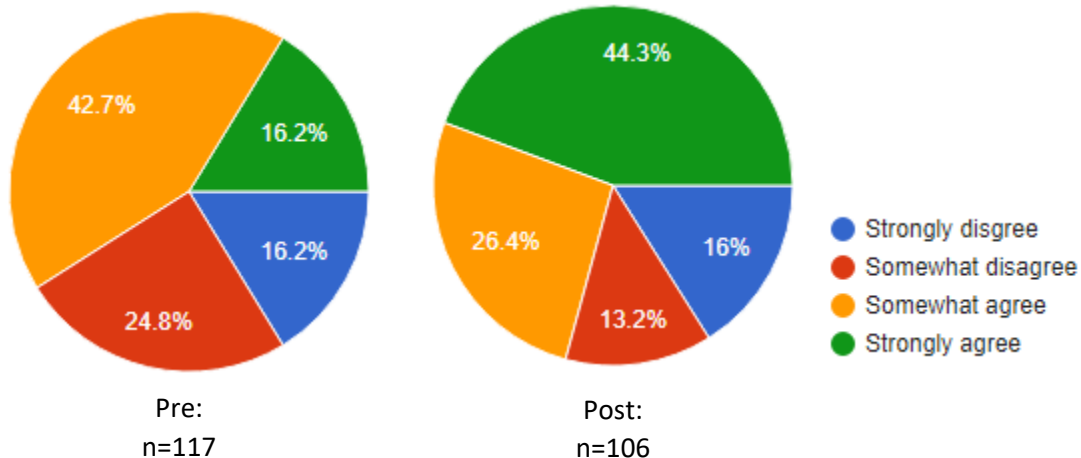
The percentage of trainees who “strongly agree” they “understand the perspective of an older adult with hearing and vision loss” increased from 36.6% to 71.5% after viewing The Alfred Lab. The 34.9 point difference translates to a **95% increase**.



The percentage of trainees who “strongly agree” that “Embodying an older adult with hearing and vision loss in virtual reality helps me learn about these conditions from the first-person perspective, which is important to my job” increased from 71.2% to 84.8% after viewing The Alfred Lab, a 13.6 percentage point change that represents a **19% positive difference**.



Prior to viewing *At the Peripheral*, only 16.2% **strongly agreed** that “People with vision impairment, like macular degeneration, can pursue their goals, dreams, and live their lives to the fullest.” After viewing, the percentage of those who **strongly agreed** increased to 44.3%, marking a different of 28.1 points, or a **positive change of 173%**.



Overall through the assessment data, participants embodying what it’s like to live with vision and hearing impairments expressed (a) increased understanding of the needs and perspective of residents living with these conditions; (b) a more positive outlook for the lives of those who live with vision impairment; (c) agreement that perspective-taking in VR helps trainees understand the conditions of residents better.

After completing the “Embody” or VR experience portion and finishing the assessments, trainees participated in the “Reflect” portion of the Embodied Labs learning model. This involved a group discussion to debrief on the content they just experienced and apply it to their daily professional and personal life. To see an example transcript of a “Reflect” discussion among care staff post training, see **Appendix A**.

The following are a sample of notable comments, reflections, and feedback gathered from staff.

“I think it would be helpful for families to see this so that they can better understand what is going on.” – Villa Gardens memory care CNA

“It is interesting because you see [the residents’ challenges], but you don’t feel it. We assume [we know what it is like], but we don’t really know what is going on at the same time.” – Villa Gardens memory care CNA

“It makes you realize more what is happening, and how they feel more.” – Villa Gardens memory care CNA

“When they say they can’t see, they really mean it.” – Vista del Monte sales manager

“I can understand now about little things like a resident asking me to put in a phone number contact on her smart phone. It’s a small but really meaningful gesture because I can see the small text but she cannot.” – Vista del Monte director of resident services

“I can understand now when a resident asked for a work order to move things in a very certain way, or to just find the TV remote that’s right next to them. It is actually very helpful especially if they can’t see it.” – Vista del Monte director of environmental services

“I can better talk to family members about vision and hearing loss.” – Vista del Monte director of marketing

Community champions were also asked to provide feedback and thoughts about Embodied Labs as an effective training tool for their staff members. The following are some of their highlighted quotes and anecdotes.

“I can teach my staff how to do the technical parts of nursing and caregiving, but it’s harder to prepare them for the emotional parts. I’m always looking for tools that can provide my staff what I can’t do myself.” – Sunny View director of health services

“I have been running my CNAs and LVNs through the Embodied Labs trainings. The charge nurses and others are now asking me when they’ll get a chance to try it! Staff don’t always look forward to in-services. Even housekeeping staff who saw me watching in my office said they wanted it for their department. It’s definitely not what I expected. It’s exciting! I’m excited to show all of the lessons.” – Claremont Manor director of staff development

The Sunny View director of marketing completed The Dima Lab and had a profound experience. She said “It was really eye opening” because they often get a lot of residents with Lewy body dementia, and she never really knew what that meant or what it was like beyond the resident’s file.

Similarly, Vista del Monte director of marketing completed The Alfred Lab and had a revelation of why some prospective residents would look at her from the side with their head slightly turned. She understands now that they might have had macular degeneration and could only see her out of their peripheral vision.

Because each community had the opportunity to borrow the system and train additional staff, the community champions were able to take ownership over the training program and facilitate their own discussions. This was a critical adoption component of the pilot that helped build engagement and sustainability.

The Summer House (memory care) manager at Villa Gardens shared a few stories of noticeable change with her staff after Embodied Labs training:

One caregiver (CG) was interacting with a resident who was asking the same question over and over again. The CG was about to lose her patience, but remembered her Embodied Labs training on Alzheimer’s disease in The Beatriz Lab and realized the resident wasn’t trying to purposely be challenging. The CG calmed down, understood why the resident repeated the question, and worked with the resident more calmly.

Another CG cares for her mother with Alzheimer’s Disease at home before going to work at Summer House, where she works very hard with a driven pace. After watching the lab for Alzheimer’s disease, the CG had a revelation about how hard it is for the residents from moment

to moment. Since then, she's been able to be more positive with providing care, and the residents are happier with her care.

Since training the night shift staff, Summer House residents have expressed greater satisfaction about their nighttime care.



Overall, the responses to Embodied Labs training from staff across the 7 Front Porch communities were very positive. Participants found that the immersive first-person perspective of the VR training, combined with the empathy-building narrative of the Embodied Labs curriculum helped improve understanding of the daily challenges their residents faced. Community champions noticed greater excitement from their staff for training sessions, and lessons learned from Embodied Labs carried on, not only at work, but in staff's personal lives as well. By seeing the world through their residents' eyes, staff expressed more positive outlooks and reaffirmed the importance of their work.

The training plan involving up to four staff viewing Embodied Labs at once, co-facilitated by the FPCIW project coordinator and community champion was replicable across most of the seven participating Front Porch communities. Due to the dynamic nature of care-providing, some community champions who serve as directors of health services or staff development were called away to attend emergencies or unexpected circumstances and could not participate fully in the training days. However, for most,

with the FPCIW project coordinator providing direct training and modeling for the community champion, the champion was able to confidently facilitate future training sessions independently.

The communities with the most enthusiastic responses to Embodied Labs resulting in continued adoption had community champions who themselves witnessed the impact on their staff morale and performance. Substantiated with valuable evidence of positive behavior change among staff, the champions' advocacy to their community leadership significantly influenced their investment decisions. The direct involvement, engagement, and participation of community champions proved to serve as a critical lesson in the community adoption of Embodied Labs.

Challenges and Potential Improvement Areas

While an overall positive solution, there are some opportunities to further strengthen the Embodied Labs platform:

1. Offer pathways for professionals to earn continuing education units (CEUs) towards their certifications and/or licensures after completing Embodied Labs trainings.
2. Offer multi-language support for staff and caregivers whose first language is not English.
3. Larger text sizes for the online assessment forms.

Software and hardware difficulties experienced occasionally, such as peripheral devices not being detected, programs crashing or not loading, and accidental broken hardware components like cables or headphones, were promptly addressed and resolved by the highly responsive Embodied Labs support team. The Embodied Labs team overall has been extremely open and responsive to feedback and are continuing to improve the platform to meet the needs of their customers.

A notable challenge senior living communities may face while implementing Embodied Labs into the community training program is initial buy-in of staff. The idea of a technology-enabled training platform using VR equipment may be unfamiliar and therefore perceived as intimidating and complicated. However, Embodied Labs has created a streamlined and user-friendly experience, paired with an excellent support team to guide trainers and trainees. Ultimately, successful deployment of any new technology program like Embodied Labs relies on the support of community leaders championing innovation.

Additionally, VR-Learning platforms such as Embodied Labs offers companies an opportunity to strengthen the effectiveness of corporate training programs. A 2020 [study](#) by PWC found immersive virtual reality training can be a valuable asset in a blended learning curriculum and brings many potential benefits including the following:

- Faster to train than in the classroom or e-learning
- Higher confidence levels with learned material and improved ability to apply learnings
- More emotional connection to the content than classroom learners
- VR learners are more focused and significantly less distracted
- Higher information retention and recall than non-VR instruction

Conclusion

Based on the qualitative and quantitative data, as well as anecdotal commentary from staff members across the Front Porch communities that participated in FPCIW's Embodied Labs pilot, we found that the Embodied Labs platform is an impactful training tool for staff as well as informal caregivers. It generated excitement for training, facilitated meaningful and enlightening reflections, and opened pathways towards greater empathy and understanding for our residents' daily experiences and aging challenges. The power of immersive virtual reality combined with Embodied Labs' storytelling and thoughtful approach to adoption allows for a unique training experience that cultivates a more empathetic care culture among all caregivers which ultimately better supports meaningful aging experiences for older adults. Overall, Embodied Labs has demonstrated a strong positive impact on staff engagement and professional development and is a very worthwhile tool for senior care organizations to promote the highest quality care and service to older adults.

Future Directions

FPCIW will continue to explore ways to deploy Embodied Labs effectively and promote greater understanding and empathy for older adults among not only senior living staff but also family members and the greater community. We will also work across Front Porch teams to explore Embodied Labs' application in recruitment of both new staff members and prospective residents as well as offer resident and family member education. Three Front Porch communities have since invested in Embodied Labs kits of their own, and FPCIW will continue to offer implementation support.

Further Reading

To learn more about Front Porch's other work with virtual reality solutions for senior living and read our commentary on VR as a viable technology platform to address aging challenges, we recommend reading the [Front Porch Center for Innovation and Wellbeing CDW VR in Aging](#) white paper published in partnership with [CDW Healthcare](#).

APPENDIX A: Sample Of Staff Responses During Embodied Labs “Reflect” Discussion

Embodied Labs Training 11/20 – 11/21/19

Training: Beatriz Lab

- **How did you feel after this training? What did you learn?**
 - You need to be patient and understand them. It is not easy for them to process everything the way that we do. You need to slow down and be more patient.
 - Beatriz...poor lady. When she was at the market, she couldn't even remember the difference between flower and flour. Even when the grocery boy told her, she still couldn't remember where to go. He could have at least guided her and walked her to where it is. The residents here...when they ask, “Can you show me where the bathroom is,” you can't just tell them, “It's over there.”
 - Half of their brain is working and half isn't. They can't remember. You need to help remember for them.
 - The thing with the shower, you need to help them more. For instance, here, we need to level the temperature of the water for them. There are a lot of things that we “remember” for them. There are things they might not be able to do by themselves anymore. We dress them, bathe them, feed them...we do a lot of feeding because residents might not be able to remember how to use a spoon or fork anymore.
 - “I don't know...how real is that? I'm wondering if you are like, coming in and out of lucid moments? This better not happen to me. That's scary. I'll have to come back to do more.

- **How was it learning this way?**
 - It is interesting because you see it, but you don't feel it. We assume, but we don't really know what is going on at the same time.
 - It makes you realize more what is happening, and how they feel more.

- **How did it feel when the family was yelling at you?**
 - At the beginning, the family didn't realize that there is something wrong with my head. At the end, they recognize. Day by day, they need to know more about the condition.
 - Before the family came over, she totally forgot and couldn't remember what she needed to do. I don't think the yelling was right for her because it would confuse her more, and make her feel bad for something that she can't remember.

- **How could the family have reacted or what could they have done better?**
 - I don't think it is a good idea to say, “Oh, it is because you have Alzheimer's.” We need to keep them focused on something else. Even if you tell someone with Alzheimer's,

“You have Alzheimer’s,” they might not understand that. Family should try to keep calm. They could also maybe make an appointment with the doctor. The main resource is to ask for help; someone always knows more than us about things like this.

- **What about changes in language?**
 - It happens all the time. Even if you say something, they might answer back something totally unrelated.
 - They yell or cry...they are trying to get your attention.
 - Most of the residents don’t speak anymore. There might be people who come speak to them, and I let them know, “Mr. or Mrs. ____ doesn’t talk anymore... Sorry they can’t understand what you are saying,” so I will try to speak for them.

- **Is it appropriate to ask “Do you remember me?” to someone with dementia or Alzheimer’s disease?**
 - I think not. It is better just to say, “Hi, how are you?” When the residents ask to go to the bathroom, you wouldn’t say “Remember, you went already.” Just say, “Okay, let’s go.”
 - I am very bad with keeping faces in my head, so think about people with Alzheimer’s.
 - You don’t do that. They aren’t going to be able to remember. You don’t just say, “Do you remember?” Just start off with “Hi, I am your daughter or hi, I am your granddaughter.” Just remind them.

- **What are the best ways to still have meaningful relationships for people with late state ALZ?**
 - Try to keep busy and safe...interact with them as if it is normal. You don’t need to tell them every 5 minutes, “You don’t remember, you forgot.”
 - When they are in the last stage, it is a challenge because it is difficult for them to maintain their attention or remember. Sometimes when you are talking to them, they might just look off somewhere else and not listen or lose their attention.
 - When you take care of someone in their own home, it is different than taking care of someone in these kind of places. Every minute here, they are with us. I think it might be hard for them because they don’t understand why they aren’t doing anything here.
 - I think it would be helpful for families to see this so that they can better understand what is going on.
 - Even though a person might not speak it, they could be thinking it. I’ve seen family members visit here and say “Hi mom...” and the resident might look at their family member and not recognize them or say anything. I see the reaction in their family’s faces, and I feel bad because they go home sad.
 - I’ve seen a daughter here talk to her mom like nothing happened, and just having a normal conversation. It is nice to see.
 - When we have activities, the residents like playing the games we put on iN2L. I think it is good for them to have all kinds of activities and to still participate. Some of them like music or games. It is still good for them to participate.

- We sit down with the ones that are still “there” and can remember...and ask them about when they got married, their kids, etc. A lot of them like that. They like the attention when you sit down with them and have a nice conversation. They also will ask you back about your life.
- They also take the residents on outings, or have entertainers come. We have a choir come, and they love it. I like it that they have things going on for them. Imagine if there was nothing going on. They would be really sad and depressed. It would not be good for them if there wasn't anything going on. I think their brain would shut down even more.

Training: Alfred Lab (Day 2)

- **How do you feel your family reacted when you knocked the glass over? How could the family have reacted better?**
 - The family was really understanding and didn't make a big deal about it.
 - They could have told me where the glass was, or placed the glass further away.
- **How did it feel when the nurse was talking to your son and not you?**
 - When the nurse was talking, it made me feel like I didn't exist. She could have gotten closer and talked to me, instead of yelling at me.
 - The nurse could have spoken to me closer and at eye level because a lot of people with hearing impairments read lips.
- **How did it feel when your son Joey spoke for you at the doctor's office?**
 - I didn't like it. He should have let his dad speak for himself.
- **How did it feel taking the test?**
 - I couldn't really understand the doctor's instructions. I could only get the beginning. I couldn't really hear the rest or see the test. He also explained it too fast.
- **What would you tell others about working with individuals with macular degeneration?**
 - It is important to be more understanding and to be more patient.
- **Could you have learned the same way through watching a video?**
 - No, this really makes you understand better, and what it is like from their shoes.