



Chapter 9

Cultural Probes as a Carefully Curated Research Design Approach to Elicit Older Adult Lived Experience

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ABSTRACT

There is growing recognition that methods that elicit the perspectives of vulnerable and marginalized people are essential in understanding the needs and aspirations of this group and therefore necessary when developing impactful policies, services, and environments that support them. Creative elicitation methods, which privilege participant voice, can be useful for conducting research with such populations. This chapter explores how research informed by care ethics, appreciative inquiry, and communicative methodology can support participant self-determination through the achievement of autonomy, competence, and relatedness. By advancing deliberate, iterative, and care-full research design that emphasizes belonging, dignity, and justice, cultural probes provide practical potential and ethical utility as a research method. The effectiveness of this care-full cultural probe approach is demonstrated and examined through a case study of a co-design research project concerned with designing for health and well-being at home with and for older adults.

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INTRODUCTION

Eliciting the perspectives of vulnerable and marginalized people is essential when seeking to understand their needs and aspirations and to develop effective solutions—be they policies, services, or environments—that meet the requirements of the demographic in question and potentially other user groups as an inclusive design strategy (DOGA, 2018). Culturally safe research methodologies are a fundamental right of research participants and essential for conducting research that is beneficial for participants. Unfortunately, many participants are exposed to research methodologies that can negate their voices, invalidate their lived experience, and exacerbate their vulnerability (Wilson & Neville, 2009; Rieger & Strickfaden, 2016). Moving beyond the ethical principles of research beneficence (considering participant welfare) and non-maleficence (doing no harm), this chapter advocates the adoption of methods that actively support participant well-being (Novek & Wilkinson, 2019) and privilege participant voice (Rieger 2020a; Rieger, 2020b).

Home-based self-quarantine and working arrangements have increased to meet physical distancing requirements relating to COVID-19 health precautions and thus prompted a reconceptualization of how homes can support flourishing health. Developing an understanding of designing for flourishing health at home is of particular concern for researchers interested in supporting the rapidly growing older adult population who desire to age-in-place (GCMA, 2020). Countries around the world are experiencing a demographic shift toward older adults becoming a significantly larger subset of the population. Population ageing (UN et al., 2020) has resulted from a combination of individuals living longer and decreased fertility rates. As more people live to the age of 100 (Gratton & Scott, 2016), these extra years can be accompanied by personal and societal challenges relating to the quality of health and environmental support of that health. According to the World Health Organisation (2018), if these additional years of life are lived in good health and in a supportive environment that allows occupants to do the activities they value, the quality of life experienced will be of nominal difference to that of a younger person. Considering the home's newly established prominence in our daily lives as a result of COVID-19 and preferences for a growing number of older adults to age-in-place, it is vital designers develop a thoughtful understanding of why it is important to design for home health, what constitutes a health-supportive environment, and what can be done from a design perspective to enable people to spend these extra years in good health and a supportive environment.

A growing body of research advocates involving older adults in design decisions that relate to their lives and homes. Capturing lived experience data is a way to better understand what has been and continues to be desired and needed in the home environment, as it acknowledges that experience results from interactions between individuals and settings and provides the means to “delve into the co-constitutive creativity emerging from individual participation in the studied events” (Olafsdottir et al., 2017, p. 359). Recording lived experience involves capturing life narratives of the past as well as situated experiences relating to the present (Frie, 2011). This approach has the potential to portray the personal preference of the participant and, if conducted with and for older adults, can inform design knowledge when articulating preferences of other user groups (Light et al., 2016).

As articulating emotions and experiences about a place may be particularly challenging for members of vulnerable populations, the use of creative visual research methodologies, such as drawing, can be a way of supporting full participation (Eggleton et al., 2017). This chapter explores the use of cultural probes as a means of eliciting lived experience of research participants, particularly vulnerable populations. It examines how cultural probes can be integrated with more traditional methods of data collection, such

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as semi-structured interviews, to support deliberate, iterative, and care-full research design that emphasizes belonging, dignity, and justice (Davis, 2021). Research design, informed by care ethics (Tronto, 1993, 2013), appreciative inquiry (Cooperrider, 1990), and communicative methodology (Gómez et al. 2019) to elicit participants' lived experience, can support self-determination through the achievement of autonomy, competence, and relatedness (Ryan & Deci, 2017). The practical potential and ethical utility of adopting such an approach are demonstrated through a case study of research concerned with co-designing for health and well-being at home, with and for older adults.

USING CULTURAL PROBES TO ELICIT LIVED EXPERIENCE

A cultural probe approach, sometimes referred to as a diary study (Moran, 2018), is a method for gathering information about people and their activities through a process of self-reporting. Cultural probes originated as a means of provoking inspirational responses and pursuing experimental design in a responsive manner (Gaver et al., 1999) and have advanced as people-oriented tools (Graham & Rouncefield, 2018). Cultural probes are commonly used as a means toward garnering first-hand experience from participants, sometimes “in situ” of the event or circumstances under consideration (Crabtree et al., 2003), and have been found to be particularly effective for remotely engaging with (Hemmings et al., 2002) and eliciting the views of older adults (Maaß & Buchmüller, 2018).

Cultural probes (Sanders & Stappers, 2014) operate by providing participants with a deliberately designed and curated kit of materials through which they record and describe specific events, feelings, or interactions over a specified period and within a defined set of parameters. Most cultural probe packages include a diary or journal for self-reflective notetaking, worksheets for drawing activities, and cameras for taking pictures. Typically, once the package has been completed and returned, a follow-up interview is conducted to further discuss collected materials and to de-brief participants. Probe package contents are intended to facilitate meaningful engagement with participants who may benefit from “things to think with” (Resnick, 1996) and who are considered to be co-designing designer-researchers (Höök & Löwgren, 2012). The completion of a cultural probe package can require a significant investment of time and emotional commitment by respondents. It is therefore important that such processes are curated with care.

Embracing Care Ethics in the Design and Use of Cultural Probes

When research is framed around care, it weaves throughout the design, epistemologically and ontologically. A care ontology is relational, valuing reciprocity (Biller-Andorno, 2012; Ward, 2015) and response-ability (Martin, Myers, & Viseu, 2015), and foregrounding it in connection, vulnerability, and the political contestation of needs (Bozalek et al., 2015). Epistemologically, care ethics emphasizes compassion, negotiation, collaboration, and partial perspectives (Bozalek et al., 2020). Using care ethics to inform the design of qualitative data collection processes reveals the importance of power relations between researchers and participants, encouraging collaborative work and need cognizance (Bozalek et al., 2014). It also rejects an extractive stance of research based on self-interested gain and instead recasts the research relationship as one of giving. Care-inspired research has the potential to positively impact the development of trust between researcher and participant. One of the most common means of

introducing care into participatory research methodologies is through the adoption of an ethics of care (Brannelly, 2018).

In adopting a relational ethics of care, Tronto (1993) initially identified four phases of care—caring about, caring for, care giving, and care receiving—before later introducing a fifth phase—caring with—which encompasses plurality, communication, trust, and respect (Tronto, 2013).

Caring about involves an explicit acknowledgement of what we are attentive to and provides articulation of our motivations for caring (Moriggi et al., 2020). It requires noticing unmet and unspoken needs, suspending self-interest and judgement, and recognizing the perspective, interests, and needs of others in deciding what to care about (Tronto, 1998). In a research context, this involves adopting methods that are sufficiently flexible to demonstrate care for other humans and for non-human things that matter to participants such as their pets, plants, and homes. Cultural probes can achieve this by providing prompts that allow participants to identify what matters most to them.

Caring for involves assuming personal responsibility for caring for others (Tronto, 1998) through practices of relationality (Moriggi et al. 2020). In research, this requires designing activities that respond to the needs of participants and consider what might be useful, pleasant, and meaningful to them. The inclusion of non-essential, but highly desirable, materials in cultural probes such as stationery or a tote bag can ensure that participants feel cared for.

Beyond the moral dimensions of good care, *care giving* as the actual task of care requires a practiced knowledge of how to care (Tronto, 1998) combined with the competence to do care well (Bozalek et al., 2015). In a research context, this requires detailed planning and negotiation with research participants of how practices of care are implemented to ensure that care needs are met. Care giving could involve aspects that make it easier for participants to engage in the research (e.g., providing prepaid postage envelopes) and to share their perspectives (e.g., providing communication options for participation based on participant desires).

Care receiving encompasses responsiveness to the care given and the implementation of feedback measures to capture care receiver comments on quality and effectiveness (Campbell, 2013). It also contains a moral imperative for the care giver, in this context the researcher, to respond to this feedback, make required changes, and close the feedback loop by advising participants of applicable alterations (Tronto, 1998). This needs to be an ongoing process involving both formal (pre-determined) and informal (spontaneous) feedback processes, in addition to continuous consent protocols (Pfeffer et al. 2018).

Caring with is an iterative process that can be understood as a kind of solidarity that involves taking collective responsibility for care. Together, these are the qualities necessary for people to come together and to recognize the nature of caring needs in society (Tronto, 2013). In a research context, this phase embraces the principles of reciprocity and mutual learning expressed throughout the process of caring. This can be seen in the willingness of individuals from vulnerable or marginalized populations to participate in research because it has the potential to yield positive benefits for others experiencing similar vulnerabilities (Alexander, 2010). It can also be seen in the desire of researchers to exceed ethical expectations and give back via an intentional ethics of reciprocation (Swartz, 2011).

Care is not only something we do for others but also a right we are entitled to receive from others and give to ourselves (Sykes & Gachago, 2018). Recently, a sixth phase, *self care*, has been proposed as essential for the maintenance of the other care phases (Grant-Smith & Payne, 2021). Although *self care* is understood to be encompassed within the *caring with* phase, separating it as a specific element of care foregrounds its importance in maintaining the well-being of both researcher and research participants. By encouraging awareness of the emotional demands of working with vulnerable research participants

and by recognising researcher vulnerability, *self care* is more likely to be recognized and supported in research design. Safeguards to protect researcher well-being can take the form of research debriefs with other researchers or supervisors and in personal reflective practice (Thummapol et al., 2019).

Adopting a Communicative and Appreciative Approach to Care-full Research Design

Communicative Methodology advocates adopting an inclusive and egalitarian approach to research which places research participants and researchers on the same epistemological level, effectively seeking to erase interpretative hierarchies (Gómez et al. 2019). As a research approach, Appreciative Inquiry is compatible with this stance as it positions participants as co-creators of knowledge, challenges the hierarchical relationships between ‘creators’ of knowledge and ‘end users’ of knowledge, and seeks to engage participants in self-determined or intrinsically motivated (Ryan & Deci, 2000) change (Yoder, 2004). By privileging the voices of participants experiencing the phenomena at the heart of the research process, both communicative methodology and appreciative inquiry also seek to broaden the scope of whose perspective matters and who is empowered to act (Bushe & Kassam, 2005; Gómez et al. 2019). This is particularly important when co-designing with vulnerable or marginalized participants.

An appreciative approach to research design rejects a problem or deficit-focused orientation (Boje, 2010) and instead embraces an opportunity-centric orientation (Boyd & Bright, 2007) by highlighting the best of what already is (Carter, 2006). It operates on a heliotropic understanding (Cooperrider, 1990), which assumes that individuals are drawn toward hope and “the most positive images they hold of themselves” (Bushe, 2001, p.3). This does not mean that there is no scope for acknowledging trauma or areas requiring improvement but rather that the way an issue and its future is discussed and imagined is connected to how it can be(come) (Bushe & Kassam, 2005; Carter, 2006) or be re-made (Cooperrider et al., 1995). Indeed, adopting an appreciative stance can promote constructive critique due to its future orientation (Osborne, Grant-Smith & Bosman, 2017). It has also been suggested that adopting an appreciative stance may “take better care” (Liebling et al., 2001, p. 164) of participants, as it can foster rapport (Bushe, 2007).

COMPILATION THROUGH PRACTICAL APPLICATION

Because many people have deep connections with them (Rybczynski, 1987), homes are often considered to be “a mirror of self” (Cooper Marcus, 2007). One group that spends the largest percentage of time both indoors and at home is the older adult demographic (delosteam, 2018; US EPA, 1997; WHO, 2015, 2018). Their high percentage of time spent at home and purported deeper connections to space (Donnelly et al., 2020) and belongings in the form of “habituated objects” (Brereton, 2013) provide a compelling argument to engage with this demographic and to consider their lived experience when considering home design.

The built environment of the home can be designed spatially and enhanced digitally to prompt optimal health and well-being at home. By designing carefully, with and for the chosen demographic, it is possible to create environments where people can be their best selves and experience flourishing health and well-being referred to as eudaemonia. Eudaemonic well-being is supported by design and empowering design processes, which satisfy the three core aspects of self-determination: autonomy, competence, and

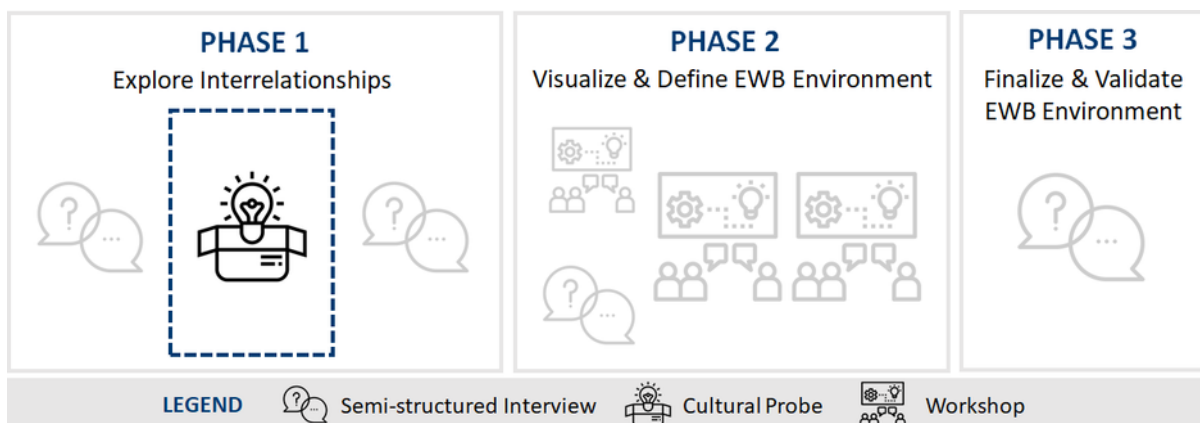
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relatedness (Ryan & Deci, 2017; Waterman, 2013). Proponents of self-determination theory argue that such an approach nurtures human potential, well-being, and growth (Ryan & Deci, 2000).

Technology, more specifically smart home technology, may offer the potential to support ageing-in-place options that promote physical, mental, and social health in the home. However, the older adult demographic has not been well designed for or meaningfully engaged in design decisions, especially when it comes to solutions that involve technology (Newell, 2011; Norman, 2019). A possible reason for this is the belief that such technology can be difficult for older adults to conceptualize, especially if they are not familiar with its capabilities. To ensure that technologies are fit for purpose and enhance occupant well-being, many advocate approaching home design decisions for this user group via co-design (Chamberlain et al., 2017; Wang et al., 2019), which employs creative methods (Bjering et al., 2014; Donnelly et al., 2020; Donoghue et al., 2017) to support the envisioning of tech-related futures and leverage lived experience (Light, 2011; Light et al., 2015).

The value of employing co-design to design technology for older adults has been established (Ambe et al., 2019; Bjering et al., 2014; Wang et al., 2019). Co-design requires the employment of focused, rich forms of design engagement that truly involve participants (Candy et al., 2006; Hadley & Rieger, 2021; Ireland-Horvath & Zelenko, 2018; Rieger, Herssens & Strickfaden, 2020; Tuomala & Baxter, 2019; Zelenko, 2018). Cultural probes can be a useful tool for research through co-design (Busciantella Ricci & Scataglini, 2019) if used in the early stages of research and complemented by interviews (Tomitsch, 2018). The remainder of the chapter focuses on a PhD research project based in Australia. The research project aimed to create a eudaemonic well-being framework based on the views of older adults. This research was designed using a three-phased approach to data collection, with analysis occurring within each phase (Figure 1). Data was collected using a combination of cultural probes (the focus of this chapter), semi-structured interviews, and facilitated workshops. The research design championed the use of tactile, creative methods to prompt effective engagement (Baker et al., 2019; Light et al., 2016; Newell, 2011) and encourage relationship-building, to empower older adults to engage with the research for rich data and successful design (Ambe et al., 2019; Candy et al., 2006; Ireland-Horvath & Zelenko, 2018) and to inspire participants (Newell, 2006). An independent project advisor of a similar age to the participants was also consulted in the design of the project and to pilot or provide commentary on potential issues associated with individual data collection activities.

Figure 1. Research methods and corresponding phases relating to eudaemonic well-being (EWB) study



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The research process was inspired by the five elements of appreciative inquiry (Oliveira, 2012): definition, discovery, dream, design, and destiny. *Definition* is associated with choosing a positive focus, in this case, a home that delivers eudaemonic well-being. This occurred in the preconception and commencement of the project but was reconfirmed with participants in the initial semi-structured interview. *Discovery* is concerned with appreciating the best of what is and why (Bushe, 2011). The cultural probe package and early interviews of phase 1 provided opportunities for participants to articulate this. The *dream* stage focuses on envisioning what could be if there was more of the best of what currently is, through words, imagery, and/or graphics (Bushe, 2011; Carter, 2006; Coghlan et al., 2003). At an individual level, this was achieved in phase 1, while phase 2 provided the opportunity to do this collectively in a facilitated workshop setting that included designers and older adults to encourage “mutual inspiration” (Newell, 2006). The *design* stage of appreciative inquiry provides the opportunity to co-construct a plan for what should be the development of proposals, or design elements, that enable the achievement of the shared vision/dream (Bushe, 2011). This stage is grounded in the possible because it is founded on what already is and builds from there. This occurred in phase 2 and will be finalized in phase 3. Finally, the *destiny* stage is concerned with a collective commitment to taking action. This realization and preparation for the implementation of the final framework will occur in phase 3 among the researcher and participants.

Cultural Probe Package Contents and Approach

The cultural probe package was designed to provide a portal into each participant’s world to understand their daily routine and identify areas of importance and design potential in their home. Each element of the cultural probe package was approached with appreciation, curated with care, and implemented intentionally. The package consisted of items that were necessary for the research (e.g., worksheets), helpful to have to complete the work (e.g., stationery), or nice-to-have and true to the research theme of eudaemonia (e.g., plant). Following Robertson (2008), the materials were presented professionally but

Figure 2. Cultural probe package introductory welcome letter, contents list, and usage instructions



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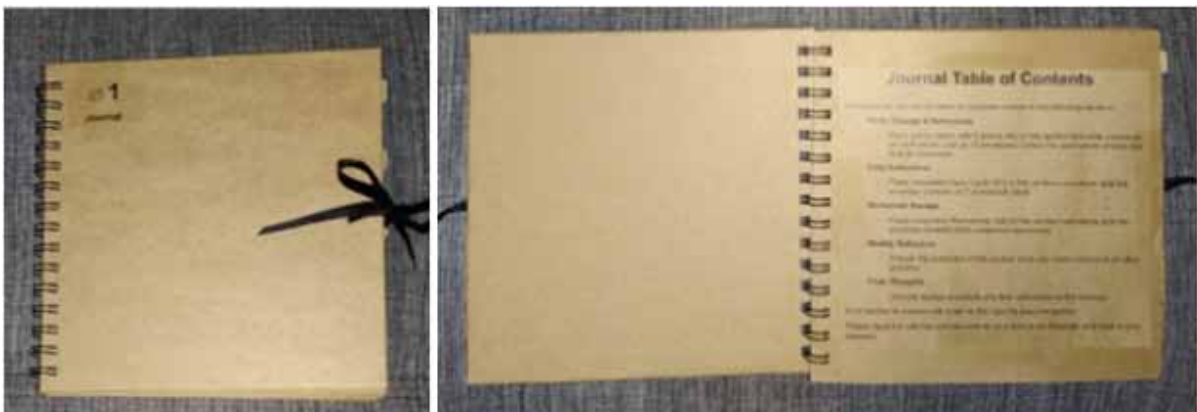
were not too polished as to be off-putting, thus encouraging participants to share their private experiences and home environment. Per best practice (see Gaver et al., 1999; Gaver et al., 2004; Hemmings et al., 2002), the cultural probe package incorporated a balance of expertise and craft. Pattern and color (a neutral craft brown combined with splashes of cheerful yellow) were incorporated minimally but effectively to prompt interaction and interest. Combined, these aesthetic elements exhibited care-full design while keeping things approachable and unthreatening as well as readable and interactive for participants.

Each cultural probe package contained eight items, each with an explicit purpose that was described using clear, appropriately sized font instructions and labelled with numbers and representative icons for easy visual referencing in a welcome letter, contents list, and usage instruction sheet (Figure 2). Consistent with the materials included in the package, these introductory sheets were personalized and presented in a conversational and welcoming tenor, striking a tonal balance that was at once enthusiastic and informational but never condescending. One participant showed their appreciation by excitedly stating that the “*instructions were very clear!*”

Element 1: Journal

The journal was the primary mode of data capture for the package, and all activities were either recorded or stored in this journal before being returned to the researcher. The spiral-bound journal (Figure 3) consisted of five sections: (1) Photo Storage and Reflections; (2) Daily Reflections; (3) Worksheet Storage; (4) Weekly Reflection; and (5) Final Thoughts. Each section was marked with a tab for easy navigation, and each contained guideline information printed on kraft paper and pasted into the journal to look consistent and professional, yet casually relatable. Some activities involved writing directly in the journal, as was the case for the Weekly Reflection section, while other activities were completed outside the journal and then stored in size-appropriate envelopes within the journal when complete. Such envelopes were utilized for photographs, completed daily reflection cards, and completed worksheets.

Figure 3. Cultural probe package journal cover and table of contents



Element 2: Instant Camera

An instant camera was provided to take photos of specific spaces/places/objects that participants liked (nice to have), loved (must have), disliked (want to improve), hated (can't stand), and felt like their best selves. Research using photo elicitation in cultural probe packages typically includes disposable cameras; however, costing and logistical analysis suggested Polaroid-style cameras to be a preferable alternative (Fujifilm Instax Mini 11 cameras were used in this study). The instant cameras and film were comparably priced to what disposable cameras and film development would have cost. The cameras themselves were simple to use and inspired participant nostalgia. Most importantly, they enabled participants to do something fun, take photos they could see right away, and organize photos easily through physical sorting. The picture-taking order also could be dictated by the participant, providing agency on which photo to take when. Participants were asked to take the requested photos throughout the week, to place each photo into the appropriate envelope within the Photo Storage & Reflections section of the Journal, and to write a description of each photo when ready. One participant remarked *“I was surprised by how in-depth the emotion was [when] describing the photos. Choosing was easy but describing them was emotional.”*

While the cameras were well-sized for older adult hands and had few buttons, the simple design was not entirely intuitive. Following consultation with the project advisor to ensure careful and effective use and to minimize intimidation and confusion, the research team decided to include a simplified instruction sheet and to label the camera with stickers to describe use (Figure 4). Participants appreciated this step and many thought that the instruction sheet had come with the purchased camera. As cameras were intended to be reused and shared among participants, they were carefully packaged in bubble wrap

Figure 4. Cultural probe package camera and instructions for use



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and their original box to minimize damage. All cameras worked throughout the process and were fully functioning once received at the end of the phase.

Element 3: Daily Cards

Seven postcards were provided for participants to reflect each day on spaces/places/objects within their homes that they liked, loved, disliked, and hated; describe how they felt about their home; and assess whether their home helped or hindered their health that day (Figure 5). All seven cards posed the same

Figure 5. Cultural probe package daily cards



questions, but the reverse of each had distinct inspirational eudaemonic images to incite excitement and positive association with the exercise. Once the cards were completed, participants were asked to tuck them into the Daily Reflections envelope in the journal.

Element 4: Worksheets

As a method, cultural probes were first designed to enable “uncertainty, play, exploration, and subjective interpretation” (Gaver et al., 1999, p. 53). As such, cultural probe packages are most valuable when designed and utilized in a playful but thought-provoking manner. Element 4 involved two single page worksheets. Worksheet #4a focused on capturing a Day in the Life through a timeline while Worksheet #4b requested that participants draw their home experience. By focusing on assessing home usage via the timeline and experience via the drawing exercise, these activities built on IDEO Method Card protocols (IDEO, 2021). Each worksheet was presented in a way that was instructional but deliberately open. While some participants hesitated with these tasks and preferred to write rather than draw, the worksheets were crafted to act as encouraging prompts, emphasizing in the instructions that participants could depict their thoughts however they wished (i.e., with any combination of writing, drawing, or collage). This again provided the group with agency and choice. As one participant shared, “*At first, I went ‘Oh no... not drawing. I’m not very good at drawing.’ And then, I got into it. I ran out of space!*” The completed worksheets were stored in labelled envelopes in the journal, and all were completed—some with writing,

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some as drawings, and others as collages. The rich content procured as a result of this open method of data capture provided telling content that informed design needs and wants for each participant.

Element 5: Stationery

The research team felt strongly that the package should be functional and appealing. Appreciation for this seemingly small objective was voiced in similar versions of one participant's comment, "*Any time I needed something, it was always in the box...It was very thorough.*" To enhance convenience and inspire creativity, both pens and colored pencils were included in the package. Participants were advised that these stationery items were theirs to keep.

Element 6: Plant

To emphasize the concept of flourishing health and well-being, a small plant was included for each participant as a thank you gift (Figure 6). Spider plants, *Chlorophytum comosum*, were chosen as they are robust plants, likely to survive transportation and thrive regardless of the recipient's horticultural skills.

Figure 6. Cultural probe package plant



Lightweight yet durable and decorative melamine containers complemented the neutral palette of the package contents. The pot was wrapped in brown paper to provide additional protection before packaging to avoid water leakage, and a small label identifying the plant was provided for simple maintenance.

Element 7: Sanitizer

In deference to ongoing hygiene concerns relating to COVID-19, a bottle of hand sanitizer gel was included for each participant. The rationale for doing so was to encourage participants to use the gel upon receipt of the package and to serve as a subconscious reminder of the researchers' diligence in preparing the packages in a clean environment to ensure researcher and participant health and well-being.

Element 8: Tote Bag

The final element was a fabric tote bag, which was included to allow participants to take their activities

Figure 7. Cultural probe package tote bag



to different environments or just different parts of their home to complete and reflect on if they wished (Figure 7). The image of a *Monstera deliciosa* leaf reiterated the concept of flourishing through visual reference to a plant, which while not a native species is common in Australian gardens and backyards. Participants were advised that this tote bag was theirs to keep.

Distribution Process

A key benefit of cultural probes as data collection is that they can be deployed remotely making their use ideal in the uncertain and quickly changing COVID-19 environment. All cultural probe contents were carefully packaged into a single box for distribution (Figure 8). Although the cultural probe planning process began many months beforehand, the distribution of the packages occurred quickly over one month in early 2021. The nine study participants were scattered around Australia and therefore difficult to reach via post, especially given delayed mailing schedules as a result of rolling and unexpected COVID-19 lockdowns. This led to the need for an aggressive distribution schedule to meet the project timeframes and maintain participant connection.

To balance participant availability to receive the packages and complete the activities along with limited package content availability (e.g., sharing cameras with multiple participants to reduce cost and waste), the research team enacted a phased distribution schedule. Each package remained with a participant for one week to promote focused interest and engagement, strengthen the quality of the returned

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content received, and avoid overtaxing participants (Crabtree et al., 2003; Robertson, 2008). A delivery schedule that accommodated participants' preferred dates was coordinated that also allowed for flexibility relating to delivery times and participant start dates. To encourage timely completion, intentional com-

Figure 8. Cultural probe package, prepared for postage and delivery



munication in the form of emails and phone calls were encouraged and utilized between participants and the primary researcher to facilitate connection and support. Further, to ensure that the requested content was returned on time and intact, appropriately sized, cushioned, and paid-for packaging was included in the larger probe package. This resulted in all nine packages being completed as requested – thoroughly, on time, and with no damage.

KEY LEARNINGS AND REFLECTIONS ON THE CULTURAL PROBE APPROACH

The cultural probes engaged participants at home quickly and effectively, building rapport and providing tangible interaction while maintaining health and safety distancing protocols. All participants said they took the exercises seriously, which was evidenced in the quality of their returned work. Many spent considerable time writing thoughtful, well-organized responses (e.g., using rulers to draw straight lines to ensure their write-ups were clear and legible). Some exercised their option to creatively depict ideas by drawing with the provided colored pencils or even providing collage to enhance drawings or decorate their journals. One participant transcribed a poem from their home that they thought the researcher might enjoy reading and that related to the flourishing theme of the research project. Many wrote notes attesting to the experience being “*quite enlightening...good for all people*” while others talked about the results, such as “[*looking*] *at things with an improved eye*”. In short, the data gathered was rich and achieved the desired depth and breadth.

Due to the virtual nature of probe completion, participant emotions were subjectively assessed at three points in the process, using an emotion wheel (Karimova, 2021; Plutchik, 1982). Across the participant cohort, the dominant emotions *before* completing the probe package balanced anticipation and apprehension while emotions *during* ranged from interest to serenity. The most variety was seen in the emotions *after* completing the probe package which spanned interest, serenity, joy, acceptance, and trust. Except for one participant who was in an unhappy living situation and felt annoyance and disgust with their living arrangements, there was a high level of consistency in emotional tenor across the cohort. Interview feedback confirmed that engagement with the cultural probe had enhanced the connection between the occupants and their homes and resulted in a positive association for eight of nine participants. One stated how they “*found the whole process genuinely interesting. It made me think about where I live and how I live.*” Another commented on how it spurred feelings of gratitude: “*It made me notice the tree and really appreciate. Normally, I just notice it in the Spring when it goes white.*” The participant further reflected on the tree in the worksheets, depicting it changing in color and form throughout the day. Even the participant who expressed a negative association with home continued to be curious about the study and wanted to continue, as their annoyance and disgust reflected their negative thoughts on their house, not the research study per se.

A variety of unintended consequences arose as a result of this cultural probe work. Some participants who had noted areas that they disliked due to self-imposed clutter were motivated to clear out paperwork that had accumulated to make a space more useable. Other participants had shared photos they had taken during the study with family members. Observations on areas that would benefit from more biophilic influence in the form of plants resulted in gifted plants from children to “liven up” previously empty corners, prompting one participant to note how the process “*made me think about where I live and how I live.*”

There is a degree of creative pragmatism that comes with using cultural probes. Despite significant planning and strategizing, not all things go to plan. Some participants, particularly those unamenable to drawn responses, may feel that probe activities are overly immature or childish. However, the researchers’ experience was that the majority of respondents felt this approach offered the opportunity to articulate their perspectives as they saw fit. Designing flexibility into the research process, knowing that there might be push-back from participants, takes courage on the part of the researcher but can also be empowering for participants as they control the form and nature of their responses. Another pragmatic consideration is the provision of creative options while emphasizing there is no right or one way to answer. This practice

can result in significant interpretive variety and needs to be accommodated and celebrated, rather than levelled or averaged in the analysis process. Thus, while the results varied by participant, all related to prompting feelings of empowerment, choice, and motivation—a fact that could be attributed to the self-determination objective of the research design and its relational impact on intrinsic motivation (Ryan & Deci, 2000). Gratifyingly, such motivation was believed by some participants to have potential impact beyond the research project, with one participant claiming, “*This will enable me to manage whatever my life requires going forward.*”

Identifying Indicators of Researcher Care

Care-full, intentional engagement was a cornerstone of this work. Through consistent connection via email (and phone when needed); unassuming interaction (e.g., providing Zoom calendar invites and follow-up emails with call-in details in case online calendars were not understood); and a combination of careful listening, suspended judgement, and respect, rapport was encouraged and steadily built between the researcher and each participant. Establishing care as a core project value, both in thought and in action, is likely to have led to mutual respect felt by all parties as well as a higher likelihood of quality participation and trust.

Participants identified researcher care in the provision of materials with appropriately sized font and the flexible accommodation of participant schedules to encourage independence yet ensure activity completion. As the focus of the example project was to gain an understanding of older adult homes, the project was designed to enable participants to complete activities in their homes and consider experiential home conditions while inhabiting the space or conditions in question. Many stated that “*looking at things while at home helped.*” This spurred rich data capture and opened participation up to respondents unable or unwilling to leave their homes as a result of COVID-19 physical distancing restrictions.

In addition to objectively meeting the criteria of the study, the cultural probes subjectively satisfied a variety of tangential needs that further strengthened the research approach. The inclusion of package contents that were needed and nice-to-have was perceived as a considerate gesture. Materials that were loaned for the period of probe completion, such as cameras, were also treated as temporary gifts that appeared to have the effect of creating ingratiation toward the research and researcher and encouraging completion of the set tasks.

Care-full planning and execution made the participants feel appreciated and valued, and even generated excitement for some, with one participant proclaiming how “*it felt like Christmas*” when they received and opened up their package. The aesthetically appealing design balanced professional and craft-like elements that emphasized researcher care and encouraged participant responsibility and creativity. This care and attention were recognised by participants with one stating, “*You could tell you put a lot of thought into it. It was very well-thought-out.*” Participants also appreciated the efforts of the principal researcher to stay in touch, remain open to ideas, and acknowledge when things could be improved in later parts of the project.

Consulting an Independent Project Advisor in Probe Design Decisions

It was of the utmost importance to have a cohort advisor who could represent the older adult user group and provide perspective to the research team when curating the cultural probe packages. This safeguard was put in place to ensure the functionality and appropriateness of package elements, terminology, and

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distribution and likely resulted in improved engagement and enhanced connection with the cohort. While unofficial advisors were sought out for their opinions on an ad hoc basis, one primary advisor provided counsel throughout the study. This advisor shared many of the characteristics of the cohort. That is, they were the same gender as most participants, aged the same as the cohort average, born in Australia with similar education and background, tech familiar, and interested in ageing-in-place—all paralleling the criteria for recruited cohort members. They were thus deemed appropriate to provide advice relating to research design.

In addition to advising on font size and terminology, the advisor provided feedback on a variety of design elements, ranging from package layout and activity complexity to instruction creation and labeling. Based on this feedback, some items were engineered out for simplicity and safety reasons. For ease of use, some of the wording throughout the journal was changed, a full set of instructions was compiled, and the camera and packaging were labelled to ensure appropriate usage and return. These design decisions were acknowledged and appreciated by participants.

Embracing Researcher Vulnerability and Self-Exposure to Develop Trust and Rapport

Researchers become vulnerable when they enter into the social world of research participants (Downey et al., 2007). Provided appropriate safeguards and self care are put in place, this self-exposure can be influential in encouraging a rich experience and rapport between researcher and participant that sup-

Figure 9. Exemplar photo, depicting and describing a space the primary researcher likes



ports successful participation, even in condensed project timelines. The principal researcher exhibited vulnerability when she included a photo of her own home along with handwritten comments on the space pictured as an exemplar in each journal to encourage participation and model open participation (Figure 9).

The principal researcher also carefully studied the completed probe packages and recalled key elements in follow-up interviews to solidify the connection with participants. Through such care and personalised attention, rapport was enhanced and lived experience elicited, building on a slow but steady build-up of trust. Methodological rigor was achieved by applying iterative engagement techniques such as convergent interviewing, which involves a rich generation of data that is culled down using repetition and careful thematic analysis to highlight key takeaways (Dick, 2017). This interview approach applied before and after the cultural probes in introductory and follow-up interviews further strengthened the connection between researcher and participant.

FUTURE RESEARCH DIRECTIONS

In *Matters of Care*, María Puig de la Bellacasa (2017) challenges conventional notions of care and explores its significance as an ethical and political obligation in a more than human world expanding agency beyond the human to question our understanding of care and to push toward a broader definition of care. The research described in this chapter does this by recognising the agency of one's home—more specifically, our home's ability to care for us while we also care for it.

By embracing a post-humanist perspective that acknowledges the agency of non-human things and the ways that they can press upon us, this research extends Tronto's understandings of care by connecting it with appreciative inquiry and operationalising it through a care-fully designed research process. Similar to Light and Akama's (2014) care entanglements and to Light and Seravalli's (2019) creating conditions for care to flourish, the research approach presented an opportunity to explore the tensions of navigating care and the role care plays in supporting self-determination and one's relationship to their home. Like self-determination theory, “[c]are is committed to flourishing and growth of individuals, yet acknowledges our interconnectedness and interdependence” (Hamington, 2004, p.3). Adopting an appreciative inquiry and communicative methodology informed approach to cultural probe activities can indeed empower participants and the non-human spaces/places/objects that relate to them.

Zubair and Victor (2015) suggest that while there has been increasing research interest in ageing ethnic minority populations, there has been comparatively limited attention paid to exploring what might be the most appropriate research methodologies. An area for future research involves testing the utility of cultural probes as a socially, culturally, and ethically sensitive data collection approach for working with older adults from ethnically diverse minority groups.

CONCLUSION

Inclusive, care-full design has been advanced as a means of designing effectively for a variety of user groups, especially when that design is conducted with vulnerable groups to highlight their perspectives (Coleman, 1994; Mikus et al., 2020; Mikus & Rieger, 2021). Take, for example, the design of public transit infrastructure and systems. If these are designed to accommodate the mobility needs of children

(Grant-Smith, Johnson & Edwards, 2017) or parents travelling with children (Grant-Smith, Osborne, & Johnson, 2017), they are also likely to meet the needs of other users with mobility needs, such as older travelers. Similarly, in addition to meeting the needs of participants, in this case older adults, other demographics may also benefit from the learnings derived from captured older adult lived experience (DOGA, 2018; Mikus, 2021). The adoption of research methods that provide the opportunity for vulnerable individuals and groups to share lived experiences is essential for good design that achieves these aims. This chapter has presented cultural probes as a means of engaging research participants meaningfully and of privileging participant voice in an ethical, care-full, and impactful way. It is therefore proposed as a valuable virtual engagement method to employ with older adults and a variety of demographics, especially when considering how to ascertain lived experience for practical future design application.

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KEY TERMS AND DEFINITIONS

Autonomy: One of Self-Determination Theory’s three tenets; refers to the need to have a feeling of control in life, feel ownership of behavior, and maintain volition in actions.

Care Ethics: A feminist philosophical perspective which uses a relational and context-bound approach toward morality and decision making and which emphasizes the importance of response to the individual. Also referred to as ethics of care.

Competence: One of Self-Determination Theory’s three tenets; refers to the need to be able to do enjoyable activities, feel effective in taking action (ideally to the point of mastery), and produce good outcomes and desired results.

Cultural Probes: A design method to elicit thoughts and feedback from user groups that commonly includes a collection of design activities for the user to complete in their own time, often in the comfort and privacy of their home (see Gaver et al. 1999). Also known as a diary study (Moran, 2018).

Eudaemonia: Originating from neo-Aristotelian philosophy, refers to flourishing health, happiness, and “living life in a full and deeply satisfying way” (Deci & Ryan, 2008, p. 1). Alternate spelling is Eudaimonia or Eudemonia.

Eudaemonic Well-Being (EWB): A perspective on well-being that originated with Ryan and Deci’s (2001) take on eudaemonia and evolved into a combined subjective and objective interpretation considered in both narrow self-realization and broad flourishing terms. This paper applies the broader definition that represents a eudaemonia-driven perspective on flourishing physical, mental, and social health (see Waterman, 2013).

Relatedness: One of Self-Determination Theory’s three tenets; refers to the need to enjoy good social relations, promote effective relationships, and establish a sense of belonging.

Self-Determination Theory: A theory of empowerment and concepts of intrinsic motivation, centering around three cornerstones: autonomy, competence, and relatedness (see Ryan & Deci, 2000).