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Key considerations for implementing staff-facilitated video-calling activities for social connectedness in residential aged care

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Abstract

Background: Video calling has been increasingly adopted in residential aged care facilities (RACFs) to support social connectedness among residents, particularly during disease outbreaks when visitor restrictions are in place (e.g., COVID-19). While prior studies have highlighted its benefits, various challenges often hinder effective implementation. However, limited research has explored strategies to address these challenges and optimise their benefits.
Research aim: This study investigates: (1) the challenges faced when implementing video-calling activities for social connectedness in RACFs, and (2) how these activities can be implemented effectively.
Methods: Semi-structured interviews were conducted with ten Australian RACF staff experienced in supporting residents' video calls. Data were thematically analysed to identify socio-technical factors influencing adoption and use.
Results: Several socio-technical challenges within the settings were reported when video-calling programs were introduced. These included concerns arising from the complex conditions of residents, limited staff and devices, and low-tech infrastructure. Furthermore, the findings revealed significant staff involvement in device setup, conversational mediation, and both technical and psychosocial support. A "facilitation triad" emerged, comprising residents, staff, and technology, underpinned by residents' needs, staff capabilities, and resident engagement. Organisational and external factors further shaped the outcomes.
Conclusion: Effective video-calling in RACFs depends on optimising the facilitation triad and leveraging supportive organisational and external conditions, ensuring technology enhances social connectedness.

Keywords: aged care, technology facilitation, social connectedness, socio-technical challenges, long-term care

Introduction

The ageing population is increasing worldwide (United Nations, 2020). In Australia, older people make up a considerable proportion of the nationwide population. Among aged care services available in Australia, residential aged care offers 24-hour care and accommodation for older adults who can no longer live independently in their own homes due to mobility constraints and/or cognitive decline. For people living in residential aged care facilities (RACFs), there is a risk of feeling isolated and disconnected from family members and friends.

Meaningful engagement and social connection are essential for the well-being of aged care residents. A variety of technological innovations have been developed to provide social and emotional support for individuals in long-term care, such as social robots (Moyle et al., 2014; Yuan et al., 2022) and virtual reality (Baker et al., 2020; Hodge et al., 2018; Thach et al., 2020). While technology-mediated enrichment has shown positive effects on residents' social and emotional enrichment, its long-term implementation can be challenging (Neal et al., 2020). Difficulties may include residents' complex health conditions, issues of device appropriateness for residents, resource constraints, limited staff and organizational support, and family resistance (Waycott, Zhao, et al., 2022). These challenges highlight the critical role of caregivers in facilitating such activities and the strategies they use to support resident engagement (Waycott, Kelly, et al., 2022; Waycott, Zhao, et al., 2022).

Prior to the COVID-19 pandemic, video-calling – a relatively simple technology-mediated engagement – had been adopted in some RACFs to help aged care residents stay socially connected with loved ones living overseas (Waycott, Zhao, et al., 2022). Since the pandemic, visitor restrictions were established in Australian RACFs (Reuters, 2021), and COVID-19 remains a threat to the elderly (COTA Australia, 2024), as do other causes of isolation in aged care, such as pneumonia and

gastroenteritis outbreaks. When visitor restrictions are in place, residents risk becoming confused and isolated because their family members may not visit. Additionally, the family might be anxious about the health and well-being of their loved ones. During these periods, video-calling provides opportunities for residents to connect with their family members. This has also helped family members to check on the condition of their loved ones and to provide emotional support (Kelly, Xing, Baker, & Waycott, 2023; Zhao, Kelly, & Waycott, 2023).

Although video-calling can help with social connectedness among aged care residents, the adoption and use of this technology-based activity in RACFs has encountered challenges (Thach, Lederman, & Waycott, 2021). With staff shortages and resource constraints as pain points in the aged care industry, it is important that technology can be implemented in an efficient way that will not overburden the facility's resources but also place residents at the center of activities, ensuring the desired benefits are realized.

In the literature, video-calling has been used in RACFs with different devices, ranging from laptops (H. H. Tsai & Tsai, 2010) or tablets (Moyle, Jones, Murfield, & Liu, 2020) to remotely controlled telepresence robots (Moyle et al., 2014; Moyle, Jones, Dwan, Ownsworth, & Sung, 2019; Zamir, Allman, Hennessy, Taylor, & Jones, 2021; Zamir, Hennessy, Taylor, & Jones, 2018). Although different devices offering video-calling were studied, research revealed that the key benefits of video-calling hinged on enhancing older adults' social connections. H.-H. Tsai, Tsai, Wang, Chang, and Chu (2010) reported that compared to a control group receiving regular care only, significantly higher levels of social connectedness and reduced depressive and loneliness scores were reported in the intervention group with the use of video-calling to interact with their family.

Nonetheless, several ideas emerged that indicated reluctance to use the technology among aged care residents. The most common theme is that they felt unfamiliar with the technology and/or were confused about how to use it (Moyle et al., 2020; H. H. Tsai & Tsai, 2010; Zamir et al., 2021). Furthermore, prior research indicated that engagement of the residents in video-calling activities could be influenced by the quality of visual and audio features of the technology. For instance, Zamir et al. (2018) highlighted that the poor sound quality of the technology created difficulty for residents in participating in a video call and added to the confusion of using the technology. Moreover, older adults' conditions, such as osteoarthritis of the hands, made the devices too heavy to hold independently by older adults. It was also difficult for them to press the screen icons on the iPads with the strength needed for an action, especially among those living in RACFs, as they might be frail or arthritic (Moyle et al., 2020).

Besides concerns about residents' conditions and technological limits, staff-related issues emerged as a significant challenge. For instance, the availability of staff members to assist was found to be limited (Moyle et al., 2014). Zamir et al. (2021) found that RACF staff were worried about learning new things to facilitate technology-based activities as they are busy with their existing tasks. They found that staff who were less confident in using the devices were less willing to commit to the project. On the other hand, as many people living in RACFs have complex conditions, it is challenging for them to make video-calls without adequate staff assistance, even with iPads, a relatively simple technology (Moyle et al., 2020).

A lack of involvement of residents' family also emerged as a challenge brought about by the adoption of video-calling in RACFs. Zamir et al. (2021) pointed out that it is difficult getting family members to commit to video-calling. Several reasons caused this hesitation, for instance, a busy schedule of family members, differences in time zones with family who are living overseas, belief of family members that older people cannot make use of technology, and the relevant technological skills of family members themselves (Zamir et al., 2021).

These prior studies indicate that although video-calling can help with social connectedness among aged care residents, the adoption and use of this technology-based activity in RACFs has encountered significant socio-technical challenges. Meanwhile, there is scarity of research proposing strategies to deal with these challenges and to facilitate video-calling activities to create positive experiences for aged care residents. Therefore, this research aims to address this gap in the literature. In this study, the following research question is examined:

How could video-calling activities be effectively implemented in RACFs?

Due to complex conditions and multi-comorbidities of aged care residents, they are heavily reliant on staff for initiating and maintaining technology-based activities. Care staff play a vital role in facilitating the use of video-calling for social connectedness in RACFs. Thus, to answer the research question above, semi-structured interviews with Australia-based RACF staff members who had

experience supporting video-calling sessions for aged care residents were conducted. This paper highlights that a number of socio-technical challenges were reported when RACFs adopted the program. Importantly, our interviews showed that video-calling technology cannot be operated independently by residents, and aged care staff need to significantly assist residents.

This paper identified a facilitation triad that emerged through the interactions in the video-calling system. This triad is composed of technology, staff, and residents and their respective roles in the video-calling system. To enable the effective implementation of video-calling for social connectedness in RACFs, the paper highlighted critical interactions among those elements: 1) staff understanding the needs of individual residents, 2) staff being able to easily operate the technology, and 3) residents engaging with the technology. The facilitation triad supports the overall goal of enhancing residents' social experiences. Furthermore, this paper identified organizational and external factors facilitating video-calling activities in RACFs. This paper argues that the elements of the facilitation triad and the inter-relationship between these elements and supporting external factors are what are important to the implementation of video-calling for social connectedness in RACFs.

This paper complements the foundational landscape research on technology-mediated enrichment in aged care by Waycott, Zhao et al. (2022) by performing a deep, focused investigation into the implementation of video-calling, a specific yet vital technology crucial for social connectedness and emotional enrichment. While Waycott, Zhao, et al. (2022) provided a broad, macro-level overview of different technologies and identified high-level, systemic barriers to their adoption – such as resource constraints, the need for appropriate device/app selection, client challenges, limited staff/organizational support, and family resistance – this paper explicitly extends this knowledge by moving from the identification of what the barriers are to a detailed articulation of how these challenges are overcome in practice. The primary extension is the conceptualization of the "facilitation triad" model. This novel framework goes beyond simply noting the need for staff support by detailing the specific, skilled socio-technical work required, which involves not just device setup, but the nuanced tasks of conversational mediation and providing psychosocial support to bridge the technical gap for residents.

Methods

Data collection

In this research, semi-structured interviews with aged care staff members who volunteered to participate in the study and had experience facilitating video-calling sessions for residents were conducted online or over the phone. Semi-structured interviews involve asking predetermined questions that are open-ended, meaning that the participants have the freedom to provide detailed and personal responses.

In this study, the interview guide includes questions asking about the participants' demographics and the technologies used for video-calling activities, and a number of predetermined questions examining challenges of video-calling activities in RACFs. Some examples include: (1) What digital devices/software do you use for making video calls? (2) How comfortable are residents when making video calls? What discomfort, if any, do they experience? (3) What challenges might residents experience during video calls? (4) Are there any kinds of skills or abilities that you think are helpful for residents to have for a good video call? (5) What kinds of skills do you think the staff need to develop to improve the facilitation? (6) How would you go about training staff in this home to facilitate video call sessions? Each interview lasted about 30 minutes.

Participants

Participants were recruited through research advertisements via social media and the personal networks of the author. In addition, recruitment flyers and study invitations were distributed via posts to approximately 145 residential aged care homes across Australia. Ten aged care staff members volunteered to participate in the study. The modest response rate reflects the challenges of recruiting participants in aged care contexts, where staff workloads and time limitations can constrain engagement in research activities. Of those ten participants, four participants from four different RACFs were interviewed in English, and six participants from three different RACFs were interviewed in Vietnamese. Vietnamese was the preferred language of these six interviewees, as well as the interviewer (the author), and so Vietnamese was the most comfortable means of communication for conducting insightful interviews.

Participants had worked in varied roles in RACFs, including five leisure and lifestyle coordinators, three registered nurses, one assistant in nursing, and one personal care assistant. As the objective of this study was to obtain insights into individuals' viewpoints, ten experiences were deemed sufficient (Sandelowski, 1995). Details of the participants, including how long they had been working in aged care, how long they had been using video-calling, and what video-calling tools they had been using, are described in *Table 1.*

Table 1. Details of research participants

Pseudonym	Gender	Working role in RACFs	Experience in RACFs (years)	Experience in video-calling program (months)	Video-calling tools	Language used in the interview
Chau	F	Personal Care Assistant	< 2	<3	Facetime, Skype, Viber	Vietnamese
Emma	F	Registered Nurse	3-5	>12	Facetime, Viber	Vietnamese
Khloe	F	Assistant in Nursing	6-10	N/A	Messenger, WhatsApp	English
Linh	F	Leisure and Lifestyle Coordinator	< 2	>12	Facetime, Viber	Vietnamese
Mia	F	Registered Nurse	3-5	>12	WhatsApp, Zoom	English
Muni	F	Leisure and Lifestyle Coordinator	3-5	>12	Facetime, Viber, Zoom	Vietnamese
Sabrina	F	Leisure and Lifestyle Coordinator	> 10	>12	Facetime, Skype, Zoom	English
Susan	F	Leisure and Lifestyle Coordinator	> 10	>12	Facetime, Skype, WhatsApp	English
Tai	M	Registered Nurse	3-5	7-12	Facetime, Viber	Vietnamese
Thuan	M	Leisure and Lifestyle Coordinator	> 10	>12	Facetime, Viber	Vietnamese

Data analysis

All interviews conducted in Vietnamese were translated into English using a forward translation approach. This includes the author, who is bilingual and familiar with both languages and cultural contexts, translated from the original language (Vietnamese) into the language used for reporting (English) (McKenna, 2022). A bilingual research assistant independently reviewed a sample of the translated transcripts to ensure meaning equivalence and linguistic accuracy, with any discrepancies resolved through discussion and consensus.

Regarding the analysis, the author manually conducted the initial coding using an inductive thematic approach, and the codebook, as well as a subset of coded transcripts, were subsequently reviewed by research supervisors to ensure consistency and agreement on key themes. Minor discrepancies were refined through iterative comparison. The data were organized into two categories: (1) Challenges that were reported when video-calling was used in RACFs, and (2) How staff members facilitated video-calling sessions. Within each category, an inductive thematic analysis as recommended by Braun and Clarke (2006) was employed.

Results

Aged residents were eager to engage in video-calling activities and expressed happiness during these interactions

Video-calling activities were described by care staff as a significant source of emotional connection and joy for aged residents, especially during times when in-person family visits were not possible. The staff observed that residents were genuinely eager to participate in these calls, often expressing visible excitement and satisfaction when interacting with their loved ones virtually. As Thuan shared:

"This [video-calling] has truly improved their mental well-being a lot… in the past, when the children couldn't come to visit, the residents would keep looking out and wondering, 'Why hasn't my child come for several days?' But now, with the video-calling on the iPad, they feel much happier, and it has become a source of motivation in their old age."

Such experiences highlight how video-calling technologies helped maintain residents' sense of familial connection and emotional closeness, even in the absence of physical presence.

The sense of happiness was not limited to residents without cognitive impairment. Care staff emphasized that even those living with dementia showed clear signs of joy and recognition when seeing their family members on screen. Linh explained that,

"Many of the elderly have dementia and are not fully aware of things, but when they see their family members on screen, they can still recognize them and feel very happy holding the device and seeing their loved ones. Even though they have dementia, even though they cannot speak or hear, when they see their family members, they still feel joy and a sense of peace."

These accounts illustrate the profound emotional resonance that visual contact through video calls can provide, transcending cognitive barriers and verbal limitations.

While some residents initially found the technology confusing or physically challenging to use, their discomfort quickly gave way to enthusiasm once the connection with family members was established. As Chau described,

"At first it was difficult – they didn't know what it was or how to use it, and it was hard for them to hear or see clearly, so they were a bit uncomfortable. But for the most part, they felt happy because they got to see and meet their family."

This progression – from hesitation to enjoyment – demonstrates the adaptability and willingness of residents to engage in digital communication when it serves a meaningful social purpose. Overall, these reflections suggest that video-calling activities were not only well-received but also emotionally beneficial, reinforcing residents' social bonds and enhancing their overall sense of well-being.

Socio-technical challenges were reported when video-calling was used in RACFs

The participants reported socio-technical challenges they encountered when video-calling was used in RACFs. These included residents' limited understanding of the technology and tiredness with prolonged use, staff members' limited time for support, and a lack of technological infrastructure.

Residents' limited understanding of the technology and tiredness with prolonged use

Aged care staff participants emphasized that some residents were confused about the visual feature of video-calling tools, which allowed them to see a video of the person they are speaking to on the phone, as Susan said:

"For some people, they might get confused. How come I can't touch? Because they don't, they are from a generation in which this technology wasn't yet available. It was on television or the radio. So, it's really hard for them to understand how we can connect with a person's life via a video."

Visual and audio features of the technology were the common issues with regard to residents. They are important as residents are living with varying vision and hearing impairments. Continuous improvement to be suitable for residents is needed. To illustrate these issues, Susan further shared:

"I think, for video calls, because they are hearing impaired, if we can do something with that side of technology... we can use the earphones and all that, but earphones are not really user-friendly for them. Some people have hearing aids. Most of them need hearing aids. So, with the hearing aids, you cannot put those headphones or whatever, which we can plug into the iPads…continuous improvement is always needed. I think with the hearing thing, the volume or the clarity of the sound or whatever, that could be approached to make it user friendly for aged care where they are hearing impaired and they have hearing aids and all that..."

Moreover, an activity staff member, Muni, reported that long video-calling sessions might make the residents become tired. This is the reason sometimes she set a time limit for video calls for the residents:

"Sometimes, I limit that call to around 20 minutes. If the residents talked too long, they might be tired, so 20 minutes is generally enough to meet face-to-face and talk about this and that."

Staff members' limited time for support

Within residential aged care settings, staff typically face the responsibility of caring for and supporting a considerable number of residents. For example, in the care home where Mia worked, there are only three lifestyle staff members catering to more than seventy residents during each working shift. This ratio of staff to residents aligns closely with that reported in other participants' homes. Meanwhile, for care staff (e.g., personal care assistants, registered nurses), this activity was not part of their job. A registered nurse, Emma, shared:

"We just help with setup like picking up phones, then set up the iPad and put them on the table for them to talk, then we have to continue our duty of care… We can't sit with the residents because we have to take care of the other residents… not one-on-one".

Meanwhile, a lifestyle staff member, Sabrina, revealed:

"The carers don't have time to be doing FaceTime and things like that. So, lifestyle pretty much take care of it. That's why on weekends it's [difficult] - we don't have staff on the weekend and that's the only failure on our part…the carers could technically do it, but they just don't have the time to do it."

To address the staff time limit issues, RACFs adopted video-calling technology that participants described as mostly easy to use and staff were generally familiar with it. This is important because it enabled any aged care staff members to support the activities without taking much time. Emma reported that using "apps

like Zoom and that, we have to set it up, it takes time... Especially with training for staff." Because of these challenges, the home had chosen to "only use Viber or Facetime". These apps were convenient for staff to use because staff were already familiar with them: "Viber and Facetime are like everyday use, so people know how to use them more...".

Lack of technological infrastructure

Almost all interviewees noted that the unstable internet connection was a barrier for video-calling. In addition, there were few devices available in the homes to support video calling, which made it difficult to organize calls for multiple residents. Susan said:

"We have had a few challenges, of course. One of them is that internet connection wasn't greatest… because the connection wasn't the greatest, that's where we found it very challenging to find probably like if you had to make a call at 2:00 and if we didn't have the connection, we have to retry again at 3:00 to see and connect. Or send an email to the family that we are sorry, we can't do at the moment… And the other challenge, I can say if at all we had another, one more iPad, it would have been better. So that we could connect one person and then go to the other person."

Similarly, Thuan revealed:

"Activity staff only have two iPads, but the nursing home is large, with four areas, one upstairs and one downstairs. So, it often turns out that just as a call is ending, another call comes in, and we have to run from the C area to upstairs, or vice versa. During that period, it was very difficult."

With the limited devices available to cater to the high demand for video-calling during lockdowns, limiting the time for video calling sessions could be helpful, as Linh said: "Each resident is allowed to call for about 15 minutes, and then we have to move on to another resident due to the high volume of calls." Key challenges and practical strategies mentioned by participants are summarized in *Table 2*.

How staff members facilitated video-calling activities

Aged care staff play an important role in the use of technology in RACFs, including in the use of video-calling. In this activity, staff helped residents set up the devices at the start of the calls, acted as intermediaries for the conversation, and provided psychosocial and technical support to residents. Consideration was given to how privacy could be protected within the call.

Setting up the devices at the start of the calls

All participants were involved in setting up the devices prior to starting video-based communication. Due to frailty, almost all residents were not able to hold the device by themselves. Thus, staff usually set up the device by placing it on the table, adjusting the camera and volume, or the position of residents to help the residents and their family see and hear each other better. Aged care workers with any role in the home could provide this support. They may be administrative staff members (e.g., receptionists), personal care assistants, or registered nurses. However, participants reported that the activity staff were mainly responsible for facilitating this program. Muni said:

"…I place the iPad on the table, and I first adjust it. The residents do not have to hold the iPad; I position it in front of them and then adjust the seat behind them to prepare the residents. Once ready, I say, 'Okay, you guys can talk…' The residents cannot use this and that by themselves."

Similarly, Linh mentioned:

"The residents can't hold the iPad. The only solutions are either bringing them to sit at a table or taking them to a room and placing a table in front of them. Then, we will set up the device, turn up the volume, show their face to their family, and kindly ask the residents not to touch the iPad to avoid accidentally turning it off..."

For residents without dementia, setting up the devices was the only task aged care staff needed to do. They could then leave the residents with the device for them to talk to their loved ones until they finished the calls. Thuan revealed:

"If the resident is healthier, we'll bring the device. We'll adjust it so that we can see both sides and ask if they can hear clearly. If both sides can hear clearly and see their faces while looking at the center of the screen, we'll move to another."

Acting as intermediaries for the conversation

In cases where residents are living with dementia, and it is difficult for them to communicate with their families, aged care staff will mediate the communication. Sometimes, residents could not understand what their family said, so aged care staff acted as an intermediary. Chau said:

"…for people with dementia who have difficulty talking, we'll sit to support, like family wants to know something, we will answer it. Usually, 'Mommy, how are you today? What are you doing today'. If that person can't respond, we have to sit and assist them."

Table 2. Key challenges and practical strategies mentioned by participants

Key challenge	Practical strategies used by participants
Residents' hearing impairment	Provided residents with earphones or headsets to improve sound clarity during calls.
Residents' tiredness during prolonged calls	Set reasonable time limits for video calls to prevent fatigue and maintain engagement.
Staff members' limited time	Chose user-friendly video-calling technologies that staff were already familiar with to minimize setup time and effort.
Unstable internet connection	Rescheduled calls and communicated with residents' families via email to explain the situation when connectivity was poor.
Lack of available devices	Managed access by limiting the duration of video-call sessions to allow device sharing among residents.

Susan shared her experiences in mediating the conversation between residents and their families during the calls, noting she needed to explain to the residents what was happening in the video calls because of their confusion about the technology:

"What happens is there are some residents who are living with dementia and who cannot communicate. Like, even if they're saying something, it's really hard to understand what they mean to say. So, for those residents, the staff would assist them with the families and say 'well, oh look, that's your daughter and she's asking this'. So sometimes we had to mediate because the residents living with dementia, it's really hard for them to understand 'why is that my daughter on the video, on the screen, but I can't touch them?' Or something to that effect… So, in those cases we would mediate, sort of come back and forth… passing on the questions that family is asking and then passing on the answers that the resident was saying."

Susan shared about her job utilizing her experiences in dementia care and acting as an intermediary to help both parties to understand each other during video-calling sessions:

"Sometimes you know, say for example I'm speaking German and there's a person, they won't be able to understand. So, in order to make each other understand, there has to be a mediator... It's just, physically you can connect, but you won't be able to connect, go through or be able to understand each other if the dementia aspects affected."

Not only explaining to the residents about the situation, but aged care staff might also need to explain things to the family in some circumstances, for instance, about reasons for disruptions to conversation, such as impacts of the organization's issues (e.g., Wi-Fi connection, staff being busy, limited devices) on the incoming/ongoing calls, etc. Linh said:

"When a relative calls in, but we cannot pick up the phone, the activity team will text back a message to the relative and ask for their understanding, saying something like 'after another resident finishes their call, we will call you back.' We often leave messages like that, and the relatives are also very sympathetic, so there is no problem…" Sometimes, disruptions might also result from the conditions of the residents, requiring staff to explain these situations to the residents' families. Mia shared:

"Sometimes they [residents] just don't want to talk. And even when family members want to talk to the resident, but the resident, they don't want to, sometimes staff have to explain to them [family members] that they're not in a good mood or something, so they can't talk now, maybe try to ring later or something."

Providing psychosocial support to residents

Some residents might not understand about the restrictions in place, and they might get confused, upset, or angry that their family members are not visiting. They might also get confused about the presence of video-calling activities or get angry with the issues of ongoing video-calls (e.g., unstable connection). Therefore, aged care staff need to repetitively explain to them. Muni said:

"We also have to explain to the residents that family members can't come in, so it has to be like that so that they won't get angry… However, every time they call and talk, they still get angry. Some of them don't seem to understand the situation fully, so I have to repeat the explanation."

When the residents get angry about the issues with the video calls, aged care staff also need to explain to them clearly. The explanation would help the residents sympathize with the organization's limitations when conducting the calls within the home. Thuan said:

"We have the responsibility to explain it [the slow network issue] to them [residents]. On normal days, while they watch TV, they also watch it online. Sometimes the network goes down, but then it comes back, so they are already aware of those problems and are very sympathetic. They

do not get angry, and their family members do not get angry [with slow networks]"

In the cases that some care staff members were not able to help the residents to settle down with their anger, they might seek help from other staff members who might have better rapport with that resident. When asked about how to deal with that situation, Chau shared about her experience:

"We'll seek help from someone else, someone who can engage the resident in conversation to divert their focus. Once the resident is not concentrating on the phone or iPad, We'll discreetly take the iPad away so they won't hear it. Then, we'll explain to the family that the resident's condition makes it challenging to continue the conversation. We want them to settle down. During mealtimes we will also have to talk to my family privately."

Providing technical support to residents

Staff reported that some residents had own their own video-calling devices (e.g., smartphone or tablet) and were able to use it themselves. However, it was more common that residents needed help using the technology. Sabrina shared her experience providing this kind of support:

"We do have a few residents that got their own computers and have their own iPads. Sometimes we need to go and give them a bit of technical support, which is really hard because apparently, it's not part of my job, but there isn't somebody whose job that is. Do you know what I mean? like when the iPad and the WiFi's gone out, they can't get back into it. And because of passwords and their memories, it does create a lot of problems."

Tai also revealed some technical issues that the residents might encounter with the calls:

"… some residents are still cognitive, still able to recognize and talk, hear, and see their loved ones through video calls. But residents are not tech-savvy, they don't know how to turn off, make a call, or flip the camera… They don't know how to switch from audio call to video call."

Due to residents' limited confidence using the technology, the technical support that staff provided needed to be simple and easy to understand. Khloe stated:

"…what I mean… is the care worker technology literate, understands it enough to not only install it, but to teach the residents? And that's a different skillset entirely. To teach how to use WhatsApp is very different from me knowing how to use WhatsApp for myself…when you teach it to someone who's got dementia, that's a very different skill…You've got to really simplify it, "Okay, WhatsApp is a tool that uses the internet to communicate...Okay. In the head, they don't have any knowledge about technology. We need to give them step by step, explain where the symbol is to them."

Privacy needs to be respected

Although staff members are usually needed to support setting up the devices, mediating, and providing psychosocial and technical support, the privacy of the calls needs to be considered and respected. The calls need to be conducted in the private space, such as a resident's room. Thuan said:

"We have to bring into the room most of the time, because outside, there are activities such as people watching television or doing other things. We don't want to affect their conversation of that residents with family, usually we bring them to their room so that they can talk more privately, more privacy."

The privacy of the conversation between residents and their family needs to be respected, and permission was needed when staff stayed with the residents during the call, as Chau said:

"This [the support] is only possible when they ask me to do it, but for those who are still cognitive, I respect people's privacy, stand outside from afar... so that I can't hear their conversation with family."

In these situations, "permission" referred to verbal consent obtained from residents and, when relevant, their family members before staff provided support or remained present during the video calls. Sabrina mentioned:

"...when they're not [capable of doing a video-call on their own], we stay with them and, um, have a chat with the family with their permission, of course… Most of the time the families are very encouraging for you to be there and to be part of it".

Discussion and implications

Video calling has been used in RACFs as a means of emotionally and socially supporting residents and enabling them to stay connected with their loved ones, with care staff acting as facilitators. This study aims to understand the use of video calling in RACFs, how video-calling sessions can be facilitated by aged care staff to create positive experiences for aged care residents, and how video-calling activities be effectively implemented in RACFs. Although aged care staff perceived

video calling as easy to use, socio-technical challenges within the organizations were reported when video-calling programs were introduced. These included concerns arising from the complex conditions of residents, limited staff and devices, and low-tech infrastructure.

In RACFs, where residents are often living with cognitive impairments such as dementia, staff need to be significantly involved in video-calling activities. This is the first study to provide detailed insights into the facilitation process that staff have performed to support video calling in RACFs. Staff facilitators provided various types of support for residents to make video calls. They helped residents set up devices at the start of the calls, acted as intermediaries in conversations, and provided psychosocial and technical support. However, while staff often needed to be involved in setting up the calls and their support was crucial, permission was needed from either the residents or their families for the staff member to remain present during the call to respect the privacy of their conversations. This creates a particular challenge in an environment where privacy is difficult to achieve during tasks requiring significant staff support. The next section conceptualizes how to implement video-calling technology for social connectedness in RACFs in an effective way. As the elements of a facilitation triad made up of technology, staff, and residents were identified, key interactions within this triad were first discussed. Then, key considerations to support these interactions to effectively implement video-calling activities in RACFs were identified.

Key interactions within video-calling activities in RACFs

This study indicated that there is a facilitation triad formed by the interactions between technology, staff, and residents, with the goal of enhancing residents' experiences. In this section, the role of key elements underpinning the interactions of each pair of actors within this triad in enabling effective implementation of the video-calling activities was discussed. These include: staff operating technology, residents engaging with technology, and staff understanding residents *(Figure 1)*.

Staff operating technology

Regarding staff interacting with technology in RACFs, this research highlights that the ease of operation of the technology is essential. The involvement of care staff, including members of the leisure and lifestyle activities team and other staff responsible for running activities, is vital. RACFs face challenges, particularly where staff shortages are a significant concern (Krzyzaniak et al., 2021). As staff have limited time to facilitate technology-based activities, saving time and improving job efficiency during the facilitation becomes crucial. Thus, from the staff's perspective, it is essential for the technology to be easy to operate.

Existing research shows that care staff were worried about learning new things to facilitate technology-based activities as they were busy with their existing tasks (Zamir et al., 2021). In this study, a participant (Emma) mentioned a preference for using Viber and FaceTime over apps like Zoom because the latter requires setup time and staff training. In this example, Viber and FaceTime were already commonly used by staff members, and so it was easy for staff to use these applications with residents. Technology that is easy to use could result in more aged care staff with different roles willing to be involved in the activities.

To aged care staff, easy-to-operate technology also helps them make residents more engaged in video-calling activities. In this study, Emma highlighted the challenge faced by residents in learning new technologies. Introducing a new app to residents would add confusion and difficulty for the residents, therefore causing difficulties in the facilitation. Previous research shows that some residents tend to prefer using video-calling technologies they are already acquainted with, as they feel more confident and capable in their usage (Boman, Lundberg, Starkhammar, & Nygård, 2014; Zamir et al., 2021). This helps to explain why Emma consistently opts for the easiest option to ensure uncomplicated access for the residents.

The importance of easy-to-use technology extends beyond staff and residents. It is highly valuable in facilitating the involvement of residents' families. To illustrate, another participant, Sabrina, mentioned a reliance on Skype and FaceTime due to their easy accessibility for family members. They prioritize working with families using the technology that they already have and find convenient. Importantly, this may work against choosing the technology that is actually the most suitable for the task.

However, a literature review highlighted that a lack of involvement of residents' families was a challenge brought about by the adoption of video-calling in RACFs (Thach et al., 2021), which may then support the idea of choosing the technology that best suits the families. According to Zamir et al. (2018), some family members may lack skill to use video-calling technology (e.g., Skype) and some other family may be reluctant to use technology because of their ageism, believing that their

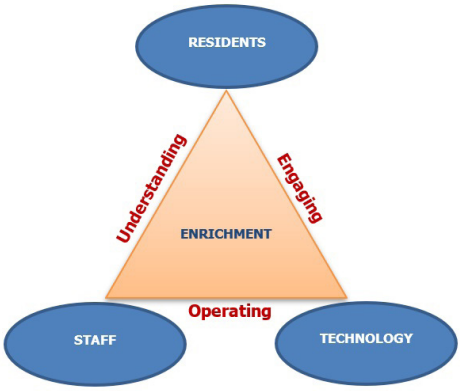

Figure 1. Facilitation triad: staff- residents - technology

relatives would not be able to use any technology in their 90s. These indicate that technology that is easy to use for family members could also help care staff better implement the video-calling activities in aged care homes. There may be video calling systems with greater functionality, but it is more important to go with the app that families are familiar with. This proposed key consideration aligns well with the well-known technology acceptance model (TAM) proposed by Davis (1989), in which perceived ease of use is a fundamental determinant that directly and indirectly influences user intention to use the technology.

Residents engaging with technology

Although ease of use is important to residents, it might not be as important as it is to aged care staff. Previous work shows that aged care residents were keen to participate in video-calling activities after learning that they did not require any video-call skills and would have support from staff (Zamir et al., 2018). In video-calling activities introduced in RACFs, the residents are the ones who need the benefits of the technology. However, they are passive users. As using the technology is a means to enhance residents' social connectedness, what needs to be considered is whether they are engaging in the activities.

Engagement can be connected to various elements of the user experience including factors that lead to individual interaction, such as immersion and involvement with technology, or to qualities of the technology that shape the user experience (Muñoz, Pedell, & Sterling, 2022). Related to video-based technology, Dobrian et al. (2011) defines engagement as a reflection of user involvement and interaction.

In this study, it was reported that due to frailty, almost all residents were unable to hold the devices independently. As a result, staff usually set up the devices on a table, adjusted the camera and volume, or repositioned residents to improve the visibility and audibility for both residents and their families. Furthermore, since aged care residents often live with dementia, communication with their families is challenging, and care staff serve as intermediaries. In cases where residents have difficulty expressing themselves, staff provide support by sitting with them and addressing their family's inquiries. Generally, the facilitation process aims to bring the residents closer to their family members, and create more involved, interactive, and engaged conversations between residents and families through the technology.

Previous research indicated that engagement of aged care residents in the video-calling activities can be influenced by the quality of visual and audio features of the technology devices (Banbury et al., 2017; Moyle et al., 2020; H. H. Tsai & Tsai, 2010). Suggestions for improving these features mostly aim to enable residents to be more engaged in the video-calling activities. Fundamentally, engagement is the key concern underpinning interaction between residents and the technology.

Staff understanding of residents

Similar to the process of facilitating other kinds of technology for enrichment in RACFs, such as VR (Waycott et al., 2022) or social robots (Yuan, Coghlan, Lederman, & Waycott, 2022), this study suggests that understanding residents is crucial for the interaction between aged care staff and residents during the process of facilitating video-calling sessions. Having a good understanding of the residents' physical and mental capabilities and personal preferences enables care staff to choose the most appropriate approach to facilitate the activities. For example, Susan shared how understanding residents' conditions, such as hearing impairment, helps staff prepare additional accessories like earphones before conducting video calls.

By understanding the residents, staff can introduce technology in suitable ways, taking into account factors like confusion due to dementia, as explained by the participants, Susan and Emma. In other cases, when residents do not have complex health conditions, the primary task for care staff during video call sessions is setting up the devices. However, when residents have dementia and struggle to communicate with their families, staff need to act as intermediaries to facilitate the conversation. Furthermore, in other situations, when some staff members may struggle to handle residents' anger caused by severe dementia, seeking assistance from other staff who might have better rapport with those

residents becomes necessary, as described by Chau. In addition, understanding the residents also helps staff respond appropriately to privacy concerns during conversations. Therefore, understanding the residents could help staff save time and perform their work effectively during the facilitation and provide a more appropriate experience for residents. Thus, this paper argues that, underpinning the interaction between staff and residents, understanding the residents is critical to the success of the implementation of video-calling in RACFs.

Key considerations for implementing video-calling activities in RACFs

When placing this triad in the context of the RACF setting, it is crucial to facilitate and provide support to these interactions. This includes enabling staff operating technology, supporting residents engaging in technology, and assisting staff in understanding residents. In the following section, key considerations, including critical components and stakeholders that should be involved in supporting the implementation of video-calling activities in RACFs, were presented.

Enabling staff to OPERATE the technology

This study highlighted the significant role of care staff acting as facilitators. Specifically, it emphasized the steps that care staff performed in facilitating video-calling activities. The facilitation process formed a triad involving aged care staff, residents, and technology, aiming to provide enrichment for aged care residents. Given the limited time to facilitate technology-based activities, saving time and improving job efficiency during facilitation becomes crucial. Thus, this research emphasizes the importance of ensuring that care staff can easily operate the technology. To enhance the successful implementation of video-calling activities for social connectedness in RACFs, providing training and guidance, or any other means to make the technology accessible and operable for the staff, so that the technology can be used effectively, is essential.

In fact, familiarity is a key factor influencing users' choice of technological platforms (Warmoth, Lynch, Darlington, Bunn, & Goodman, 2022). Care staff in this study preferred tools already integrated into their everyday lives, as prior experience reduced the need for additional training. This suggests that designing or selecting technologies that align with users' existing habits can promote adoption, regardless of which specific platforms are popular at any given time. Accordingly, training programs should focus on both fundamental technology usage (e.g., setting up devices, troubleshooting) and psychosocial and ethical competencies, including maintaining residents' privacy and emotional comfort. Training should also equip staff with strategies for effectively utilizing technology in practice. In this regard, gerontechnologists – who specialize in the intersection of aging and technology – can play a key role in designing and delivering these programs. Furthermore, providing staff with clear guidelines, resources, and documentation (e.g., step-by-step instructions as presented in the findings section) can empower them to navigate technology proficiently and confidently. Prior studies have emphasized that staff training enhances digital readiness and supports the sustainability of technology-based interventions in aged care (Barbosa Neves et al., 2019; Tsai et al., 2017).

From a socio-technical systems perspective, these findings underscore that successful technology implementation depends on the alignment between social and technical subsystems within the aged care environment. The facilitation triad identified in this study – comprising staff, residents, and technology – illustrates this interdependence. Effective facilitation required not only reliable technical tools (e.g., devices and connectivity) but also social coordination, role clarity, and institutional support. Variations in staff confidence and engagement further demonstrate that social structures (such as professional roles, training, and workload) and technical design (such as ease of use and stability) must be jointly optimized to achieve sustainable, human-centered technology integration in care settings.

While the small sample size of this qualitative study (N=10) precludes any statistical assessment of differences, we observed a notable qualitative variation in technology comfort and proficiency related to staff roles – a finding highly pertinent to the Australian aged care context. Specifically, Leisure and Lifestyle Coordinators demonstrated higher intrinsic confidence and pre-existing strategies for utilizing video-calling, aligning with their core duty of organizing social and recreational activities. Conversely, the Registered Nurses, Assistants in Nursing, and Personal Care Assistants often viewed technology engagement as an additional, disruptive burden to their clinical and physical care duties, resulting in less positive experiences and lower reported confidence. This observation has a critical implication for targeted staff training: instead of a 'one-size-fits-all' approach, aged care facilities should implement role-specific training programs. For Leisure and Lifestyle staff, training should focus on maximizing the psychosocial and creative aspects of facilitation, while for clinical staff (Registered Nurses, Assistants in Nursing, and Personal

Care Assistants), training must focus on technical competence and seamless integration into existing, time-pressured workflows, thereby reducing the perceived burden and ensuring all members of the care team can effectively support the 'facilitation triad.

Supporting residents engaging with the technology

This study shows that an important aspect of the interaction between residents and video-calling sessions is their engagement with the technology. Engagement can be influenced by various factors related to the user experience, such as the level of immersion and involvement with the technology itself, as well as the characteristics of the technology (Muñoz et al., 2022). The engagement of aged care residents in video-calling activities can be affected by the quality of visual and audio features of the technology, as well as the internet connection available in the care setting.

From a socio-technical standpoint, residents' engagement reflects the interaction between technological design (e.g., audio-visual quality, accessibility) and the social environment of facilitation. Successful engagement occurs when the technical systems are designed to meet residents' sensory and cognitive needs and when social and organizational supports – such as staff assistance, appropriate timing, and available resources – enable these tools to be used effectively.

Considering the implementation, providing assistance and facilitating active involvement of residents in engaging with the technology are necessary. This may only be possible with support from the aged care providers operating the facility. The support can include providing appropriate technological resources, such as devices with advanced visual and audio features aligned with the residents' conditions, a reliable and stable internet connection, appropriate time and space, and sufficient support staff. Physical safety can be ensured by setting an appropriate duration time for the activities and positioning the residents and/or the technology in a proper position or space while experiencing the activities. Furthermore, residents can be equipped with appropriate assistive accessories (e.g., hearing aids, glasses, etc.) to avoid discomfort.

Assisting staff understanding the residents

This research highlights the importance of understanding the residents in the interaction between aged care staff and residents when facilitating video-calling activities. Having a solid understanding of the residents allows aged care staff to select the most suitable approach for facilitating the activities. Moreover, by understanding the residents, staff can introduce technology in ways that consider factors such as confusion or difficulties in adapting to the technology of the residents. Additionally, understanding the residents helps staff appropriately address privacy concerns during conversations. Therefore, supporting the staff in acquiring knowledge and insights about the characteristics of the residents becomes crucial. This understanding should encompass various aspects, including not limited to information for residents' physical, clinical, and dietary care requirements, but also information for psychosocial care needs such as preferences, interests, remarkable life events, emotions, and communication styles of the residents.

These relational aspects further reinforce the socio-technical view that human understanding, empathy, and contextual awareness are essential components of technology adoption in care environments. Technology cannot be implemented in isolation from the social and emotional dynamics of caregiving; rather, it must be embedded within human-centered practices that acknowledge residents' individuality and promote meaningful connections.

Strategies to support care staff in developing a deeper understanding of aged care residents, focused on obtaining personalized information of individual residents and utilizing it in appropriate ways, should be considered. While the training on technology use in aged care may be mainly led by gerontechnologists, the residents' personal information, preferences, interests, motivations for doing something, etc. can be obtained in different ways but primarily through collaborating with their family or significant others. This can also be obtained by talking to residents and observing their behaviors, body language, and non-verbal cues to gain insights into their personal characteristics. Furthermore, to get better understanding of the residents, collaboration among care staff in different roles, such as nurses, personal care assistants, and activities team members, should be promoted. Volunteer input through technological tools can be useful (Foong, Zhao, Tan, & Williams, 2018). In addition, creating opportunities for social engagement and meaningful activities that encourage interactions between residents and staff, such as group activities, one-on-one conversations, and reminiscences, is recommended.

Key components and stakeholders that should be involved in supporting the implementation of video-calling activities in RACFs, along with the facilitation triad, form a framework that can be used as strategies to effectively implement video-calling for social connectedness in RACFs, as presented in *Figure 2*.

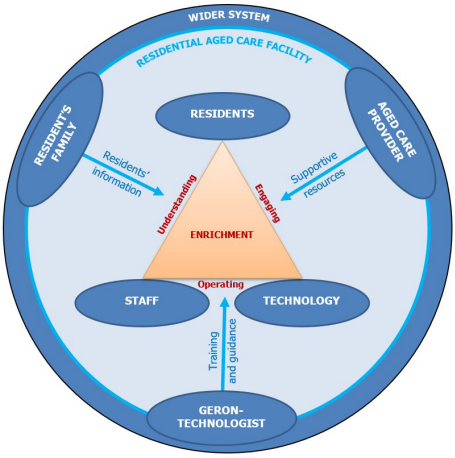

Figure 2. Framework for implementation of video-calling technology for social connectedness in residential aged care

Limitations and future work

This research has several limitations. First, despite efforts to recruit broadly, only ten participants were interviewed out of approximately 145 aged care homes contacted. This limited participation rate highlights the practical challenges of engaging aged care staff in research, given their substantial workloads and time constraints. As such, while the findings provide rich qualitative insights, they may not fully capture the diversity of experiences across the aged care sector. Second, the study did not collect quantitative data on how frequently staff assisted residents with video calls or the number of residents supported by each care worker. Future research could include such measures to better understand the scale and distribution of support within residential aged care settings. Third, although the study included participants who supported residents with and without dementia, it did not gather detailed information on how the severity of dementia influenced staff decisions to facilitate video calls. Future studies could further explore how residents' cognitive status affects both staff willingness and residents' engagement with technology-based communication. Fourth, while the study captured staff perspectives on the use of various communication tools (e.g., FaceTime, Skype, Viber), it did not collect data allowing direct comparison between specific platforms. Therefore, we cannot determine whether certain tools were more effective or preferred than others by residents. Participants instead emphasized factors such as ease of operation, familiarity, minimal setup time, and accessibility to family as key drivers of engagement, rather than the specific platform itself. Future research could systematically examine which communication technologies best support social engagement, emotional connection, and sustained use among aged care residents and their families. Additionally, this study was conducted in a single-country context (Australia), which may limit the generalizability of the findings to other aged care systems or cultural contexts. The research focused exclusively on staff perspectives, without including the views of residents or their family members, which could provide further insights into engagement, preferences, and barriers. Finally, as some interviews involved translation or interpretation, there is a potential for subtle meaning to be lost or altered, which may affect the nuances of the reported experiences.

Conclusion

In short, the use of video calling for social connectedness in RACFs is likely to function as a system involving interactions among aged care residents, staff, and technology. Factors beyond the functionality of the video calling technology tend to determine the effectiveness of the program. More crucial than any advanced features of the video calling apps or the number of participants involved in the activities, the technology needs to be easily operable by aged care staff; staff need to have a deep understanding of residents; and residents need to be facilitated to engage in the activities. To achieve these goals, training and guidance from gerontechnologists who are experts in technology and aging, supportive resources provided by aged care providers, and input from residents' families are crucial. The framework proposed in this paper may also apply to other technology-supported enrichment activities in RACFs, such as virtual reality sessions or social-robot interactions. However, further investigation is needed to explore how it might be adapted in these different contexts.

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