



Feasibility of school students Skyping care home residents to reduce loneliness

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ABSTRACT

Background: Intergenerational friendship has proved useful for older people in increasing socialisation. We explored the feasibility of school students Skyping older people in care homes with the long-term aim of reducing loneliness.

Methods: Six school students from one secondary school and twenty older people, including seven with mild to moderate dementia, from three care homes, engaged in Skype video-calls over six weeks. A conversational aid aimed to help school students maintain conversations was employed. Students and care staff completed feedback forms after each session on video-call usage, usefulness of the conversational aid, and barriers and benefits of video-calls. Six care staff provided further feedback on residents' experiences through unstructured interviews. Interviews and field notes were thematically analysed.

Results: Residents enjoyed Skype-calls with school students. Over six weeks, video-calls became longer, and more residents participated. Analysis revealed four themes. First, the intervention led to increased mobility for three older people and improved self-care in regard to personal appearance for five residents. Second, school students and older people formed friendships which inspired the need to meet in person. Third, the use of video-calls enabled participants to view each other's environments in real time. Last, directly experiencing the intervention was important for the continued participation of the care staff in the study. Skype-calls between schools and care homes are feasible and may help reduce loneliness.

Conclusions: Institutional collaboration between educational settings and care homes through cost effective video-calls can be useful to increase socialisation for older people, and promote later on-going use with other external organisations to help reduce loneliness and social isolation.

1. Introduction

Intergenerational socialisation (IGS) interventions are becoming more common in the bid to alleviate loneliness and social isolation for older people when families are not available, and simultaneously help reduce the stigma of ageing among younger people (Cohen, 2000; Pinquart Silka Wenzel and Martin, 2000; Hirshorn and Piering, 1999). Therefore, IGS-interventions are important for both generations allowing them to improve their self-esteem and offering the opportunity for older generations to more fully participate in society (Anderson et al., 2005; Gaggioli et al., 2014; Chapman and Neal, 1990).

In the United Kingdom (UK), government and social policy specific to

health promotes the provision of support to enable older people to have a good quality of life. In particular, new assistive technologies, such as video-calls, can support them to remain independent and stay socially connected with the wider world (Jentoft et al., 2014; Bemelmans et al., 2012; Gibson et al., 2016). The internet is becoming increasingly important for older people's daily lives (Schehl et al., 2019) and we know that many older adults make use of computers to alleviate feelings of loneliness (Blažun et al., 2012; Gardiner et al., 2018), and even benefit from video technologies (Ryu et al., 2009; Easy Video Calling for Se).

Not all family members can commit to video-call communication with their older relatives who live in care (Tsai and Tsai, 2010; Zamir et al., 2018). Relatives may be older themselves without the technology or

Abbreviations: SoW, Skype on Wheels; IGS, Intergenerational socialisation.

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skills to use video-calls, or they may simply have poor internet connectivity especially if living in rural areas. Younger relatives (e.g., grandchildren) may not be sure of how to communicate with their older relatives (especially those with dementia) resulting in poor sustainability of social interactions due to awkward or uncomfortable conversations (Zamir et al., 2018). Also, the decline in social functioning of older people living in care homes may lead care-givers to place less importance in involving them in socialisation activities (Goll et al., 2015; Theurer et al., 2015), leaving them with no social connection beyond the care home facility for prolonged periods (Zamir et al., 2018).

Contrary to many care-givers' beliefs, older people living in care homes are capable of developing new friendships and people with moderate and even advanced dementia are able to retain the ability to enjoy moments of socialisation, and can understand the core elements of a mutually satisfying relationship including a friendship beyond family ties (Sabat and Lee, 2012). Non-familial IGS-interventions are becoming the new practice milieu in elder care to tackle health and well-being outcomes such as depression and loneliness (Jarrott et al., 2008; de Jong Gierveld et al., 2012).

The concept of bridging the generational gap to foster independence and address societal needs has become increasingly popular among educational institutions (Bullock SSOJ, 1999; Gearing, 2016). Psycho-social research evidence is now used as the basis for encouraging educational institutions to befriend older people. However, although there have been many successful IGS-interventions with older people from child care centres to college classrooms, few have included people with dementia (Jarrott and Bruno, 2003).

There are a number of restrictions that can hinder the sustainability of such IGS-intervention programmes. These include: the need for constant supervision and safeguarding of students and older people during in-person interactions; additional training of care staff to accommodate and monitor students within the care environment; planning extra educational programmes to improve students' understanding of appropriate interactions within care settings among people with dementia; costs towards travel for students to and from selected care settings; and ensuring students are covered by insurance when entering such care environments.

Cost-effective communication technologies such as video-calls through Skype or FaceTime (Skype Software,) can avoid the barriers discussed above to provide a viable solution in offering not only family contact, but continuous IGS-interventions for older people in care homes including those with dementia. Specifically, video-calls allow students to remain within the school environment and so require less training, no travel costs or insurance, and with little supervision therefore permitting ease of implementation and sustainability of such IGS-interventions. Nonetheless, it is not clear how this would work in practice.

This study aimed: 1- to determine whether a non-familial social contact group (such as school students) is useful in promoting video-call usage among older people, thus increasing their social networks, and 2- to explore the feasibility and acceptability of a conversational aid (prompt sheet) with students to improve the sustainability and quality of communication with older people using video-calls.

2. Methods

2.1. Design

This was a six week study employing mixed methods including both quantitative feedback forms, and qualitative ethnographic methods. Ethnographic methods allowed for observations such as noting older people's reactions to seeing faces on video-call technology, and obtaining unstructured, open-ended feedback from participants engaging with the IGS-intervention (Fetterman, 2009).

2.2. Ethics

This study was approved by the University of Plymouth ethics committee in August 2016. All students gave written consent, obtained from their parent or guardian, and signed by their school. All residents and staff provided written consent. For those who had dementia and/or were unable to give written consent, verbal consent was obtained before each video-call session and a care staff member confirmed this in writing with the first author. An information sheet was provided to all participants including parents or guardians of the students, and care staff. The school was not offered any incentive to participate. Students were offered a reference from the main author when applying for future work or further studies involving gerontology or dementia care/projects.

2.3. Care home sites

Three care homes (Table 1) that were part of a previous larger study on residents' use of video-calling (Zamir et al., 2018), continued their participation which commenced in January 2017.

2.4. Participants

A convenience sample included six 16–17 years olds from the highest years of a local school in Devon (UK) who participated as befrienders to care home residents, and one teacher who provided supervision as part of a Health and Social Care module. Students completed this as part of their social studies module. The school teacher explained the nature of the 'project' to students and those interested participated during class time. In total there were 20 residents who took part in video-call sessions, and six care home staff who helped to facilitate the video-calls and provided feedback. Characteristics of students, residents and facilitators were documented (Table 2). (We have used the word students and phrase school students interchangeably as 16–17 year olds are legally adults in many contexts and in other regions they would be attending 'college').

2.5. Recruitment of residents

Eleven residents who had been unable to use video-calls, or had discontinued use in our previous study (Zamir et al., 2018) were put forward for participation by care home staff for the current study. A further nine residents were included in the study who were either new residents, or whom staff in the previous study had perceived as not being able to benefit from video-calls. These additional residents were new to the care home (n = 6), non-verbal (n = 2) or had advanced dementia (n = 1). The latter three were included after staff perceptions had been challenged when one resident who was non-verbal from C3 made continuous use of video-calls with family (Zamir et al., 2018).

Table 1
Characteristics of care homes participating.

	C1 SH	C2 SA	C3 VV
Location	Devon (small rural town)	Cornwall (small rural town)	Devon (small rural town)
No. of care staff employed at site*	45	40	15
Education level of staff (highest level UK)	College**	College** Undergraduate degree	College**
Average number of residents	30	40	17
Specialist care type	Dementia	Dementia	Frailty

Note: * During the study **Equivalent to a National Diploma or UK 'A Levels'.

Table 2
Characteristics of students, older participants and facilitators.

Participant	Age	Gender	Previous experience of video-calls	Dementia or signs of cognitive decline	Physical disabilities
Care home residents N = 20	65+ M = 4 85-90	Male = 4 Female = 16	Yes = 3 No = 17	Advanced (n = 1) Moderate (n = 3) Signs of cognitive decline (n = 3)	Hearing impaired* = 12 Visually impaired** = 9 Non-verbal*** = 3 Poor mobility**** = 6
Student N = 6	16–17 years	Male = 1 Female = 5	Yes = 4 No = 2	n/a	n/a
Facilitators N = 1 (Teacher) N = 6 (Care Staff)	22–50 years	Male = 1 Female = 6	Yes = 3 No = 4	n/a	n/a

Note: *Need for or wears hearing aid **Need for or wears glasses ***Unable to articulate verbally and/or uses sign language ****Poor mobility such as in a wheel chair and/or unable to independently walk/get up/hold heavy objects without assistance.

2.6. The intervention

Both students and residents used video-calls through Skype where students accessed Skype using laptops in their school library and classroom, and older people accessed Skype through a Skype on Wheels (SoW) device that had already been trialled (Zamir et al., 2018). The SoW intervention was a simple ‘wheelable’ device comprising an iPad or tablet to make video-calls, and a telephone handset connected to the iPad for privacy of conversations (Fig. 1). Each care home site had the required equipment and WiFi connection to access video-calls prior to the study. The SoW device and telephone handset were given to each care home free of charge, and an iPad or tablet was loaned by the University of Plymouth for the duration of the study if a care home did not already own one (Table 3).

Table 3
Intervention equipment and WiFi connection across care homes.

	C1 SH	C2 SA	C3 VV
Video-call equipment available	iPad Samsung Galaxy tablet (loaned because iPad had on-going technical faults) SoW device Telephone handset	iPad SoW device Telephone handset	iPad (loaned) SoW device Telephone handset
WiFi availability	Throughout the site	Throughout the site	Throughout the site
Speed of WiFi ^a (as reported by care staff)	Good enough	Fast	Good enough

^a Care home staff reported speed of WiFi as ‘Fast’ (no problems with connection experienced) ‘Slow’ (considerable problems with the connection or no connection at times) or ‘Good enough’ (good connection overall but can at times be slower than usual).

2.7. Conversational aid

A prompt sheet (See [Supplementary File one](#)) was developed before the commencement of the study by the first author working with three care home staff, one from each home. The conception and planning of the prompt sheet began after our first study exploring the use of video-calls with older people and family contacts revealed the need for a second non-familial social contact (Zamir et al., 2018). Care staff participating in the current study also participated in the previous study and revealed that younger family members at times struggled to make conversation with their older relatives in care (Zamir et al., 2018). Care staff suggested that a conversational aid could be useful for social contacts when first interacting via video-call with an older resident, especially with those who have dementia as many young people have not previously interacted with those who have dementia, especially using video-calls. These suggestions took place through informal conversations with the care staff from each participating care home (one from each care home). The first author asked care staff what a typical day would be like for a resident in their care home to help develop topics of conversation. For example, it was noted that residents would likely take part in an activity during the day such as group exercise. The overall design of the prompt sheet was initially developed by the first author after obtaining suggestions from the care staff and was then finalised with the remaining three authors. The prompt sheet was then shown to the care staff involved in its



Fig. 1. Skype on Wheels device.

development who then agreed on the design and content before the study began. It was agreed that the prompt sheet aimed to help students who might find it difficult to communicate with an older person with dementia, or retain a good quality conversation using video-calls. Topics for conversation included hobbies, activities that residents may have done in the care home, family and friends, and what their experiences were before moving into the care home. Specific prompts for conversations included students speaking to residents about their current school projects and if residents were able to impart any knowledge for example, learning about famous poets or World War II. Additionally, students were encouraged to use prompts to build good quality friendships such as, asking for general advice ('I am not sure if I want to be a nurse what would you suggest?' or 'It's the first time I am going on a date. Do you have any tips?' 'What was your experience of dating like?'). Finally, the prompt sheet reminded students to make use of social cues such as body language and facial expressions (waving their hand to say hello or goodbye), and the visual environment by incorporating props for example, holding up pictures or objects to the camera.

2.8. Data collection

A feedback form was provided to both students and care home staff to complete after each video-call session. Information including who was called (initials of residents/students), length of call, number of residents/students engaged with and any technical problems were recorded by both students and care home staff facilitating. Students were also asked to record how often they used the prompt sheet during a conversation (how many times they looked down to it for support), and whether they found it useful and why. Care home staff facilitating were asked to record if the resident understood Skype, enjoyed its use, if they used the telephone handset as part of the SoW device, and if they would like to continue using Skype with students. Both participant groups were also asked to document how the overall experience was for them. Additionally, care home staff provided either telephone, text message or face-to-face feedback (same day or a few days after the video-call session) to the first author. This feedback was documented in writing immediately after the conversation and formed a set of field notes contributing towards qualitative feedback.

2.9. Procedure

The participating school and care homes agreed to video-call using Skype once a week at 11 am over a six week period. It was agreed between the school and care homes that students would engage in video-call conversations with an older person using a 'buddying up' system allowing a student to pair up with another fellow student and speak to one resident at a time. The purpose of this was to ensure that students felt comfortable when engaging in conversation and could rely on a 'buddy' to help keep the conversation flowing if they were unsure of what to say, and so to improve the quality of interactions between residents and students.

Before commencing the video-call sessions on the day, the school teacher or first author telephone called each care home 10–15 min ahead of time to state they were 'ready' to Skype, allowing the care home staff time to prepare and accept the video-call. Student pairs used one laptop each (a total of three laptops per session) and sent a Skype call to a care home (i.e., student pair one Skyped C1, student pair two Skyped C2 and so on). A care home facilitator accepted the Skype call and ensured that the WiFi connection, picture and voice quality were sufficient before turning the iPad screen towards a resident to engage in conversation. The care home facilitator's role during each session was to move the SoW device between residents, ensure the residents felt comfortable to continue in conversation, inform the students whether the resident had dementia, or a physical impairment (hard of hearing), avoid a sensitive topic that might elicit negative emotions, resolve any technical difficulties during a video-call and help end the video-call session. Care staff

were instructed to remain with the residents after each video-call session to ensure they had felt comfortable and happy with the call, answer any questions and ease any concerns or worries they may have experienced.

The allocated time for each session was 1 h allowing for up to 50 min of potential conversation across students and residents (with 5 min to set-up and login beforehand and 5 min afterwards to complete feedback forms). Care homes sought to maximise the number of residents engaging in video-call conversation allowing them to see a number of different faces, and giving them the opportunity to build friendships with all students involved. As a result, each student pair spoke with more than one resident in a care home sequentially. For example, one student pair could speak with one resident for 15 min in C1, then speak to another resident for 15 min in C1 and so on. Additionally, half way throughout a session (or when appropriate as to not interrupt a good conversation), students were encouraged to swap laptops (move seats) and speak with residents from another care home to ensure residents across the care homes had the opportunity to speak with all the school students.

All care home staff felt long video-call conversations (more than 30 min) per resident, especially for those with dementia, could be quite tiring and stressful. Therefore it was agreed between the care staff and school teacher that pupils would engage with each resident for no longer than 20 min at a time (unless the resident wanted to for longer). Finally, after the end of each session, students and care staff completed feedback forms and care home staff provided additional verbal or written feedback to the first author. Below is a descriptive outline of the activities involved in weeks one and two prior to the commencement of video-calls.

2.9.1. Week one

Students received a one day introduction to the project by the first author including its background and aims, and information and consent sheets were provided. Additionally, the session included a practice socialisation activity where students were paired up and role played possible conversations with the first author and teacher, who role played an older person. Students trialled the prompt sheet during this practice socialisation activity and confirmed they felt comfortable with the content, and were instructed on how to record data on the feedback sheets. Furthermore, the school information technology technician tested their video-call equipment (laptops) in their designated area (school library), and the first author assisted students in creating Skype ID profiles and sending friend requests to the selected three care homes.

2.9.2. Week two

The three care homes were briefed (participating care staff only) by the first author about the project. Care home staff taking part recruited older people, obtained consent, tested their video-call equipment, ensured student Skype requests were accepted on the Skype App, were given feedback forms and instructed on how to complete them after each call, and practiced a Skype call with the school teacher to ensure good internet connectivity, sound and picture clarity. Residents' demographic data and characteristics were documented by the first author. This data was then fed-back to the teacher by the first author prior to the first video-call session to enable them to know that they will be speaking with residents who might have dementia, be non-verbal or even depressed.

2.9.3. Weeks three to six

There were four video-call sessions once a week, for weeks three to six. Activities throughout each week are documented below (Table 4).

2.10. Data analysis

Feedback forms were analysed for descriptive statistics in Excel (2016) and open ended questions were analysed using content analysis (Hsieh and Shannon, 2005) in NVivo (version 11). Field notes were analysed by the first author using thematic analysis. An inductive thematic analytic approach was applied to the field note dataset following the six key steps of analysis outlined by Braun and Clarke (Braun et al.,

Table 4
Activities during weeks one through six.

Activities	Week one	Week two	Week three	Week four	Week five	Week six
Set-up	Within school: - Introduction - Information and consent sheets given - Practice socialisation activity - Prompt sheet trialled - Feedback forms given - Test equipment - Skype set-up	Within care homes: - Introduction - Recruitment and consent - Test equipment - Skype set-up - Feedback forms given - Demographic data obtained				
Video-call sessions		Trial call: - Care homes (C1 and C2) Skype called school teacher (n = 1) to test connectivity and picture quality	Session one: - Pupils (n = 6) in school library - C1 staff accepted Skype call from student pair one - C2 staff accepted Skype call from student pair two - Student pair three observed and swapped places with student pair two half way	Session two: - Pupils (n = 4) in school library - C1 staff accepted Skype call from student pair one - C2 staff accepted Skype call from student pair two - Half way students swapped laptops	Session three: - Pupils (n = 6) in school library - C1 staff Skype called student pair one - C2 staff accepted Skype call from student pair two - C3 staff accepted call from student pair three - Half way students swapped laptops	Session four: - Pupils (n = 6) in school classroom - C1 staff Skype called student pair two - C2 staff accepted Skype call from student pair one - C3 staff accepted call from student pair three - Halfway students swapped laptops
Facilitators			- First author facilitated in school with teacher (n = 1) and documented observations - Care staff (n = 3) supported residents to engage in Skype	- First author facilitated in C1 and documented observations - Care staff (n = 2) supported residents to engage in Skype - School teacher (n = 1) supported pupils to engage in Skype	- Care staff (n = 4) supported residents to engage in Skype - School teacher (n = 1) supported pupils to engage in Skype	- First author facilitated in school with teacher (n = 1), documented observations - Care staff (n = 5) supported residents to engage in Skype
Feedback			- Telephone (C2) and text message feedback (C1) from care staff obtained on the same day - First author collected feedback forms from school pupils	- Face-to-face feedback from care staff obtained on the same day (C1) and two days after (C2) via text message - First author collected feedback forms from C1	- Text message feedback obtained two days after (C2) and four days after (C1). Telephone feedback obtained same day (C3)	- Telephone feedback obtained same day (C1 and C3). Text message feedback obtained two days after (C2) - First author collected feedback forms from school pupils and care homes

2014) to generate codes which informed final themes. Data sources were triangulated to gain a deeper and more comprehensive understanding of the qualitative data. Analysis was completed by all four authors with authors one and two conducting initial coding, triangulation and comparisons, and authors three and four finalising codes and themes.

3. Results

3.1. Overview of video-call usage

Students and care home staff documented consistent feedback over the four sessions of video-calls during the trial ([Supplementary File two](#)). There were a total of 59 conversations between residents and students (two students paired up, speaking with one resident at a time) via Skype over four sessions, and an increase in resident engagement by 45% from session one (N = 9) to session four (N = 20). Overall each student pair engaged with on average five residents per video-call session. Each session was agreed to last 1 h with a maximum time of 50 min for video-call engagement, and it was estimated that conversations per pair would not exceed more than 30 min. In terms of the length of calls, student pair one engaged in an average of 18.75 min of conversation across sessions, student pair two an average of 18.5 min and student pair three an average of 33.6 min. Over time, there may have been a slight increase in the

length of calls per student pair across the four sessions for example, student pair one saw an increase of 5 min from the first session to the last. However, given the small sample this is not statistically significant (see [Supplementary File two](#) for detailed durations).

3.2. Perceived usefulness of the prompt sheet

In total there were 17 completed responses to how useful the prompt sheet was for students over the four sessions. Feedback was short and coded into three key categories: 1-*provide conversation content*; 11 students reported that the prompt sheet was useful in providing them with information in knowing what to say when they were 'stuck for conversation' or when the conversation 'went dull'. 2-*lack of range*; this was in terms of needing more prompts and was expressed by three students as they felt there needed to be 'more questions' to ask residents to improve the 'quality' of the conversation. 3-*provide conversational flow*; three students felt that the prompt sheet was useful in facilitating a better flow to the conversation which 'helped with pauses in conversations'.

3.3. Feedback from care staff

Feedback forms completed by care staff (n = 6) revealed that all 20 residents enjoyed using video-calls to communicate with students, and all

residents told staff they would like to continue use. No residents used the colourful telephone handset when using the SoW device. Feedback from two care staff in relation to the telephone handset explained that residents simply “didn’t go for it”, with three care staff suggesting that residents “didn’t need it” to engage in the video-calls. Additionally, five care staff reported that residents “just started talking” when they saw the students’ faces on the screen which made for a “more natural conversation”. Finally one care staff member revealed that they (the care staff) “took it [telephone handset] away after a while because we didn’t need”.

There was no reported feedback that residents became upset or distressed during or after engaging in conversation with students however, one care staff reported that a female resident in session one “was fixated on her image” and “didn’t like the way she looked” on the screen during a video-call conversation. Nonetheless when staff asked if she wanted to continue or cease engagement the resident was adamant about continuing. This feedback corroborated the feedback provided by the students who engaged with her and indicated that much of the conversation with the students was focussed on how she looked “on camera”. Staff reported that they “sat with her for a while after” to ensure she was not distressed.

3.4. Themes

Overall, conversations with care staff who provided more in depth feedback on residents’ experiences of the IGS-intervention using video-calls indicated that they were positive. Four key themes arose from the field notes and are discussed below (Table 5).

3.4.1. Impact of intervention

Some residents had no experience of using video-calls prior to this IGS-intervention and so reactions to a new technology for communication was key to understanding the barriers and benefits for older people. For one resident seeing her own image on a screen was a new and somewhat unsettling experience however, this did not deter her from

Table 5
Key themes and codes identified from the field notes.

Theme	Code	Quote to evidence
1. Impact of intervention	1.1 On ‘the self’	1.1 “Yes she was obsessed with the way she looked for some reason I think she has never seen her own face in a screen like that she doesn’t get out much”.
	1.2 On well-being	1.2 “One even now makes the effort to get out of bed, put on clothes and come down to the lounge ... he usually just stays in the room for breakfast doesn’t bother doesn’t walk around but now was like yes let’s go down and speak to the children ... seems more well”.
	1.3 On dementia	1.3 “Yes they do enjoy talking to them though they may not remember that they did”
2. Improved socialisation	2.1 Building friendships	2.1 “Residents were talking about their lives and giving the students advice like they were already friends”
	2.2 Conversational aid	2.2 “Residents were quiet at first but students had some good topics for discussion”
3. Realistic experience	3.1 Social cues	3.1 “They couldn’t hear but it was nice for them to see the smiling faces and they smiled back
	3.2 Visual environment	3.2 “One resident saw a book in the background so the student picked it up showed it to her and they spoke about it like they were together for real”
4. Staff attitudes	4.1 Reliance on facilitator	4.1 “They [residents] couldn’t hear so I had to be the interpreter”
	4.2 Looking forward	4.2 “I think it would be good to keep this going gives them something to do and see new faces outside of here”

continuing on with the IGS-intervention. Care staff later reported that the same resident in the final two sessions began to “make more of an effort with her appearance” compared to before, suggesting an increased sense of self. Similarly, residents with cognitive decline ($n = 2$) were reportedly becoming more aware of their own image on the screen as the sessions progressed. Alternatively, the impact of the IGS-intervention for another resident seemed to improve their well-being as they made a conscious effort to get out of bed, leave their room and make their way down to the designated area to communicate virtually with the students. The visual aspect of the communication seemed to encourage residents to “put on clothes” and fix their appearance whereby they might not have done otherwise. For those with dementia or a cognitive impairment, video-call conversations with students proved enjoyable as they wished to continue taking part, and felt comfortable with seeing their own image on the screen and seeing new faces, even if they did not remember using the video-calls later (in between sessions).

3.4.2. Improved socialisation

Care staff felt that the IGS-intervention using video-calls were useful in “building friendships” between older people and a younger generation, and so bridging the generational gap. Residents had the opportunity to talk about themselves and impart some knowledge and advice as “friends” would normally do. Socialisation over time improved due to a useful conversational aid (prompt sheet) that provided topics for discussion and led to a more “comfortable experience” avoiding “pauses and silences in between”.

3.4.3. Realistic experience

The prompt sheet reminded and enabled students to incorporate their visual environment to enhance the quality of the video-call interactions, and so was a beneficial tool in this study. For many residents it was enough to engage in non-verbal communication and video-calls allowed the possibility to incorporate important social cues that could be missed in a telephone conversation or written correspondence. Additionally, video-calls gave residents and students the opportunity to see into each other’s environments in real time such as observing objects and surrounding pictures. This facilitated conversations, hence making it a more realistic experience for both.

3.4.4. Staff attitudes

The role of the care staff as facilitators was key to how well the IGS-intervention using video-calls could operate. It was useful for residents and students to have a mediator, especially for those who were hard of hearing, and to help aid communication. However, this was also a drawback as residents who were unable to independently communicate using video-calls were always reliant on a facilitator to engage in socialisation. In addition, attitudes of care staff towards the IGS-intervention using video-calls play a role in whether the socialisation activity is acceptable in their care environment and is likely to continue. For those care staff who were participating in the study, all demonstrated positive attitudes towards continuing the IGS-intervention using video-calls with schools, but felt they needed “further support” from their care setting to maintain this going forward.

4. Discussion

Our IGS-intervention has added a novel contribution in that this type of socialisation can still be equally enjoyable with the use of video-calls for communication in complex care settings. Two key objectives were addressed; it found that school students are useful non-familial social contacts to video-call older people with and without dementia in care homes, and video-calls were able to help create new friendships and thus increase older people’s social networks. Also, a conversational aid (prompt sheet) proved a feasible and acceptable tool for students to improve the sustainability of video-call conversations. However further work may be needed in future trials to develop the tool with participants

to improve the quality of conversations for both. An ethnographic approach towards data collection between each video-call session identified key findings from staff reflection related to the impact of the intervention, improved socialisation, realistic experience and staff attitudes, as discussed.

Moreover, in our previous study (Zamir et al., 2018), findings indicated that older people who were cognitively intact were capable of using video-calls through SoW to stay better connected with family. Although the sample within this current study was relatively small and included only a few residents with dementia, we conclude that residents with dementia are also capable of using and benefiting from video-call conversations via SoW with new social contacts such as school students, but with the support of a facilitator. We suggest that informal and formal caregivers of those with dementia work collaboratively with similar institutions in allowing more individuals with dementia to use video-calls to expand their social networks.

The impact of the intervention was threefold highlighting older people's sense of 'self', well-being and its effect on those with dementia. Older people's reactions to seeing their own image on the screen were noted and revealed that personal image and 'the self' are important to older people, including those with dementia. A systematic review conducted by Caddell and Clare (2010) (Caddell and Clare, 2010) reviewed thirty three studies that identified quantitative and qualitative methods taken to study aspects of 'the self' and identity in dementia. Results from the studies were described as disparate however, most of the studies suggested that there is at least some evidence to indicate a persistent sense of 'self' in mild to moderate, and even more advanced stages of dementia. Until more recently, residents with dementia have largely not been included in video-call interventions and this may be partly attributable to the gap in evidencing that they do have an intact sense of 'self' and identity which is maintained through social interaction.

Video-calls were able to 'trigger' older people's sense of 'self' whereby they made special efforts to take care of their personal appearance as the sessions progressed, and as a direct result this had a positive effect on their observed well-being (Surr, 1982). There are numerous definitions of well-being within the psychological and social literature from Maslow's conception of self-actualisation (Maslow, 1943), Rogers' view (Rogers, 1963) of the fully functioning individual to Jahoda's (Jahoda, 1958) positive criteria for defining mental health. Usually well-being is made up of an array of components relating to an individual's level of happiness, comfort, security, health, mobility, and an overall state of being comfortable, healthy and happy (Dodge et al., 2012). Older people participating in the video-call sessions with students in this study displayed a good level of observed well-being based on the components above. That is, individuals who prior to the study preferred to remain dormant and alone, not wanting to make the extra effort to get out of bed, get dressed and walk out and down to their lounge, were now more mobile as they were likely to leave their room to engage in the IGS-intervention. Older people became more comfortable with having these conversations through video-calls and expressed happiness after the engagement. However the study did not follow-up to determine whether this was a direct result of using video-calls with students or if this continued after the sessions and for how long.

Improved socialisation was experienced by both students and older people over the trial. Although older people who live in a care home setting appear to have more chances of social interactions with fellow residents, not all residents are able to befriend each other to form friendships and engage in meaningful conversations. One previous study similarly employing ethnography revealed that some residents display feelings of hostility towards each other and are more likely to feel socially isolated due to fewer interactions outside of the care home (Hubbard et al., 2003). Meaningful conversations between the residents and students took time to establish as they became longer over time, and an increased number of older people were engaged with per student allowing older people to see more faces virtually. These interactions were short however did not appear to be meaningless as older people felt they

were building new friendships and wanted to continue video-calling. Natural language processing research tackling the difficulty in understanding natural language conversations for the purposes of socialisation encourage the use of short conversations, but more so 'short-text' conversations for social media use in real world instances (Wang et al., 2013). Similar ideas have appeared in previous studies relating specifically to chat-boxes for social communication (Jafarpour, 2010; Leuski et al., 2011). The current study findings support the model of 'short conversations' as shorter and quicker conversations, but with multiple social contacts, that enabled older people to feel they had increased their social networks even if only for a short period.

Although conversations started out fairly short at the beginning of sessions, for some pupils (student pair three), these conversations began to last a lot longer with the same residents towards the end suggesting that video-calls were able to create real friendships. It could also suggest that both the students and residents became more familiar with video-call interactions and so engaged longer due to an increase in confidence in interacting this way. Confidence in using video-calls to socialise was not measured as part of this early trial but might be considered as an important outcome measure for future trials.

This study was able to demonstrate that video-calls through SoW enhanced social presence for older people living in care facilities. The emerging theme of 'realistic experience' underlies the social presence theory of communication (Biocca et al., 2003). The theory is used to explain the relationship between the quality and capacity of communication or interaction, and the conveyance of social cues (Roussel and Gueddane, 2007). By definition, a social presence is evident when individuals feel they are with each other in a virtual environment, which the participants in this study also reported (Biocca et al., 2003; Hartmann et al., 2008). Social presence can occur on three levels of 1-'being together' or feeling a 'co-presence', 2-'psychological involvement' and 3-'behavioural engagement' which is manifested in visual cues (Biocca et al., 2003; Rettie, 2003). Older people and students felt that they 'were together for real' suggesting they had a tangible sense of the other person, especially when visual cues such as books were introduced during conversations, indicating that older people are capable of 'behavioural engagement' through video-calls. Residents paid attention to their appearance watching their own image suggesting that the connection had meaning to them. Care staff witnessed the benefits as has been found in other research such as the Namaste program (McPherson et al., 2001). Most importantly, creating that social presence inspired the need to meet in real life and so established that real, genuine friendships had in fact been made during the trial suggesting a real world impact.

Care staff played a major role within the study and so unequivocally, their attitudes towards the video-call intervention determined how well it was received and executed. Contrary to the findings in our previous research (Zamir et al., 2018) where staff displayed somewhat negative attitudes towards SoW, along with explaining they were short of time and lacked the skills to use video-calls, now appeared more positive and committed their time throughout the trial. High staff turnover rates had not changed since the first study; however a contributing factor towards increased positivity and participation from staff was the familiarity of SoW due to the continuation from cycle one to cycle two. Care home staff participating had already witnessed the benefits of implementing video-calls in their environment and so were already 'convinced' of its usefulness. Similarly the school worked well with the care homes during the planning and delivery stage of the trial. There is evidence that collaborative working through inter-professional education (IPE) can be essential for good clinical outcomes, which underpins the need to find out how best to develop strategies that can enable two institutions to continue working together effectively over a longer period (McPherson et al., 2001).

4.1. Limitations of the study

The current study was an initial trial, and was a first IGS-intervention using video-call technology with students and residents including those

with dementia in the UK. The study was conducted over a very short period allowing for only four video-call sessions within the constraints of the school term-time calendar and consequently there is a need for additional video-call sessions to better understand the transferability of the findings. However, pre-planning and collaboration between two institutions were necessary in the allocated time of the study, and proved to be successful.

Likewise, due to the short time period allocated for the trial, not all residents who used video-calls were able to engage in the full four sessions. Some residents engaged in only two or three video-call session as they had joined the trial at a later stage. A longer trial would have enabled all residents participating even at a later stage to engage in more video-calls. Even so, all of the feedback obtained from residents and observations alluded to positive reactions.

Additionally, staff attitudes towards any intervention implementation in a complex care environment are key, as is the role of the facilitator; otherwise the socialisation activity will not work. Crucially, dedicated care staff with positive attitudes are needed for these activities and there is always an on-going issue of staff turnover in care environments. Care staff felt the need for additional staff support to ensure the IGS-intervention could continue which is consistent with our research in cycle one (Zamir et al., 2018), however this can only be tackled on a higher organisational level.

Furthermore, the prompt sheet was a useful tool in providing more purposeful, engaging conversations that did not become dull. Although some students expressed the need for the prompt sheet to have more conversational content to avoid uncomfortable pauses, it is important to not create scripted and unnatural conversations and to consider that pauses can be employed purposefully so that speech is not overwhelming. Participants might become reliant on a conversational tool and the purpose of a prompt sheet is to simply, 'prompt'. As demonstrated in previous research by Dodge and colleagues (Dodge et al., 2015) video-calls did not significantly affect loneliness and social isolation where conversations were scripted, however they did improve cognitive decline. Our study included residents with dementia and early cognitive decline and these individuals all remembered having meaningful conversations with a new social contact, even though they did not remember using the video-call activity. Future trials should better capture changes in cognition for those with dementia or early onset cognitive decline when using video-calls with new social contacts.

Ideally, we would have formally interviewed each of the residents who participated whereas for practical reasons we relied on the reporting of staff and students.

In this early short study, quantitative tools to measure and evidence changes in loneliness, social isolation and well-being from pre to post-intervention were not employed. Therefore it is difficult to ascertain and make claims as to whether the IGS-intervention had any impact on such outcomes. Nonetheless, the feedback forms and ethnographic data revealed that video-calls created an increase in opportunities for socialisation (building friendships), which have been correlated with lower levels of social isolation and loneliness (Masi et al.,). Numerous interventions have been developed to alleviate loneliness and social isolation in older adults, however they still lack evidence to demonstrate that they work (Masi et al., ; Findlay, 2003). The current study proved effective in showing the feasibility and acceptability of an IGS-intervention using video-calls for older people in complex care settings, however future trials should incorporate appropriate pre and post measures to evidence changes in loneliness and social isolation outcomes.

Finally, ethnic diversity was not apparent within the sample as all participants; older people, students and facilitators resided in the South West of England which is demographically largely White Caucasian. Although the sample was not large, a mixed methods approach and the data collected for a small study was still sufficient to provide a rich account for all participants, and was able to address the key objectives of the study.

5. Conclusion

Close collaboration of complex care settings and educational institutions to trial an IGS-intervention through video-calls proved successful and beneficial to all participants. Although the trial ran over a short period, the findings from this study evidenced the usefulness of school students as non-familial social contacts for older people with and without dementia in improving their socialisation beyond the care home facility, even if conversations are short. Staff support and a conversational aid appear to be important in the execution and on-going delivery of video-calls with new social contacts, however there is a need for further exploration of video-calls between students and care home residents over a longer duration, and with appropriate validated measures to capture changes in outcomes such as loneliness, social isolation and well-being.

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Ethical approval and consent to participate

The study was approved by the University of Plymouth ethics committee in August 2016. Residents and care staff gave written consent. Information sheets were read to residents by the first author or care staff. Care staff were given information sheets prior to the recruitment of residents. Residents who had dementia or were unable to give written consent gave verbal consent to the care staff and the first author (when the first author was present for a session); care staff noted this down and kept the information on site and provided evidence for the first author. The feedback sheet included an item asking staff if residents are happy to continue with participation after each Skype call. All students gave written consent, obtained from their parent or guardian, and signed by their school. An information sheet was given to students and to their parent or guardian. All participants had access to RBJ, and the board of committee contact if they wished to cease participation, or informed SZ.

Consent for publication

All participants and care staff were made aware verbally by the first author and in consent sheets that conversations between them and the researcher on the feedback after the sessions (either face-to-face, telephone or text) would be noted, and quotes may be published in anonymised form unless they informed the researcher otherwise. Written consent was also obtained from parents or guardians to use data collected from the students (feedback sheets/verbal feedback) for publication, but which will be anonymised and confidential. All participants and care staff were able to give consent. Direct face-to-face conversations or telephone calls with SZ and text feedback from participating care staff were noted and used as anonymous quotes.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chbr.2021.100053>.

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