

# Making the Wii at Home: Game Play by Older People in Sheltered Housing

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**Abstract.** Games such as the Nintendo Wii™ are being promoted for use by all ages but there is little experience with how groups of older people integrate Wii playing into their physical and social spaces. This paper focuses on Wii™ game play by older people in Sheltered Housing schemes, as part of an initiative to promote physical and social activity in these settings. Using participant observations, interviews and video analysis of sessions over a year we show *how* older people actively construct the sense of a meeting place as part of their Wii game play and the social processes that underlie this. Through the use of bounded regions and a sense of decorum older players create a ‘sacred space’ around the Wii where they can learn new technical literacies, make new social connections with peers and take ownership of the communal spaces in which they live. We conclude with guidelines for encouraging appropriation and empowerment for older people through game play in communal housing settings.

**Keywords:** Wii, elderly, older people, video games, digital hearth, appropriation.

## 1 Introduction

With populations ageing across the developed world [27] attention has recently turned to ways of maintaining a good quality of life for those experiencing an extended old age [30]. The experience of growing older in these societies is unfortunately tainted by increasing levels of social isolation and reduced community involvement with family and friends often living far away and older people choosing to live alone. Social isolation can negatively impact emotional well being when experienced as loneliness, increasing an older person’s susceptibility to depression [6] as well as being linked to all causes of mortality and morbidity [18].

In the UK, some of the issues of social isolation have the potential to be addressed by Sheltered Housing schemes. Sheltered housing is an approach to elderly care services where residents are encouraged to maintain their independence in rented accommodation but where certain support is provided on site when necessary. The

presence of other peers in the scheme provides the potential for social interaction and support staff are on hand to initiate activities to promote interaction.

To date, technologies have rarely figured as part of these activities. More generally, computer-based information and communication technologies have been proposed as useful in offsetting the negative effects of physical, cognitive and social ageing [3] however the uptake of such technologies by older people is traditionally low. New forms of interaction with technologies such as the embodied gesture-based paradigm of the Nintendo Wii game have potential for changing this relationship with technology and helping to meet well being needs. We are still in the early stages however of understanding the potential of games such as the Nintendo Wii and *how* older people might integrate these into their lives, particularly in a peer-based community housing setting.

In this paper we document an initiative by a UK charity (Age Concern) using Nintendo Wii game consoles to promote social and physical activity amongst their members in Sheltered Housing. The philosophy behind this approach, often described as 'Active Ageing' [30], is heavily influenced by activity theory<sup>1</sup> [5,15] which sees the well-being of older people as intrinsically linked to ongoing participation in social roles beyond retirement. It is embedded in government policies for older people across Europe [8]. In the UK active ageing is evident in government health and social care policies aimed at promoting health and well-being in old age, through higher levels of physical activity in the older population and by reducing barriers to increased levels of physical activity, mental well-being and social engagement among excluded groups of older people [7].

The Age Concern Wii initiative also builds on a growing trend in games development and deployment that enlists the fun elements of game play to encourage more serious educational and therapeutic aims [e.g. 13] including initiatives involving use of the Wii [17]. In this more serious vein games have already been used to support the physical, mental [2], and socioemotional [11] well being of older adults. The adoption rate of computer-based technologies is not high amongst the older population [20, 10, 9] which makes the success of such initiatives intriguing. The Wii console in particular has been targeted at the older generation through specific advertising campaigns [14]. News reports herald its popularity with older players in the USA [29], UK [24] and global sales indicate similar trends in other developed nations. Studies looking at older people's use of the Wii suggest that it may mitigate against cognitive decline [20] and provide an important source of social contact for them as *computational meeting places* where they can engage with their peers and younger generations both within and beyond the game itself [28]. However it would be wrong to think that computational meeting places are the immediate result of merely introducing a Wii console or that such meeting places are easily established. As Volda and Greenberg [28] point out such meeting places can be highly contested and whilst their study describes them as *comfortable* places other studies have shown them to be quite problematic. Neufeldt [22] in a study of Wii introduction in a German retirement home found a number of obstacles to engaged and enjoyable game play with the Wii Sports Bowling game. These included usability problems associated with learning the appropriate button controls for the game and ergonomic difficulties associated with playing

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<sup>1</sup> Not to be confused with activity theory from Vygotsky's work in the 1920s and used in HCI.

the game from an armchair. Developing a clear understanding of issues of functional accessibility in relation to older people's use of embodied [26] and mobile (non-desktop) applications is of course important [16]. However in this paper we focus more on the social aspects of access. Neufeldt [22] also found that the most problematic issues in his study were conflicts with activity organizers at the home who perceived the game as unwanted competition for their own activities. This suggests that the sociability of Wii gameplay and hence its ability to enhance the well being of older people is context-dependent. This paper therefore takes a closer look at the evolution of older people's use of the Wii over a period of time paying particular attention to the way in which the context is actively constructed by players and organizers to create the sense of a meeting place and the implications that this has for extended use.

The Wii console is different to other games consoles such as the popular Sony Playstation or Microsoft Xbox in its reliance on wireless movement capture as the central control feature of game play. This allows interactions with the game to take place in a physical space which is (relatively) independent of the console and display screen compared with previous consoles. This has the important consequence of allowing social interactions to continue during play which can add meaning to a purely physical activity. It is this juncture between game play and social meaning that is of interest to this study.

## 2 Methodology

Age Concern's initial idea was to create a Wii Bowling League across Brighton and Hove which would provide an engaging and fun physical and social activity for older people<sup>2</sup>. Initial trials with their existing members at Age Concern drop-in sessions suggested that the Wii was suitably accessible to this age group to make it a viable proposition. The league was set up in small districts around the city so that sheltered houses close to one another could play on a regular basis without having to arrange extra transport. The winners from these districts were then invited to compete in larger public events around the city. This study follows the Age Concern initiative over the first year of its life both at regular sessions and public events, looking at how the older players appropriated the Wii game play experience and incorporated it into their lives as a meaningful activity.

We used multiple methods over a period of one year to track evolving game play. Participant observations, interviews and video recorded sessions were all used to ascertain longitudinal changes in game play. Analysis was framed by this objective but was grounded in the data. Factors outside of the game play were included in the analysis to maintain the broader sense of context which existed outside of the game play but continued to support it. Initially the Age Concern staff responsible for running the Wii sessions were interviewed to clarify the rationale for its use, to gain an understanding of their support role and of what motivated older people to join in. Subsequently these Age Concern staff were accompanied to their weekly supported Wii sessions in the communal lounges of four sheltered houses and two 'Wii events'

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<sup>2</sup> <http://www.guardian.co.uk/society/2008/apr/30/health.longtermcare> for report.

held in public venues across Brighton and Hove were observed. Over a period of 1 year, 10 sessions in Sheltered Housing settings were attended. Each session was about 2 hours long with a break in the middle for tea. Overall 30 older players were encountered aged between 60 and 94. The number of older players per session ranged from 2 to 13 with at least one Age Concern staff always present, one researcher and one Sheltered Housing scheme manager or staff member. Whilst the focus of the sessions was to engage older residents in the activity, others present were encouraged to join in and this allowed an element of participant observation to take place as part of the process. Notes were taken of participant observations and interviews were undertaken with the residents at appropriate intervals between games (recorded for later analysis). 3 sessions were also captured on video to establish the evolution of game play over time from initial use to that after 1 year. This was done using multimodal interactional analysis [23] which acknowledges the different ways in which meaning is conveyed in communication beyond the sole use of language. Examination of the video in this way therefore gave a fine grained, holistic account of interaction which incorporates not only language but also body posture, gestures, layout of the room, the sound qualities of speech, game elements, etc; in fact anything that was used to convey meaning whilst playing the Wii. Multimodal interactional analysis shows how those present through their actions, structure the awareness of one another by directing their attention towards particular aspects of the interaction and hence signify that which they deem to be *meaningful* within that context. After watching all three of the video sessions in full, five minute segments were chosen to illustrate the differences in game play and the evolution of players' engagement with the Wii. These segments were also chosen because they portray similar characteristics in terms of the expectations of the game, all showing the Wii Sports bowling game. Using these three segments allows us to compare the multimodal construction of meaning over different contexts and over time. Throughout the sessions players were observed playing a number of different games. The principle game and the one chosen by Age Concern to teach new players was the Wii Sports Bowling game, in particular a variant of the standard ten pin game called 'Power Throws' which involves knocking down increasing numbers of pins at each throw. Participants and organizers are identified throughout the paper by anonymised names.

## 3 Findings

### 3.1 Overview of Game Play Development

#### 3.1.1 Game Choice

The Wii Sports Bowling game was chosen by the Age Concern organisers as an introductory game. From interviews with organisers it became apparent that older players were familiar with the bowling game concept likening it to lawn bowls or skittles and found the controls relatively easy to understand and operate. Similar usability issues were experienced in relation to button control as Neufeldt [22] found. This particular game leaves control of game play progression down to the current player which is helpful in terms of structuring the whole event, allowing breaks in play at any point and not dictating the overall pace of play.

### 3.1.2 Competition

Only a minority of residents in any given home volunteered to participate in the Wii initiative. Indeed communal activities in Sheltered Housing were generally not well attended. Age Concern recruited and trained teams from different sheltered houses and then got them to compete against one another as part of their league. The organisers saw team building and competition as important in engaging new players. At their public events two Wii consoles were set up side by side to give the impression of one team playing against another. In practice these early games were more about learning how to play the game rather than competing with others. Competition with oneself in terms of one's physical and mental capacity was seen to be just as important as a motivation for the players. Men tended to respond more to the competition element, with some practicing deliberately for competitions. As one player put it: "if you don't use your head you lose it" (Don).

### 3.1.3 Personal and Social Involvement

There were other reasons for joining in with the Wii initiative. Those with grandchildren were keen to keep up to date with them by learning about the Wii. They were aware that the Wii games console carried a lot of cultural capital with their grandchildren from family gatherings where it had been present. They were keen to share an appreciation of their grandchildren's enthusiasm and to be able to play with them at a later date. Particular elements of the Wii were also harnessed by the organisers to encourage personal and social involvement during game play. For instance the Wii uses on screen avatars called Mii's to represent individual players. These can be named and their appearance customized to suit each player. During Age Concern events players were encouraged to spend a good deal of time choosing their Mii and giving it a name that they could relate using *'nicknames they'd had as a child'* (Pamela). Mii's were also used to promote a group identity for competitions with a Mii being created specifically for the whole team and physical mascots being used to reinforce this group identity.

## 3.2 Playing on: Evolving Game Play

In order to understand the progression of how players made sense of and engaged with the Wii experience beyond these initial conceptions it was important to take a closer look at how people conducted themselves during the game play itself. Here multimodal interactional analysis [23] was used to understand both the verbal and non-verbal aspects of Wii game play. Each video captures use after a different time span: initial use; use after six months and use after one year, and is representative of other video and observation notes of game play at a similar stage. Each video is also showing a different sheltered home situation.

### 3.2.1 Video 1: Initial Use

This first video is at a point of initial use. It shows an 83 year old resident becoming acquainted with the 'increasing-pin' version of the bowling game on the Wii. Out of the group of players she is the only resident in this home and from the start is designated the captain of the group. The other players are visiting from another Sheltered

Housing scheme nearby and they all know one another. This is their second time playing the Wii and they are being instructed by a member of the Age Concern support team. Assistance is given when they encounter problems understanding game expectations or in using the Wii controller. This particular player has trouble working out when to press the B as also noted in previous studies [22]. Prior to playing the game, seating is arranged by the Age Concern staff in a semicircle around the game's display. During play the whole team sit around the display and are intently focused on the game, giving encouragement and advice to the person playing.

**Table 1.** Information about Wii game playing session in Sheltered Home 1

No. Residents	35 (Sheltered Home 1)
No. Older Players	5
Previous experience of playing Wii	Novices. Dependent on Age Concern to provide console and screen. Need support to set up and play.
Number of consoles	1
Others present	5 (1 member of Sheltered Housing staff (briefly), 2 Age support workers, 2 researchers)
Games played in session	Wii Sports – Bowling; Wii Fit – Ski Jump

*Excerpt 1*

Participants left to right:(off screen: Dee-Age Concern), Ben-researcher, Edna-player, Beryl-player, Pat-player, Ann-player, Jan-player.

	<p>0.31.84                  Dee: there's two buttons to remember my love. First press the button A.                  Edna: well it's not flashing.                  Dee: No you're all right press B then.                  Edna: Press B?                  Ann: Press B and play                  Dee: Press button B and put your arm back and you hold it like that.</p>
	<p>0.41.92                  Dee: [demonstrates movement]                  00.44.72                  Edna: [successful throw] Dee: Hey that's a good one                  Ann: Cor that's a good one Edna Hurrah, one left                  Dee: Ha ha                  Beryl: Huhm                  Silence 9 seconds</p>

	<p>0.59.29 Edna: [swings without effect]</p>
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In excerpt 1 we see Edna trying to understand the action of button B in relation to throwing a ball down the alley and she starts off being quite impatient and irritated. Button A must be pressed briefly to place the Mii at the top of the alley (except the button has been covered with a piece of card by the Age Concern helper) and then button B must be pressed, held down whilst swinging and then released to let go of the ball. Whilst the Age Concern helper (Dee) is able to demonstrate the embodied throwing action easily she cannot describe the points in time necessary for pressing and releasing button B. With this first throw Edna gets the timing right with corresponding encouragement from the other players. Edna’s subsequent attempts are not so successful. She continues to press button B and enact the throwing movement without success. Her fellow players offer suggestions which are plainly wrong and do not help. In the end she just keeps enacting the swinging motion repeatedly and pressing button B until it works.

*Excerpt 2*

The alternative to pressing button A to put the Mii at the top of the alley is to just wait until the game places the Mii there by itself. Eventually after a few multiple throws like the first one Edna decides to just wait. Whilst throwing her fifth ball a member of the Sheltered Housing staff enters the room.

<p>Participants left to right:(off screen: Dee-Age Concern),Ben-researcher, E-player, A-player, Pat-player, Cath-housing staff, Ann-player, Jan-player</p>	
	<p>2.5.76 Cath: Hi yah [member of Sheltered Housing staff enters at far door] Jan: Hello Cath: Hi yah Dee: Yeah</p>

	<p>3.04.44 Edna: [Does a double swing, the second one being successful. She knocks all the pins down]                  Ann: Very good                  Jan: Oohoo</p>
	<p>3.12.40 [Everyone except Cath applauds]                  Ann: Well done Edna 45 pins                  Dee: You see it doubles up when you get a strike you get double the points.                  Pat: 90 she's got there</p>

During this throw there is intense silent concentration amongst all the players as Edna waits for the appropriate time to throw the ball. All the players are paying attention to Edna's mistakes and learning from them. The member of staff (Cath) interrupts the silence with her own greeting but is given minimal attention by everyone else as their attention is focussed on the game. With this throw Edna knocks down all the pins at once (a strike) with excited applause coming from all the other players and a big smile across her face. Cath does not join in the applause. The Age Concern demonstrator explains the scoring associated with a strike and player Pat reiterates this to the whole group as a way of confirming this new knowledge.

*Excerpt 3*

The member of staff continues to start conversation ignoring the game play.

	<p>3.26.80 Cath: I thought they were doing skiing or something today                  Beryl: We were doing that.                  Cath: Oh you've done that have you. Yes.                  Beryl: Failures                  Cath: ha ha ha</p>
	<p>3.35.82 Edna: [Double Throws]                  Cath: Where is everybody from our house then coz there's only Edna                  Beryl: Go on                  Jan: Ooh                  Ann: It's a lot of pins in it. 54 pins                  Silence 4 seconds                  Beryl: No I don't know where they all are                  Cath: I've only popped in I'm busy I can't stop.                  See ya later.</p>

Despite the member of staff's attempts at initiating conversation with the players their attention remains focused on Edna and her playing of the game. Their responses to Cath are curt and do not invite extended conversation. Equally she makes it clear that she does not see their presence in the house as her responsibility, using a strange third person approach to talking to them as in "*I thought **they** were doing skiing or something today*". She quickly defines her responsibilities as concerned with residents only and therefore not this mixed group, retreating from the room to continue with other duties.

Even at this early stage there is the sense of an inner gaming circle which emphasizes the importance of the collective activity taking place with the Wii, creating a 'sacred space' [12] around it. This seems to be at odds with the day to day working practices of this sheltered home. Goffman [12] talks about the ways in which people use conversation and body language to bound regions according to particular standards of behaviour or 'decorum'. In this setting consideration for the current player in terms of silence and appropriate encouragement are paramount as well as joint involvement in the ongoing game. The region of game play is bounded by the semi-circle of chairs which creates a physical obstacle to outsiders. The staff member is excluded from the gaming circle in order to maintain the correct decorum for playing the game. Here we see the beginning of the creation of social meaning around the Wii, but at this early stage the mechanical aspects of the game play are foregrounded as the social focus.

### 3.2.2 Video 2: After 6 Months

Video 2 represents typical play after 6 months use. It shows an 81 year old lady (also designated as the captain) playing the standard ten-pin version of the bowling game. The players in this video are well acquainted with the Wii and have incorporated these sessions into their weekly routine. All the older players are residents of this particular home. The Age Concern support staff still give advice but are more focused on improving players' performances rather than teaching them how to use the

**Table 2.** Information about Wii game playing session in Sheltered Home 2

Number of Residents	27 (Sheltered Home 2)
Number of Older Players	3
Previous Experience of playing Wii	Accomplished players with 6 months experience. Played in the final of the Wii Bowling competition at a public venue. Dependent on Age Concern to provide console and screen. Can set up and need no support to play.
Number of consoles	1
Others present	6 (1 other older resident, 2 member of Sheltered Housing staffs, 2 Age Concern support workers, 1 researcher)
Games Played in Session	Wii Sports – Bowling; Wii Fit – Ski Jump

controls. The housing staff are present and join in with the games. The current player has just returned from a period in hospital and has not joined in with the Wii sessions for some weeks. The other resident present has difficulty playing standing up due to having had a stroke affecting his stability and joins in from his chair. She is fully conversant with the controls but has some trouble aiming her ball down the middle of the alley. The seating arrangements are not altered for the Wii and whilst those sitting around the game are supportive, their attention is not always focused on the game play with conversations about other topics taking place.

*Excerpt 4*

Participants left to right: Pedro-Age Concern, Mark-Age Concern, Irene-player, Julia-player, Pam-housing staff, (off screen: Pete-player, Liz-housing staff)	
<p>00.20.00 Pedro:Famous strikes please</p>	
<p>00.22.86 Irene:[Pushes button with left hand to move across the alley]</p>	
<p>00.29.90 Irene: [Throws the ball -gets a strike]</p>	
<p>00.37.26 Pedro: [claps] Oooer Irene: Well I've had one so I'm happy Julia: You'll get more Pedro: That was the first one</p>	

There are no problems with button B here and the A button is not covered by the Age Concern staff during this session. Irene uses advanced techniques to play the game such as moving her Mii character slightly to one side before throwing to compensate for her particular throwing style. Her control of the Mii at this point shows a degree of sophistication in terms of understanding what the Wii controller does and the way in which her physical actions affect her performance. The Age Concern demonstrator (Pedro) recognises Irene’s abilities from past sessions as indicated by his first comment “*Famous strikes please*” but wants her to continue playing her best and improving. Initially he does not instruct her directly but there is an obvious shared understanding between himself and Irene evident in both their comments.

*Excerpt 5*

In excerpt 5, we see different members of the audience (Liz and Pedro) challenging Irene to recreate her best performances from the past. However the conversation surrounding the game starts to interfere with the silent shared concentration needed for playing. The conversation also starts to go off at tangents principally driven by the staff member Liz. Other members of the audience place their hands over their mouths to subtly indicate the need for silence whilst Irene is playing.

<p>00.46.65          Liz: I want you to show me how this turkey’s <sup>3</sup>done Irene          Irene: You must be joking ‘Liz’          Liz: Nooo          Pedro: Double get double          Irene: [Pushes button with left hand to move across the alley, throws the ball]</p>	
<p>01.17.49          Irene: [Pushes button with left hand to move across the alley - throws the ball]          Game: “Nice Spare”          Pedro: Second try now</p>	

<sup>3</sup> A turkey in ten pin bowling is three strikes in a row.

<p>01.31.67                  Irene: [Pushes button with left hand to move across the alley - throws the ball]                  Liz: I didn't notice we've got a blue ball since we changed console, did we used to have a black ball or did we always have a blue ball?                  Pete: Can't remember                  Pedro: It changes. It changes. It depends.                  Liz: Maybe we'll always have this.                  Pedro: It was pink one before.                  Irene: Only one that time</p>	
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*Excerpt 6*

In excerpt 6 Pedro decides to give Irene some direct advice about how to correct her play seeing that her usual approach is not quite working. He recommends a subtle change to the positioning of her Mii character which Irene acknowledges and does. Unfortunately the conversation from the audience continues to interfere and becomes even more unrelated to the game. More of the audience start to cover their mouths with their hands as a way of reinforcing Liz's compliance in terms of being quiet and paying attention to the game.

<p>Participants left to right: (off screen: Pedro-Age Concern), Mark-Age Concern, Irene-player, Julia-player, Pam-housing staff, (off screen: Pete-player, Liz-housing staff)</p>	
<p>04.03.00 Pedro: You're going too much to your right                  Irene: Yes I am aren't I. I noticed that.                  Pedro: If you go one less, you will get it right.</p>	
<p>04.22.74 Irene: [pushes button to side - throws]                  Game: Nice spare                  Pete: Are they decorating the bedrooms?                  C: No, it will be the entire common area and                  Pedro: Try to be in the middle here Irene.                  Irene: in the middle there                  Pedro: Right in the middle there                  Liz: I'll ask for the wallpaper book Sunday</p>	

<p>00.04.50 Liz: the majority will be like the paper of the hallway</p>	
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In this setting similar standards of behaviour or decorum are expected to those at Sheltered Home 1, i.e. consideration for the current player in terms of silence and appropriate encouragement as well as joint involvement during the game. In addition there is an expectation that players will challenge themselves and try to get the best scores. In this case the playing region is not bounded in space and instead is much more integrated into the existing spatial arrangement of the room. It is bounded in time and the rhythm of game play though such that the players and audience are expected to abide by the decorum of Wii game play during the sessions. In this case the staff member cannot be physically excluded from the gaming circle but cues are given to her that she should maintain the correct decorum during the game. Here we see the Wii becoming more integrated into social interaction more generally with the mechanics and usability aspects of game play starting to recede more into the background of play, enabling the social aspects to be more foregrounded.

**3.2.3 Video 3: After 1 Year**

The third video shows game play after 1 year. Here an 82 year old man is playing the ‘increasing-pin’ version of the bowling game with three other players. One of the

**Table 3.** Information about Wii game playing session in Sheltered Home 3

No. Residents	93 (Sheltered Home 3)
No. Older Players	13
Previous Experience of playing Wii	Accomplished players with 1 year’s experience. Played in the final of the Wii Bowling competition at a public venue. Have their own console which they practice on regularly. Need no support to set up their own console and play.
Number of consoles	2 (Age Concern provide second console)
Others present	3 (1 member of Sheltered Housing staff from another home, 1 Age Concern support worker and 1 researcher)
Games Played in Session	Wii Sports – Bowling; Wii Play - Duck Hunt; Wii Sports – Golf; Wii Sports – Tennis

seated players (Sheila) is a newcomer to the Wii whilst the others are seasoned players. All of these players are resident of another sheltered home and have been invited to play by the residents (who are also present but not playing) at regular sessions every week for the last year. It is an established part of both houses' routines. This is a larger event than that shown in the preceding videos with 2 Wii consoles and 2 displays. This gives more of an atmosphere of an 'event'. The seating has been arranged in an extended semicircle around the displays and biscuits are placed out on tables adjacent to the seats before the visiting team arrives. This is all done by the residents of the sheltered home hosting the event rather than Age Concern and there are no housing staff present. The residents also greet people as they come in and make them cups of tea. Whilst people are playing the Wii they circulate amongst the players engaging in general conversation. Age Concern's input is minimal and focuses on keeping scores during games, keeping players focused on the game and informing everyone of city-wide Wii events that they could take part in. Seasoned players are responsible for passing on their Wii skills to newcomers.

#### *Excerpt 7*

Excerpt 7 shows how the game play has become a background element to a larger socialising event. There are multiple conversations taking place throughout the room, sometimes focussing on the game but shifting easily to all sorts of other unrelated topics. The volume of conversation drowns out the noises from the Wii console. Dee attempts to keep the focus on the game by pointing out the current state of affairs to others

Participants left to right: Peg-player, Sheila-player, Mary-player, Dee-Age Concern, Ron-player	
<p>0.24.52          Ron: [throws]          Mary: Oh nearly.          Sheila: The trouble with me when I started doing that..          Mary:Everybody does that.          Sheila: I kept letting go of it</p>	
<p>0.33.80          Sheila:[does action with the imaginary button in mid air]          Peg: Yeah I keep doing that. Goes off the line don't it and I gotta go that way [does a jiggle] then I move over          [points to playing area to show where] and then it starts going the right way.</p>	

<p>0.50.68  Ron: [successful throw]  Mary: everybody does that Sheila  Sheila: Do they? [picks up cup of tea and drinks]  Dee: Do do da do [waves hand up and down]  Mary: [picks up cup of tea and drinks]  Peg: Oh it is hot in here isn't it</p>	
<p>1.09.59  Peg: [picks up tea and drinks]  Sheila: [puts tea down]  Mary: [puts tea down]  Sheila: Oh the supermarket down St James' Street  Peg: Oh isn't it hard  Sheila: I know I used to moan about it but I really miss it.  Dee: [picks up cup of tea and drinks]</p>	

Here, the Age Concern demonstrator (Dee) is largely redundant in her role with existing players teaching new arrivals. For newcomers acquiring literacy with the Wii in this setting, the learning takes place in a more subtle manner to that seen in the other videos. It has become an aspect of communicating with one's peers, embedded in the process of getting to know one another. This contrasts with the situation in the other houses, who were at different points in the appropriation lifecycle, where learning was from a knowledgeable other (Age Concern demonstrator). The sense of decorum is also quite different with minimal consideration for the current player in terms of silence and encouragement. Expressions of joint involvement are still present but have shifted from an exclusive concentration on the game to sharing personal exchanges about their daily lives. The playing region is bounded in space in the same way as in video 1 with one important change, it now encompasses two sets of players (one for each console). Interestingly although this recreates a competitive setting, competition itself is absent from the game play with each console set up for completely different games. Players treatment of the playing region as a 'sacred space' is also less rigid with the providing of refreshments taking priority over game play. In summary, what we see here is the foregrounding of social meaning around the Wii, where ownership now lies clearly with the residents and where the Wii merely provides the context/excuse for their interactions, and where the space has meaning beyond purely game play.

## 4 Discussion

The focus of this paper is on understanding how older people in these Sheltered Housing situations have evolved their relationship with Wii game play over time. The fact that this is an active ongoing agenda across multiple Sheltered Homes more than a

year after its introduction, and that the residents have clearly been able to actively construct socially meaningful engagement for themselves around using the Wii, is evident of a successful initiative by Age Concern. Undoubtedly too, their use of the Wii promotes physical, psychological and social activity. This is clear to see from the video excerpts. While an Active Ageing agenda [30] may assume that this kind of activity – Wii game play - is intrinsically beneficial, it is important to consider *how* it is that these older people actively define such activities as meaningful. To ignore this is to ignore the essence of what makes the initiative successful. The way in which the purpose of the Wii and the space around it have been negotiated and defined by the players and support staff is integral to understanding its success.

#### **4.1 Creating a Sacred Space for Wii Game Play**

Age Concern's role in the Wii initiative is pivotal, expressing an underlying empowerment principle towards players which encourages their independent mastery of technical literacies and a high degree of control over their living spaces. The redefinition of physical and social space which accompanies players' use of the Wii is also implicated in its successful integration into the daily life of these players. The physical movements which are a necessary part of playing the Wii help to define a 'sacred' space around the game console with its own sense of decorum. Players must step into this space in order to play the game and non-players are expected to be respectful of this space not entering it during play. Age Concern reinforce the sense of a sacred space with a chair circle around the Wii and define decorum in conjunction with players as being based on fun and friendly competition with patient consideration for new players but an expectation that players will challenge themselves to the best of their abilities. Engaging with this space players first acquire technical literacy with the Wii but soon start to take ownership of this space and the social potential that it offers.

#### **4.2 Acquiring Technical Literacy**

The sacred space of the Wii provides a safe place to learn about the new embodied gesture-based interactions of the Wii. Learning is also supported by the physical nature of play. Individual interactions with the Wii amplify older players' physical abilities allowing them to take part in activities (such as bowling) which they would not normally entertain. The embodied interaction metaphor that translates physical off screen movements into enhanced on screen activities (making participation in such activities possible) is quickly understood and appreciated by new players. Age Concern staff demonstrate these capacities very simply through miming of the necessary actions (see video 1). The transparency of Wii interactions (and their associated difficulties) make them available to other players providing socially-embedded opportunities for vicarious and shared learning, with non-players observing and offering advice. Age Concern maintain an empowering approach to teaching the Wii interactions using a scaffolding approach [4], reducing support as players' competence with them increases. What is interesting here is that once basic literacies have been acquired the game recedes as a focus of attention in its own right to becoming a context for other social purposes, and where the skills are taken for granted.

### 4.3 Taking Ownership of Communal and Social Space

Defining Wii game play areas as sacred space also encourages the older residents in these sheltered houses to take *ownership* of those spaces whilst playing. In videos 1 and 2 it was Age Concern support staff who were responsible for appropriating space though the repositioning chairs and tables and the placing of the Wii console and display screen to form circles. In video 3 it is the residents who take full control of their physical space rearranging it without Age Concern support and inviting guests into that space. Here we start to see the underlying social potential of the Wii being explored. Previously, residents were largely reliant on the Housing staff to organize social activities, and these were for residents only. Over time we also see the sacred space of these events being asserted in terms of time and social availability with their regular establishment in the diaries of players. The Wii in these settings has been used as a pivotal facilitator in both shifting the power and motivation for social organization to the residents themselves, and for widening the social participation to engage with other homes and with older residents in the neighbourhood, forging new social connections with peers that had not previously existed.

Such active participation in residential settings is acknowledged as important for the well being of Sheltered Housing residents although it can sometimes be at odds with the concerns of housing staff who are focused on managing an efficient working environment [1]. This appeared to be the case in Sheltered House 1 where ownership of space was contested. Wii game playing has allowed the older people in these homes to accomplish technical literacy with new technology, to express their own values in new and collective ways, expressing claims to ownership of communal space and time, defining new meeting places and providing opportunities for instigating new social connections with their peers. Together these contribute to the older people in these homes being able to frame what constitutes *meaningful use* of a technology for them.

### 4.4 Guideline for Appropriation and Empowerment

The Wii console is quickly being adopted as a panacea for ageing concerns with research showing its positive effects on physical health [2] and mental well being [11]. Other research has suggested that the Wii's ability to benefit older users in this way is due to its inherent sociability [28]. Undoubtedly the embodied aspects of game play do allow social interaction to continue during game play. However in this study we have highlighted the co-constructed and contested nature of Wii game play and the importance of older people themselves gaining control over the space as part of their appropriation of the Wii. It is their active performance within and surrounding game play that constructs it as a meaningful and beneficial engagement. Interventions for older people using the Wii should remain cognizant of the centrality of empowerment in promoting well being with appropriate decorum and control over their own space being important gauges of empowerment in such situations [19]. Here we present guidelines for encouraging empowerment as part of appropriating the Wii. This reflects a broader view of 'design implications' where any such intervention reflects not only the technical issues but designing for the broader context:

#### **4.4.1 Identify Motivations**

Determine older people's motivations for playing the Wii in the first place and try to support these. Where appropriate look to extend opportunities for social contact with peers and intergenerational connections through game play. Both this and previous studies [28] have highlighted potential for playing with younger generations and grandchildren. There are also opportunities to explore this through remote Internet-enabled game play that have so far not been explored.

#### **4.4.2 Use Controllable Games**

Choose games initially that allow older players to be in control of the pace and play rather than it being dictated by the game. This allows controlled engagement with the game which is particularly important for frail players and gives space for the 'in between' social interactions. There is a definite design opportunity here for more such games. Many of the games encountered during the study dictated the pace of game play too much for older players and were discounted by them (e.g. Ski jump).

#### **4.4.3 Setting Up the Sacred Space: Physical Layout and Decorum**

*Physical layout:* It is important to establish the layout of the room particularly in the early stages by arranging chairs and the display screen so that it creates a 'safe' enclosed circle for learning the embodied interactions of the Wii.

*Decorum:* The decorum surrounding game play is important to define as this creates expectations for what behaviour is appropriate, acceptable and/or encouraged. An initial attitude of friendly competition and self-challenge is important in that it motivates players to learn. Fostering a collective attitude towards learning and playing is important where joint involvement is encouraged. In this study this was promoted by the league element of Age Concern's approach. Previous studies have suggested downplaying the competitive element of Wii games [28] but it seemed to be a positive element here. Social interaction is the bedrock of the Wii's success and once players get to know one another they will start to define their own sense of decorum. This is to be encouraged. Tea breaks are one way of providing social 'openings' for players to start talking and getting experienced players to teach new ones in other homes is another.

#### **4.4.4 Scaffold Learning**

Training for basic skills acquisition should be adapted to account for the initial abilities of the player but should remain open to skillful development in the future. Basic embodied skills can be taught easily by the miming of embodied actions but more symbolic interactions which incorporate the use of buttons are more difficult to acquire for some older people. Engagement with the physical interface of the Wii controller should be managed (i.e. with the use of cardboard covers over buttons) so that only simple interactions are possible at first but can become more complex at a later date. Adaptivity of this sort is a common approach to accessible design for virtual interfaces [25]. A similar design approach could help here with the Wii controller's physical interface.

#### 4.4.5 Manage Transition to Ownership

Plan explicitly for the transitioning of ownership by negotiating with other residents and staff within the home. Get everyone on board as much as possible from the start including them in sessions so that when support withdraws the physical and social space to play the Wii remains.

## 5 Conclusions

This longitudinal study of older people's use of the Wii in Sheltered Housing has shown how an initiative based upon competitive embodied gaming can address some of the ongoing issues related to growing older in a developed society. It introduced older players to new technical literacies in an inclusive non-threatening and fun way. It addressed social isolation by providing them with new social peer connections through community events. It provided new roles for older people within their local community as hosts of such events and encouraged their ownership of the communal spaces in which they lived. What also became clear in this study was the contested nature of these institutional settings and the way in which the Wii (with Age Concern's help) could empower older people living there to redefine these settings as community meeting places. The presentation of the key lessons as guidelines is intended to enable other groups of older people to realise the social value from games such as the Wii in sheltered housing settings whilst at the same time keeping an important grounding in empowerment issues. Whilst this study has focused exclusively on older people's appropriation of the Wii in Sheltered Housing it would be interesting to see whether similar processes of appropriation took place when other technologies were introduced into those same spaces.

## References

1. Abbott, S., Fisk, M., Forward, L.: Social and democratic participation in residential settings for older people: realities and aspirations. *Ageing and Society* 20, 327–340 (2000)
2. Basak, C., Boot, W.R., Voss, M.W., Kramer, A.F.: Can training in a real-time strategy video game attenuate cognitive decline in older adults? *Psychology and Aging* 23(4), 756–777 (2008)
3. Bouwhuis, D.G.: Design for person-environment interaction in older age: a gerontechnological perspective. *Gerontechnology* 2(3), 232–246 (2003)
4. Bruner, J.: *Actual Minds, Possible Worlds*. Harvard University Press, Cambridge (1986)
5. Cavan, R.S., Burgess, E.W., Havighurst, R.J., Goldhamer, H.: *Personal Adjustment in Old Age*. Social Science Research Associates, Chicago (1949)
6. Choi, N.G., McDougall, G.J.: Comparison of Depressive Symptoms between homebound older adults and ambulatory older adults. *Aging and Mental Health* 11, 310–322 (2007)
7. Department of Health: *Our health, our care, our say: a new direction for community services*. Department of Health, UK Government (2006), [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4127453?IdcService=GET\\_FILE&dID=456&Rendition=Web](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4127453?IdcService=GET_FILE&dID=456&Rendition=Web) (accessed March 19, 2009)

8. European Commission: Green Paper Confronting demographic change: a new solidarity between the generations. European Commission (2005), [http://europa.eu/legislation\\_summaries/employment\\_and\\_social\\_policy/situation\\_in\\_europe/c10128\\_en.htm](http://europa.eu/legislation_summaries/employment_and_social_policy/situation_in_europe/c10128_en.htm) (accessed May 21, 2009)
9. European Commission: European i2010 initiative on e-Inclusion. To be part of the information society (2007), [http://ec.europa.eu/information\\_society/activities/einclusion/docs/i2010\\_initiative/comm\\_native\\_com\\_2007\\_0694\\_f\\_en\\_acte.pdf](http://ec.europa.eu/information_society/activities/einclusion/docs/i2010_initiative/comm_native_com_2007_0694_f_en_acte.pdf) (accessed October 20, 2008)
10. Fox, S.: Older Americans and the Internet, Pew Internet & American Life Project (2004)
11. Goldstein, G.H., Cajko, L., Oosterbroek, M., Michielsen, M., Van Houten, O., Salverda, F.: Videogames and the elderly. *Social Behavior and Personality: An International Journal* 25(4), 345–353 (1997)
12. Goffman, E.: *Presentation of Self in Everyday Life*. Doubleday Anchor, New York (1959)
13. Griffiths, M.: The therapeutic value of video games. In: Raessens, J., Goldstein, J. (eds.) *Handbook of Computer Games Studies*, pp. 161–171. The MIT Press, Cambridge (2005)
14. Hall, K.: Nintendo: Wii Want To Expand Games' Appeal. *Business Week* (September 14, 2006), [http://www.businessweek.com/globalbiz/blog/eyeonasia/archives/2006/09/nintendo\\_wii\\_wa.html](http://www.businessweek.com/globalbiz/blog/eyeonasia/archives/2006/09/nintendo_wii_wa.html) (accessed July 15, 2009)
15. Havighurst, R.J., Albrecht, R.: *Older People*. Longman, London (1953)
16. Holzinger, A., Searle, G., Nischelwitzer, A.: On some Aspects of Improving Mobile Applications for the Elderly. In: Stephanidis, C. (ed.) *HCI 2007. LNCS*, vol. 4554, pp. 923–932. Springer, Heidelberg (2007)
17. Holzinger, A., Softic, S., Stickel, C., Ebner, M., Debevc, M.: Intuitive E-Teaching by Using Combined HCI Devices: Experiences with Wiimote Applications. In: Stephanidis, C. (ed.) *HCI 2007 and EPCE 2007. LNCS*, vol. 5616, pp. 44–52. Springer, Heidelberg (2009)
18. House, J.S., Landis, K.R., Umberson, D.: Social relationships and health. *Science* 241(4865), 540–545 (1988)
19. Light, A., Wright, P.C.: The Panopticon and the Performance Arena: HCI Reaches within. In: Gross, T., Gulliksen, J., Kotzé, P., Oestreicher, L., Palanque, P., Prates, R.O., Winckler, M. (eds.) *INTERACT 2009. LNCS*, vol. 5727, pp. 201–204. Springer, Heidelberg (2009)
20. Livingstone, S., Van Couvering, E., Thumim, M.: Adult media Literacy: A review of the research literature on behalf of Ofcom. Ofcom (2005), [http://www.ofcom.org.uk/advice/media\\_literacy/medlitpub/medlitpubrssl/aml.Pdf](http://www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrssl/aml.Pdf) (accessed August 20, 2008)
21. McLaughlin, A., Allaire, J.: <http://www.gainsthroughgaming.org/2009> (accessed July 10, 2009)
22. Neufeldt, C.: Wii play with elderly people. In: *International Reports on Socio-informatics. Enhancing Interaction Spaces by Social Media for the Elderly: A Workshop Report* 6(3), 50–59 (2009)
23. Norris, S.: *Analyzing multimodal interaction: a methodological framework*. Routledge, New York (2004)
24. Parker, A.: “OAPs say nurse, I need a Wii”. *The Sun* (September 14, 2007), <http://www.thesun.co.uk/sol/homepage/news/article294579.ece> (accessed July 15, 2009)
25. Stephanidis, C.: Adaptive techniques for universal access. *User Modeling and User-Adapted Interaction* 11(1-2), 159–179 (2001)

26. Stephanidis, C.: User Interfaces for All: New perspectives into Human-Computer Interaction. In: Stephanidis, C. (ed.) User Interfaces for All - Concepts, Methods, and Tools, pp. 3–17. Lawrence Erlbaum Associates, Mahwah (2001)
27. United Nations World Economic and Social Survey 2007: Development in an Ageing World. United Nations, New York (2007), <http://www.un.org/esa/policy/wess/wess2007files/wess2007.pdf> (accessed October 10, 2008)
28. Volda, A., Greenberg, S.: Wii All Play. The Console Game as a Computational Meeting Place. In: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 1559–1568. ACM Press, New York (2009)
29. Wischnowsky, D.: Wii bowling knocks over retirement home. Chicago Tribune, (February 16, 2007), <http://www.chicagotribune.com/news/local/chi-070216nintendo,0,2755896.story> (accessed July 10, 2009)
30. World Health Organisation: Active Ageing: A Policy Framework (2002), [http://whqlibdoc.who.int/hq/2002/WHO\\_NMH\\_NPH\\_02.8.pdf](http://whqlibdoc.who.int/hq/2002/WHO_NMH_NPH_02.8.pdf) (accessed February 17, 2009)