Designing the Lost Self: Older Adults’ Self-representations in Online Games

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ABSTRACT
Older adults are increasingly engaging in online activities, including games, with other people. Many online environments require the user to create some form of self-representation, ranging from a simple user name through to a full body avatar. These self-representations not only enable access to online activities, but also provide an opportunity for expressing both the real and ideal identity. We wanted to better understand the impacts of later life on the construction of self-representations when playing online games. Our study used gameplay observations and semi-structured interviews with 10 older adult gamers aged from 65 to 95 years. We found they designed their player self-representations to project aspects of their lost (former) self and to embrace their present older selves. This engagement with self-representations as a form of self-expression suggests that designers need to consider older gamers, and their diverse preferences, when creating tools for customizable self-representations in online games.

Author Keywords
Older adults; self-representation; design; online games; avatar; aging; identity.

ACM Classification Keywords
H.1.2 [User/Machine Systems]: Human Factors;

INTRODUCTION
Craig plays as Kowalski the shotier in Battlefield, a Massively Multiplayer Online Game (MMOG). Craig is 82 years old and has been playing online games for the last 16 years, almost 6 hours every day. This is one example that challenges stereotypes of older adults using technology. Like Craig, other older adults are using social media [1], online communities [7, 8, 25], dating sites [50], and games [1, 28]. In fact, recent reports indicate that the fastest growing segment of the online gaming population new to games is older adults over 65 years of age [5].

As many gaming environments involve social interactions online, users require a digital self-representation (e.g., Kowalski the shotier) in order to be identified by others. Online self-representations range from simple nicknames to full body depictions of a character. These self-representations are critical elements of social interaction as they project information about the self, helping to create initial impressions [19]. This information can be so significant that some authors state that meeting an individual online can be more informative than meeting that person face to face [23]. But these self-representations do not act as mere representational elements; they also allow a “construction and reconstruction of the self” [47] supporting in many cases the enhancement or idealization of the self in virtual environments.

To understand the role of self-representations in older adults, this study investigated the question: how do older adults represent themselves in online games? In this paper, we focus in particular on aspects of self-representation significant to later life. We conducted semi-structured interviews and gameplay observations with 10 older adults (65-95 years old) playing online games with other people. Though our findings depict great diversity in player representations, they also highlight the potential of self-representations in projecting aspects of the self that had been lost during the lifetime and that are still considered important for the individual acting as a tool of reminiscence. In addition, some participants designed self-representations that embraced aspects of their current experiences as older adults. Our analysis provides a case for designers to expand the possibilities of customization of player representations, especially for older adult gamers, while contributing to the growing literature that aims to understand the benefits online technologies can provide for people as they age.

PRIOR WORK
Self-representations in Play
When meeting a person face to face, we construct our impressions by looking at their body appearance, body language and even their clothing. However, in online environments we do not have all these visual cues to learn about someone’s identity. For some this relative anonymity achieved in online environments provides more freedom in expression [3, 35]. For example, online environments enable users to experiment with self-representations portraying different genders or races [47]. Moreover, recent studies have shown that online self-representations can be use for self-disclosure [52] or creativity [13, 24].

Depending on the online environment, self-representations can range in complexity from text-based nicknames to avatars. Despite the simplicity of nicknames, they can depict individual traits of the user, personal interests [13] or indicate belonging to a particular group [2]. An early study of online player nicknames found that 45% of 260 nicknames included some feature of the self, such as references to physical or psychological character traits [2]. As online self-
representations become more complex they can provide more information about the individual.

In virtual worlds users adopt an avatar in order to interact with each other and their surroundings. Avatars provide a richer way to present the self as they provide a depiction of a full body character [45]. The use of an avatar may go beyond static self-representations. The avatar is a medium to express gestures and actions, and can potentially denote values and behaviors in the virtual world. McDonough says that the actions build an identity; suggesting a ‘performative’ identity on the online world that is made of what you do, not only what you are [34]. Some authors state that the visual depiction of an avatar influences the personality that the user attaches to the avatar in the virtual world [52]. Others state that the personality of the player is usually maintained through his or her avatar [14]. What is important is that when creating an avatar, users customize visual traits but also attach a personality to the character.

In addition, in online games the narrative and features of the game influence avatars’ depictions [14]. Users embody roles and characters that are linked to the game. For example, Craig in Battlefield can choose an avatar from a set of characters such as shooters or medics. The visual features of the characters are also representative of this context of use and therefore the characters wear uniforms and use tools such as guns and war vehicles typical of this setting. Even though some of these visual characteristics of the avatars come from the game and not from the user, Turkle argues that users are what they play, suggesting that the selection of a specific type of game may be already depicting an aspect of the self [48].

*Projecting an Ideal Self*

Self-representations also give an opportunity to project personal ideals or aspirations [2, 3]. Studies have shown that these aspirations are influenced by societal norms such as standards of beauty [14, 37]. When customizing their avatars, users in these studies created an idealized avatar applying Western aesthetic features to make them younger, thinner, and fashionable. Scholars believe that avatars can be used to go beyond the specific body appearance and hide traits that Western culture often views in negative terms [37]. Users can create avatars of how they desire to look, representing their ideal self [47], which may not align to their physical appearance but to the one they want to show to others. For example, the use of certain outfits in a digital avatar can provide status that cannot be afforded in physical life [30]. Avatars may constitute a way to be portrayed according social expectations, achieving new representations that may not be possible in the physical environment. It is through these idealizations that the user can also feel identification with the avatar.

*Identification with Online Self-representations*

Identification is the degree to which individuals empathize with a character, perceiving it to be similar to themselves [4]. This similarity can be achieved projecting actual or ideal traits of the self [52]. In fact, greater identification between the avatar and the user can lead to more enjoyment, autonomy, immersion and positive affect [4]. Furthermore, Yee (2014) states that avatar identification can be used as a persuasion tool to change the player behavior [52]. In his experiments, Yee blended the characteristics of the avatars with the participant’s traits showing that users were more motivated to perform the actions that the avatar was doing if they perceived more identification.

However identification between the user and the avatar may not be achieved if the options to customize the avatars do not represent the intentions of the user. For example, researchers have argued that in many character creator interfaces there are visual features such as gender and ethnicity that are depicted in a restricted mode [27, 32]. These systems mediate self-representation practices in a socially exclusive way limiting how minorities are represented in virtual environments [32].

Investigators have addressed these design limitations of character creator interfaces in different ways. Taylor (2003) and McDonough (1999) interviewed designers of virtual environments to have a better understanding of the processes behind the creation of these systems. While some designers highlighted the importance to embrace “… diversity of people and experiences” [44], both studies suggest that the software of virtual environments is designed with intended visions of identities [34, 44]. Authors suggest that these designs respond to hegemonic views of an industry mostly dominated by males [20, 34]. Utilizing another approach, McArthur et al. propose an avatar affordance framework to understand the representational options of customization systems [33]. In her studies, she recommends practices to help designers to make socially inclusive games focusing in the selection of avatar features [32]. Instead, Taylor suggest the use of participatory design methods to reproduce visual traits that represent a wider set of social values in character creation systems [44]. While researchers had pointed to the constrained representations of race and gender in character creation interfaces, there is not much research in relation to the presence of ageing features in these customizations systems.

*Older Adults’ Self-representations*

**Older Adults’ Offline Self**

The changes that older adults experience in later life may impact how they project their identity and how others view them. In later ages, the roles people play in their family, work and other environments frequently become less clear as the circumstances change [51]. For example, older people’s roles as parents may be less demanding as they get older; roles as spouses may disappear as they have more probability to lose their partners. Additionally many older adults stop executing their professional roles when they retire. These changing circumstances may influence identity, making it harder for an individual to understand their new place in
society, thus impacting on their self-perception and self-esteem [26]. In addition, older adults may experience changes in the appearance and functionality of the body that may not correspond with their personal image of themselves [18]. The different domains that construct an individual’s identity become less visible as people grow older. Online self-representations can serve to visualize these hidden aspects of past identities.

**Online Self-representations of Older Adults**

There is very little research exploring the use of online self-representations by older adults. Recent research on self-representations of older adults in dating sites (where users are searching for a potential partner) suggest that they depict themselves as being active, productive, healthy, accentuating their positive approach to life [50]. These portrayals are made by older adults using static elements such as nicknames, slogans and photographs to highlight a positive image in relation to their age, finding that suggests that this may be a way to override negative stereotypes attached to older age [50]. This may influence not only how others see them but also how they perceive themselves.

In relation to the use of avatars, previous research suggests that avatars may be attractive for older populations as they provide the opportunity to embody younger bodies that hide their age [11, 39, 43]. Adults aged 55+ stated that being portrayed in a younger body expanded their possibilities of social interactions as they could blend with younger populations [43]. On the other hand, when participants exposed their real age, some felt that their presence was unwelcome by younger users. The perception of the body must also be highlighted, as some older adults who had physical limitations suggested that avatars removed the restrictions of their physical bodies allowing them to enjoy ‘outdoor activities’. In a recent survey of video game preferences among 100 older adults (60+), they marked that the less important feature of a video game was to have a character that looked like themselves [41]. This finding suggests that they may not be attracted by the idea of having an avatar that depicts their actual self. Finally the idea that older adults prefer to create an avatar with a younger body was confirmed in a recent study with a group of older adults (70+) designing avatars in a workshop setting [9]. Even though this study does not report on the use of avatars in online environments, it does suggest that older adults enhanced their depiction with healthier, stronger and younger traits illustrating a desire for an augmented physical condition. However, other participants in this study also depicted the desire to mirror their actual selves using ageing feature, which may suggest an acceptance of the older self. These findings may sound contradictory, but they also depict the range of preferences found among this population, highlighting the importance of recognizing the diversity among this group [49]. In order to address the diversity and avoid stigma, previous research has involved older adults in discussions of technology designs, expanding the design considerations to respond to specific needs and fit with older adult’s active lives [29].

Considering the influence that character creator interfaces can have on the presentation of the self in online environments, we wanted to learn from the actual choices of older adults (65+) designing online self-representations (including avatars) outside a lab setting and in a real context of use. As older adults are increasingly using online games as a medium to engage online and it is where users will commonly use avatars, we chose gaming as a context for observing the design and use of self-representations among this population.

**Older Adults and Online Games**

Older adults are increasingly engaging in online games. In Australia more than 40% of older adults (65+) are playing online games. More first-time players are in this group than in any other age group [5]. This incremental participation of older adults, is expected to continue to rise as baby boomers achieve later age [5, 10].

It seems that older adults have very heterogeneous preferences in online games. While some older adults prefer casual games, such as Candy Crush or simple games that replicate traditional table board games such as card games [42], others state that baby boomers are interested in engaging in fantasy worlds and are playing through MMOGs [38].

Online games can have collaborative possibilities that allow users to interact with each other individually or by creating teams, bringing possibilities for social interactions. This may be an important trend at a time where there are strong initiatives to promote social participation among this population [12, 51]. In a report of gamers, older adults state that they play online to keep the mind active, to pass time, to have fun, to relax and to be challenged [5]. These experiences had shown to be beneficial among older people increasing mental stimulation, fighting dementia and augmenting mobility [5, 25]. As these systems become more pervasive in older adults’ lives, it is important to understand how older adults want to be represented in online games.

Among the limitations found in this literature review, is the lack of research with older adults over 65 years old. Even though some studies state that they target older adults, the participants of these studies were under 65 years old, age bracket defined by the World Health Organization for older adulthood [51]. Further research is needed in order to understand the social, mental and emotional implications of older adults over 65 years old when using self-representations and specifically avatars in online environments.

**AIMS**

This study aims to understand how older adults are using self-representations in online games. This understanding will contribute to the growing academic literature about older adults and technology use, providing a more nuanced view
METHOD
This study used an exploratory research approach as it is recommended when scarce knowledge is available about a topic [36]. We know very little about the use of player self-representations by older people (65+) explaining also why we did not restrict our observation to the use of a specific type of self-representation such as avatars. Instead, we extended the type of player self-representations to include a wider variety such as nicknames, static pictures and full body animated avatars.

Participants
We conducted semi-structured interviews and gameplay observations with ten participants aged 65 to 95 years, 5 women and 5 men, 1 couple (see Table 1 for detailed demographics). We recruited older people above 65 years old who were playing online games with other people. The participants were recruited via purposive sampling in two countries, the country of residence (Australia), and nationality (Ecuador) of the first author. The recruitment process combined online and offline advertising and snowball sampling. The online advertising was done in online communities of older adult gamers such as the ‘The Older Gamers’, local Facebook groups and networks of people who work with older adults. The offline advertising was done with flyers displayed on noticeboards at community centres such as libraries, universities, retirement villages and seniors activity clubs. The ethics office of our university approved this study, and informed consent was obtained from all participants.

The involvement in online games among our participants is quite diverse in time playing games, frequency, types of games (see Table 1) and type of technology used to practice this activity. Participants have been involved in computer games (not always online games) from 3 to approximately 30 years. Most of the participants play daily and there are some who play up to 6 hours per day. In addition, most of our participants play more than one online game and in some cases have developed multiple online self-representations. However for the purpose of this research we only focused on one game. Participants selected their favorite social online game to play during the study. The devices that they used in the gaming session were also varied among the group including iPhone (1), iPad (1), desktop computer (6) and laptop computer (2).

Data Collection
We conducted in-depth semi-structured interviews and observations of game sessions with each of the participants. The study prioritized face-to-face sessions at ‘normal place of play’ of participants. However, alternate options were used in order to adapt to the participants’ preferences: 5 sessions were conducted at the home of the participants, 3 at an alternate location and 2 through videoconferencing. The sessions started with a short interview that asked about the demographic characteristics, technical skills and experience playing online games. Then participants were asked to play their favorite online game they play with other people. All the games are social and require an element of self-representation. While playing, participants were asked to “think aloud”, a technique in which participants describe out loud their thinking while performing an activity [36].

The observation of the players interacting in the game gave a further understanding of the role of self-representations in the context of use, as these customizations seem to be influenced by online social interactions in which the participants are situated. After the game session, the researcher initiated a discussion to understand the meaning behind the process of creating their self-representations and the relation between the online representation, the offline self, and online social contexts in which they play.

The data included audio recording of the interview and video recording of the game playing behavior. Additionally, the researcher made field notes during the whole session, photographs to record the context of playing and screenshots of the players’ online self-representations.

Data Analysis
The data were transcribed and three of the game player sessions and interviews were translated from Spanish to English. The first author conducted all the interviews and made the required translations. Participants’ names and nicknames used in online games were anonymized. The first author started analysis by closely reading the transcripts to become familiar with the data, then classifying and reiteratively coding the data using thematic analysis [6]. The codes and themes were discussed and refined in multiple sessions with all the authors. This process offered insights of patterns found across self-representations and the ageing self, in which we focused our attention.

<table>
<thead>
<tr>
<th>Participant pseudonym</th>
<th>G</th>
<th>Age</th>
<th>Years playing computer games</th>
<th>Favourite actual online game</th>
<th>Hours playing favourite online game per day</th>
<th>Type of self-representation of favourite online game</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert</td>
<td>M</td>
<td>76</td>
<td>3 years</td>
<td>Words with Friends</td>
<td>1</td>
<td>Nickname</td>
</tr>
<tr>
<td>Belinda</td>
<td>F</td>
<td>74</td>
<td>3 years</td>
<td>Words with Friends</td>
<td>&lt;1</td>
<td>Nickname</td>
</tr>
</tbody>
</table>
**FINDINGS**

The types of self-representations that our participants use are diverse, ranging from simple usernames through to full-body avatars controlled by the user. These are influenced by the characteristics of the game, with avatars only available in MMOGs and more limited, static self-representations used in casual games. Therefore, the findings will be analyzed in relation to these two categories: casual and MMOGs. Despite this diversity, our participants all used self-representations in online games to project aspects of the past they have lost or to embrace their current older self.

**Self-representations of Older Adults in Casual Games**

Six participants (4 female and 2 male) play casual games, digitalized versions of offline games. These games in our study usually restricted participants to create simpler online self-representations such as a nickname that sometimes was presented together with a flag, a portrait or a quotation of the day (see Table 1).

**Portraying Places from the Past**

Albert (male, 76) and Belinda (female, 74) are a couple who daily play *Words with Friends*, a multiplayer crossword game similar to the classic game *Scrabble*. In the game, Albert uses as a self-representation the name of the place where he was born saying that it reminds him of home. When asked what he would like in case of using an image as a self-representation in the game, he stated that: “I will prefer perhaps a photo of the house we lived in ...” mentioning that this house had been in the family for many generations. Likewise, Belinda uses the name of the farm where the couple lived and worked until they retired. Both of their nicknames use the postcode of these places as a suffix.

Elly (female, 68) plays *Bridge Base Online*, an online version of the traditional card game that her family played when she was a child. Elly uses her home country flag as part of her self-representation. Even though she had live 40 years in another country, she still prioritizes her original nationality.

**Connecting through Self-Representations**

Elly’s self-representation has allowed her to recover communication with family members and friends that she lost contact 40 years ago when she moved from her home country. Elly adds, “I like my name as I do not have anything to hide. I love that people can identify me rather than being an incognito.” Because her last name is very common in her birthplace, many conversations started when people tried to identify her.

Likewise, Grace (female, 66) plays *ReDeLetras*, a popular (Spanish) online version of a word game similar to *Scrabble*. Like Elly, Grace uses her flag and family name, but in addition she also expresses herself through a short quotation of the day that is part of her self-representation. After a stroke that she had three years ago, she started following spiritual guides that had supported her emotional recovery. As part of her self-representation in the game, she posts quotations of her spiritual guides, which had prompted players with similar interests to contact her, and develop meaningful friendships in this phase of her life. In fact, nowadays online games are her main medium for socializing.

Albert and Belinda mostly play within themselves, and are not interested in playing with unknown people. Albert says that he does not “bother” to reply to strangers who want to play with him. Belinda on the other hand says that it is “too risky”. In fact, they state that it does not matter that other players

### Table 1: Participants demographics, gaming profile and type of self-representations.

* Hannah also talked about a self-representation she had in a game she played in the past

<table>
<thead>
<tr>
<th>Participant pseudonym</th>
<th>G</th>
<th>Age</th>
<th>Years playing computer games</th>
<th>Favourite actual online game</th>
<th>Hours playing favourite online game per day</th>
<th>Type of self-representation of favourite online game</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elly</td>
<td>F</td>
<td>68</td>
<td>11 years</td>
<td>Bridge Base online</td>
<td>3</td>
<td>Nickname, flag</td>
</tr>
<tr>
<td>Grace</td>
<td>F</td>
<td>66</td>
<td>9 years</td>
<td>RedDeLetras</td>
<td>2</td>
<td>Nickname, photograph, quotation of the day</td>
</tr>
<tr>
<td>Francis</td>
<td>F</td>
<td>95</td>
<td>6 years</td>
<td>Casino Online</td>
<td>1</td>
<td>Nickname</td>
</tr>
<tr>
<td>Ivan</td>
<td>M</td>
<td>65</td>
<td>5 years</td>
<td>Antike Duellum</td>
<td>2</td>
<td>Nickname</td>
</tr>
<tr>
<td>Craig</td>
<td>M</td>
<td>82</td>
<td>16 years</td>
<td>Battlefield</td>
<td>6</td>
<td>Nickname, Supporter avatar</td>
</tr>
<tr>
<td>Danny</td>
<td>M</td>
<td>76</td>
<td>30 years</td>
<td>Guild Wars II</td>
<td>2</td>
<td>Nickname, 6 avatars</td>
</tr>
<tr>
<td>Hannah</td>
<td>F</td>
<td>68</td>
<td>26 years</td>
<td>Guild Wars II, Final Fantasy</td>
<td>4</td>
<td>Nickname, 7 avatars</td>
</tr>
<tr>
<td>Jacob</td>
<td>M</td>
<td>68</td>
<td>30 years</td>
<td>World of Warcraft</td>
<td>2</td>
<td>Nickname, 33 avatars</td>
</tr>
</tbody>
</table>

**MMOGs**
cannot familiarize with their self-representations. Both players may be using names of places that other players may find difficult to relate to on purpose, as they do not want to attract social interactions with unknown people in the game.

**Maintaining the Prior-Self**

As part of her self-representation in the online word game, Grace had chosen to use a photograph of herself that was made 4 years ago. Three years ago she had a stroke that changed her health situation. When asked about this photograph, she started describing how she used to be: “I was very friendly, like partying, drinking, not anymore, I've retired from the madding crowd...” The stroke affected her life drastically and now she feels frail and prefers to stay at home. Grace’s hands tremble and she stutters when taking to strangers. Grace self-representation may be a way to remind herself and others of the person she was prior to the stroke.

From the six participants who play casual games with other people, four interviews related to self-representations. The other two participants described their games in relation to social interactions and the association with their self-representation was not clear: Francis (female, 95) plays Casino Online, a machine slot game that reminds her offline visits to the local casino. She enjoys sharing the online game with her children and grandchildren. In contrast, Ivan (male, 65) plays online table board games as Antike Duellum, a map-based game where the user has to conquer cities. He is housebound due to an illness and uses the online games to socialize with family members that live in other cities.

**Self-representations of Older Adults in MMOGs**

Four participants (1 female and 3 males) play MMOGs to get immersed in battles, adventures, and fantasy worlds such as Battlefield or Guild Wars (see Table 1). In contrast to the simple self-representations of casual games, in these MMOGs participants can choose a full body character to use in the online environment. These types of games offer more possibilities of self-representation as users can continually customize and experiment with the features and tools of the avatar. Most of these participants play with more than one character, Jacob may be an extreme example as he had customized 33 avatars in World of Warcraft. It is through these avatars that our participants took the advantage of embodying a new digital body to perform roles and leisure activities of their past, to reclaim youth and to embrace their current older self.

**Embodying Careers and Roles from the Past**

Jacob (male, 68) has been playing World of Warcraft, a MMOG of role-playing characters set in a fantasy universe. Jacob is bringing his engineer role through one of his favorites avatars mentioning: “I've chosen [avatar name] as a very, very important person to me, because he is an engineer, and I'm an engineer” (see Figure 1). Nowadays, Jacob is not able to execute his profession explaining “…the reason that I'm a security guard, after being an industrial chemist, with postgraduate chemical engineering, is that people don't want to hire older people.” World of Warcraft provides Jacob the opportunity to embody an engineer role through a virtual avatar.

**Performing Leisure Activities from the Past**

Craig (male, 82), who was introduced in the Introduction, plays Battlefield, a first person shooter game characterized on large maps, war vehicles and team-based interaction. When Craig was younger, he used to compete in shooting, representing his country. As he cannot practice shooting in real life anymore, this activity motivated him to embody avatars with shooting roles on Battlefield (see Figure 2). Explaining what he likes about the game, he mentions: “It's a shooting game because that is what I did years ago…you..."
know, it is not the same. I was good at that, I’m not at this [laugh].”

Figure 2. Craig playing a supporter role with a machine gun to increase his shooting speed in Battlefield.

In the game he can choose among different shooting roles. Some of these make him feel vulnerable as the roles are involved in exposed activities in which the avatars can be killed very fast. Craig explains that when he plays he is not as fast as younger players stating: “my reflexes are not quite fast. The young ones... go bang bang and put you strike on with a couple of shots.” This is the reason why Craig prefers to choose a ‘support’ role that provides opportunities of hiding and do not require his avatar to be so visible (see Figure 2). Craig also customizes his avatar with a machine gun that allows him to “spray” bullets to the enemy providing more possibilities to reach the target compared to other types of guns that require more accuracy. The role of Craig’s avatar and type of gun he uses are the result of an exploration of character’s features that can enhance his speed and accuracy while reducing his exposure in the game. In addition, Craig’s avatar nickname: Kowalski is inspired in another element of his past, the nickname of a famous wrestler that he admired and used to impersonate when he was younger.

Reclaiming Youth
Some participants use their avatars as a way to reclaim a lost youth. Hannah (female, 68) currently is playing Guild Wars II, where she had designed seven avatars to represent herself. Her favorite avatar is a younger representation of herself stating: “I think when I made her... I was thinking of me as I been in Guild Wars. One of the strange things about aging, you still remember you as you are... it doesn't really matter if I get grey hair, or if I am finding harder to shoot weight. You still retain the memory of what makes you, you... I always had very, very long hair, my character has very long hair here.” (see Figure 3). She concludes by saying that this character is: “All I ever wanted to be”.

When using this avatar in the game, Hannah prefers to use a bow and arrow, which helps compensate her slow manipulation of weapons. In relation to this, she says: “because of my hand injury.. I am better at shooting or operating instruments from a distance because I don't have to move my hand so much.” (see Figure 3). By using these types of weapons, her character can still participate in the battle while maintaining a distance and not being up front in the middle of the fight, which she considers, requires to be very proactive. The customization of the weapons of her avatar compensates her lost speed abilities allowing her to maintain her accuracy while playing the game.

Figure 3. Hanna’s portrait (left) and favorite avatar in Guild Wars (right): a younger version of herself shooting a bow and arrow to compensate for her lost speed skills.

Jacob (male, 68) had created 33 avatars in World of Warcraft. When commenting on the younger look of his characters, he says: “There's something really nice, when you're old, to create a 20-ish character... it's like you're reliving your life, through your avatars.” It seems that Jacob may feel that he is actually embodying younger bodies when experimenting in the online world.

All the previous findings suggest that older adults are using self-representation to depict elements that had been lost throughout the lifetime. In the next section, we will detail findings that also suggest that self-representations are use to portray the current older self.

Embracing the Current Older Self
Danny created his latest character (of six he has created) explaining that he plays it with a comedian personality (see Figure 4). He described this avatar with reference to his current role as a grandparent: “...is one of [granddaughter’s] favorite’s characters because he[avatar] interacts with [granddaughter’s] characters and they will dance together and you know laugh, imitate each other and do all kinds of things.” The avatar is therefore a way to attract his granddaughter’s attention who nowadays is also playing online as part of Danny’s guild.
There may be another way in which Danny’s current older self had influenced the decisions in relation to the development of his latest avatar. Danny has been playing as part of a family guild participating in battles and missions as a team. During the gaming session that we observed, one of Danny’s family members made a comment about his avatar: “he [Danny’s avatar] is slow, so when you are in a group, everyone is waiting for you”. In relation to this avatar, Danny commented: “he [avatar] is going to make a career decision which is going to take him out of the action entirely, … he is going to retire of combat and follow a different career or path which you can in Guild Wars, you can become for example completely devoted to making things which is was he plans to do…” These two comments suggest that Danny is feeling the pressure of the other players of the family to move faster and is thinking about developing his character toward roles that do not demand a fast pace. This may be a way in which Danny plans to counteract his slower interactions in the game and still play as part of the family guild.

**Associating with Older Adults Groups**

Craig and Hannah play MMOGs as members of ‘The Older Gamers’ (TOG), an online international community of mature gamers. As its Code of Conduct states, TOG rejects “…the abusive, disruptive and disrespectful behavior displayed by many but often attributed to younger players that are so often encountered when gaming online” [21]. In fact, this group requires that participants apply to a membership with a public thoughtful motivation that has to be approved. After joining the TOG the nicknames that the players use in their games include the acronym TOG displaying the membership to the community. When comparing his community with younger players, Craig mentions that TOGs “…don’t play any mysterious stuff in the games. It is all fair and above board and if they are good it is because they are good”. He contrasts his comment in relation to younger players who often use technology tricks (hacks) to win the game. Craig finally comments that he has been interviewed on many occasions by the media as he is one of the oldest players of the community. He proudly shares with us the publications that mention his gaming activity as a TOG member.

![Figure 4. Danny customizing his latest avatar in Guild Wars: a comedy character, which is his gran daughter’s favorite.](image)

Hannah also plays in this community and says that TOGs are an empathetic group of gamers who provide support to each other adding: “Because people are older, have families or had families, they much, can understand…” The TOG association is linked to a set of morals of mature players that these two participants value and are proud to represent.

In contrast, Jacob has not found a gaming group that depicts values of mature players. Jacob has been rejected from many guilds because of his slower pace making him feel disowned: “Now, I’m 68. I’m a disabled person, disabled not that I’ve got anything wrong with me, but I cannot keep up with the pace expected on the computer games. So there’s a rejection and you’re going to find, if you’re dealing with elderly people that this is common everywhere.” As a way to embrace this challenge he proposes the creation of guilds with names that are inclusive to older people: “the guilds are the answer for elderly. I would like to see Aged Care groups…”. Interestingly, Jacob did not explore ways to improve his speed but proposed ways to embrace his slower speed through a group nickname self-representation.

**DISCUSSION**

The interviews and game observations that we conducted revealed that player self-representations both mediate the player experience and provide opportunities for older adults to express aspects of their past and present identities. Although this study examined a broad range of games, we found that player self-representations played an important role in both casual and MMOGs. While self-representations in casual games were mostly static and consisted of simple names or images, participants still chose these carefully to represent meaningful aspects of the self. Meanwhile, self-representations as avatars in MMOGs were customizable and provided opportunities for participants to explore how they wanted to project themselves in their gaming environments.

Our analysis of participants’ self-representations revealed two trends that seem particularly poignant in light of the changes people experience as they age: 1) self-representations were used to illustrate elements of participants’ previous lives that they felt they had lost as they had grown older and 2) self-representations were used to define and embrace the present older self. While the first involves a more nostalgic reflection on one’s lifetime, the second is linked to an acceptance of participants’ current identities as older members of their families and communities. Both these trends align with theories from psychologists and social gerontologists about the ageing process [16, 17, 22, 26], and research within the HCI literature on how older people construct online identities [e.g., 7, 9]. These findings also point to a need for designers to create more inclusive customization options in online games, as discussed below.

**Nostalgic Reflection of Loss**

According to Erikson’s (1963) psychological stages, adults tend to evaluate their life stories when they retire and reduce...
their productivity [16, 17]. This may explain why older adults in our study use elements of the past as important parts of their self-representations. Participants’ self-representations encompassed reminiscence about place, past activities and roles, and youthful appearance.

For example the portrayal of a farm or a country flag among people who no longer live in these places may be a way to remember life stories linked to that location. The affinity people express about place translates into the perception that in those places they are “known and know others” [37:303]. This may be what Elly is achieving with the use of the flag, as she has been able to reconnect with friendships and family that she knew in her childhood. Another reason for projecting places from the past may be that familiar places provide an ongoing sense of belonging [40]. The notion of place as a site of sociality and belonging has been explored by human-computer interaction researchers seeking to design tools that encourage older people to engage in local social activities [31]. Our analysis of older adults’ self-representations in online games suggests that place is not only a site of local community interactions, but is also associated with older adults’ life histories. Place can therefore be used as a tool for reminiscence and to represent aspects of one’s younger self—for example, the place where someone grew up, or the house in which they raised a family.

People’s former roles in life can also be a central focus of nostalgic reflections and reminiscence as people age. Many older adults, for instance, still consider their professional roles to be a key aspect of their identity (that is, who they are), even long after retirement [46]. Research has shown that people create an identity in relation to the work they do and that these identities persist after retirement: they will be forever ‘ex’ doctors, ex-teachers and so on. This aligns with our observations, our participants designed self-representations that portrayed elements of their previous career roles even though they did not practice them anymore. For example, Hannah (a former nurse) represented herself as a healer and Jacob (a former engineer) as an engineer. These self-representations provided an opportunity to reminisce about, and identify with, a role they enjoyed earlier in their lives.

Previous roles include not only past careers, but also roles within the family. One of our gamers (Danny) represented himself as a character who provides protection for the other characters. This bears similarity to Danny’s role as a father, although now that his children are grown, Danny no longer plays such a protective role in real life. In this way, the gaming environment provides an opportunity to play a role he used to have earlier in his life. Meanwhile, Craig chose to play as a shooter, an activity that he enjoyed when he was younger. It may be that the elements that participants bring into their digital self-representations are linked to the level of satisfaction with those aspects of their identities in the past [46].

The participants who used avatars to represent themselves usually preferred characters that were younger than their current selves. This finding aligns with previous studies where older adults created avatars with idealized younger bodies [9]. Previous studies have shown that avatar depictions can change an individual’s body perception [14]. That is, if someone represents themselves as a younger person, they may start to perceive themselves as younger. While we do not have data to support this assertion, it is interesting to note that none of our participants customized self-representations that depicted ageing features. It may be that the customization options in the games played did not provide enough features to create an older depiction of the self [9]. However, Hannah did mention that even though she can grey the color of the hair of the avatar, she preferred to portray a younger self. The portrayal of a younger avatar may have different meanings. First, it may be a response to social norms such as Western ideals of beauty that value youth in physical appearance. Second, these avatars may also depict the acquisition of physical condition which could be a way of eliminating constraints for some ageing bodies. Finally, younger avatars may provide some level of anonymity in the online game.

Self-representations in online games can be a way for older adults to share aspects of former identities with people in the present. In this way these important aspects of their identities are no longer hidden but available for family, friends and strangers. Moreover, the recreation of self-representations with aspects of the past may provide a sense of continuity on what can be passed to the future [40].

Designers of virtual worlds should consider how to support the inclusion of nostalgic elements in online self-representations to expand the possibilities of self-expression. This is important as greater identification with the online self-representation could foster more immersion, autonomy or enjoyment in the virtual environment [3]. While previous research has suggested that younger populations enhance their self-representations with idealistic features [2, 14, 37, 47], our research suggests that older adults (65+) include more nostalgic elements. Further research should be done to gain a more comprehensive understanding of these design patterns across age groups.

The Present Older Self in Self-representations

In some cases, our participants’ self-representations incorporated their current life roles and their experiences as older adults. In Danny’s case, for example, these roles influenced his avatar design choices. His latest avatar depicts personality features that provide a playful way to engage with his granddaughter.

The references to older gamer communities in player’s nicknames were considered important by two of our participants. Even though this may be connected to their sense of belonging to a community, it may also be a demonstration of their pride in being recognized as gamers. Further, strong identification with the older gamers’ community may be a way to challenge the stereotypical perception of online gamers as being young and male. Age in this group may be valued and perceived as something that provides wisdom. These findings
suggest that our participants want to project some aspects of their ageing self and that these features do not always need to depict visually aspects of an ageing body but values such as wisdom.

The reflections on players’ pace of gameplay influenced the customization of self-representations in different ways. Hannah and Craig had appropriated tools and roles that supported their participation in battles through features other than a faster pace. Danny was looking for ways to develop his character into roles that do not require a fast pace, while Jacob considered that groups that represent older adults should be created in order to support his participation in the game at a slower pace. These examples suggest that designers of virtual worlds should create alternatives ways to respond to the speed requirements of online games by creating roles and tools that respond to other skills.

**Customizing Older Adults’ Self-Representations**

When players start building their avatar, they are often offered many visual options to customize their character, for example, a menu of diverse hairstyles or eye colors. In this creation process, users do not always have a clear model in mind of what they are creating and the options of the interface guide the design of their avatars. As McArthur and others point out, an avatar is “the result of a dialogue between user and interface” [33]. This can be challenging if the options of the interface do not offer a diverse set of features that represent all the ranges of human bodies such as ageing features.

The study of customization of ageing features through character creation interfaces had not received much study. This is particularly urgent because the requirements of older adults and their self-representations may be depicted according negative stereotypes of elderly already found in Human Computer Interaction [15, 49]. These stereotypical views may influence self-representations projecting older adults as disengaged and lonely [49]. Moreover, recent initiatives such as ‘Healthy Ageing’, are based in strengthening individual choices as a way to recognize diversity and avoid stigmas related to later age [51]. We should consider the consequences that character creation interfaces can have among older adults, because through their affordances they co-construct the online identity of the user [33].

The findings of this paper have some implicit implications of design. First, game designers should explore designing characters that encompass elements of diverse life histories. This diversity may be favorable not only for older adults but for other populations who are experiencing changes in their lives. Second, designers should explore the representations of older age by including alternatives to depict features of an ageing body through visual options in character creation interfaces. In addition, the representation of older age should include a wider set of attributes not only linked to the physical characteristics of ageing bodies but to personality values typical of those in later life such as wisdom. Third, online self-representation systems should support a wider range of features and roles to embrace the diversity among human beings and also depict inclusive social values as these will provide alternatives that may be more suitable when choosing a self-representation. Finally, future research should involve older adults’ voices in the design of systems of online self-representation such as character creator interfaces.

**CONCLUSION**

In this paper we analyzed how older adults (+65) are using self-player representations in online games with other people. Our participants illustrated great disparities in the games and types of self-representations they use. However through the use of the diverse elements of their self-representation they portrayed two main inclinations: 1) aspects of their past that have been lost as they have grown older, and 2) embracing their present older self. While the first suggests a reflection of the lifetime in a nostalgic way, the second suggests that older adults may be accepting the present older self, and the roles they play in their families and communities. Considering the impact that online self-representations can have on older adults’ perceptions of the self, we suggest that designers of online games should embrace this diversity in the design of systems to include characters of older age.

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