ABSTRACT
In this paper we report on a qualitative study, investigating the meaning of digital games in the lives of older adults. Using a combination of semi-structured interviews and observations (n=35) we research the meaning of digital games from a lifespan perspective, and explore the specific role of playing digital games in a social setting. We conclude that the meaning of these games is derived from the extent to which games are perceived to 1) foster connectedness, 2) cultivate oneself and others, and 3) contribute to society. Finally, we use these findings to formulate design guidelines to facilitate digital gaming experiences that are meaningful with regards to the psycho-social context of this specific demographic.

Categories and Subject Descriptors
H.5.2 [User Interfaces]: User-centered design
General Terms
Design, Human Factors.
Keywords
Older adults, elderly, seniors, meaningful play, game design

INTRODUCTION
Elderly users are a growing population. The UN World Population Prospects (2008) estimated that 22% of the European population is currently sixty years or older, and this statistic is estimated to rise to 34% in 2050. While the grey market has become a major one, the number of games designed for an elderly population do not reflect this statistic. Nevertheless, market studies indicate that the audience of digital games consists out of a significant – estimated between 15% and 25% - segment of gamers over the age of fifty [11,16,26].

Academic game research that focuses on older adults has largely been focusing on the hypothetical benefits of digital games for older adults (more specifically frail elderly with no previous gaming experience) [2,4,10,12,15,28,30,37,1], as well as the design of digital games for older players. The latter kind of studies can be divided in 1) studies that research the usability or playability requirements (with regards to physical and cognitive decline) for digital games aimed at older adults [32,18,38], and 2) studies that aim to facilitate intergenerational play between grandparents and grandchildren [20,13,19,33,34]. While both perspectives have their merits in addressing the preferences and needs of these specific demographics concerning digital games, this paper adopts a different perspective by focusing on older adults that are already actively playing digital games.

In their influential work on game design “Rules of Play: Game Design Fundamentals”, Salen & Zimmerman [29] emphasize the importance of making games meaningful to its players, as great gaming experiences are a direct result of meaningful play. Salen & Zimmerman define their core concept in both the semiotic sense of the word - how meaning is made through the well-designed interaction between the player and the game – as well as the social and psychological experience of inhabiting a virtual game world: “players bring in a great deal of the outside world, their expectations, their likes and dislikes, social relationships and so on. … In this sense, it is impossible to ignore the fact that games are open, a reflection of who play them [29:96]”. We therefore argue that, in order to create great gaming experiences, it is imperative to learn from the meanings that the intended target audience already attributes to the games they are playing.

The game industry advocates a similar notion at the Game Developers Conferences in San Francisco. At the annual Game Design workshop (running from 2001), Hunicke, LeBlanc and Zubek [17] teach industry professionals the MDA framework to help them design digital games. The Mechanics, Dynamics and Aesthetics framework is a creative tool to think about and structure the game design process, with an emphasis on the emotional and psychological player experience a game is supposed to create. MDA hands designers a tool for “understanding how formal decisions about gameplay impact the end user experience”, in order to “better decompose that experience, and use it to fuel new designs, research and criticism respectively [17:5].” In order to use MDA
effectively, designers are required to think about the aesthetics a game will invoke, which Hunicke et al. later on describe as ‘kinds of fun’. As having fun is highly subjective and arguably the most common meaning that is associated with playing games, we argue that the experiences Hunicke et al. refer to as aesthetics form a large part of the concept that Salen & Zimmerman’s describe as Meaningful Play. Correspondingly, the MDA framework also advocates a thorough understanding of the meanings one’s target audience attributes to digital games; understanding this meaning is necessary in order to design better games for them.

Playability research offers a similar insight into designing games, as Kücklich & Fellow [22] point out that the playability of a game “depends as much on the player’s former playing experience, taste and willingness to adapt to a new play environment as on the game’s controls, graphics, audio and genre [22:5].” Furthermore, Dogruel & Jöckel argue that perceived usefulness – i.e. the way digital games can play a meaningful role in their lives - outweighs perceived ease-of-use with regards to the adoption of digital games by older adults [9]. We therefore argue that, even though studies with non-playing older adults will certainly reveal many design recommendations that are specific to middle and late adulthood, an important part of the picture is missing when research does not consider older adults who are already actively playing digital games. Nevertheless, we found only a few studies [5,23,27,25,7] that explore the meanings playing older adults attribute to their digital gameplay.

Copier [5] interviewed 12 respondents (aged 50 to 76) and found that almost all game genres were played by her respondents, even though none of them played on a gaming console. One of her main findings was that her respondents felt no affiliation with the term ‘gamer’, and were already avid players of traditional games (e.g. chess, bridge, etc.) before starting to play digital games. The primary motive for playing among her respondents was ‘relaxation’.

Nap et al. [23] described the results of two focus groups with five Dutch seniors (aged 64 to 76) and four contextual inquiries (aged 64, 70, 71 and 76). They found that their respondents had a strong preference for casual games, which were played mainly out of a need for fun and relaxation. The authors also indicated that escapism (i.e. from the sorrow of a deceased loved one, to have some private time or to escape the household) and “staying in touch with society” could be strong underlying motivations for digital play. Finally, Nap et al. explain that their respondents prefer solitary over multiplayer play, due to a fear of failure and an unwillingness to be tied to specific times when other players would be available for them to play with.

Quandt, Grueniger & Wimmer [27] studied 21 players (of whom 5 players aged 50-73) through semi-structured interviews. The authors described how their respondents had often adopted digital games through their job, kids or during an illness. They also indicated that digital games often put a strain on the family life of their respondents, since their peers and partners did not consider digital games appropriate for older adults.

Finally, Pearce [25] conducted an internet survey with 229 baby-boomers (aged 36 to 66 at the time) which was followed up by computer mediated interview studies with 22 respondents. She described how her respondents were critical and avid players, with distinctive needs that were often ignored by the industry. They prefer intellectual challenges over reflex-based games, and largely see games as a way to escape to another (imaginative) world. While favoring single player games, Pearce’s respondents were highly community-minded as they sought mature companionship and focused on supporting other players (e.g. through game-related sites).

While these studies provide us with a varied description of the older players of digital games, we argue that there is a need for further exploration of the older audience of digital games in order to broaden our understanding of them, to confirm previous findings and to formulate specific design recommendations.

In this paper, we discuss the findings of an explorative, qualitative study to describe the meanings older adults attribute to playing digital games. More specifically, we aim to provide an overview of the meanings digital games hold in the lives of older adults with regards to their psycho-social context. Subsequently, we relate these observations to the Meaningful Play in Elderly (MPE) model [8]. MPE indicates that seniors look for three elements to consider a playful activity meaningful: 1) to connect with other players, be it friends, family or the significant other (connectedness), 2) to learn and grow through playing (cultivation), and 3) to contribute to society (e.g. performing good deeds) (contribution). Finally, we end the paper with recommendations for game design.

RESEARCH METHOD
Sampling and data collection
The respondents for this study (n = 35) were selected from a sample of a previous, quantitative study on older adults playing digital games in Flanders [6]. The preceding study collected respondents by publishing both an online call (on several popular Flemish gaming websites as well as senior websites) and an offline call (on a platform for senior organizations, several national newspapers and two leisure magazines for older adults). We expanded this sample with a call to 48 retirement homes in order to assemble a sample of 239 respondents between the age of 45 and 85 that played a wide range of digital games on a regular basis. We used this final sample for purposeful sampling [24].

At the end of our sampling, we had visited 35 information-rich cases from the larger sample. The youngest respondent was 50, while the three oldest respondents were 72 (M =
61.3; \( SD = 7.1 \)). Both genders were equally represented among our respondents, we visited 18 female and 17 male players. 14 respondents were retired, 10 respondents were at home most of the day (due to illness, unemployment, etc.) and 11 respondents had a job. Only 2 respondents were not in a relationship, and had been single for many years. The sample had a broad variety in terms of education and (past) work. In terms of gaming preferences, our respondents included 19 2D players and 16 3D players\(^1\). 16 of our 35 respondents played games in a multiplayer setting, while 19 respondents only played games in a singleplayer setting. Finally, 11 respondents often played games – both singleplayer and multiplayer – in a strictly solitary setting.

Together they formed a sample that contained the full as well as the maximum variety within the bigger sample in terms of age, gender, playing time, playing motives, content preferences, financial budget, mobility and social context.

Analysis
In this study, we probed the older adults’ experiences, evaluations, emotions, opinions, gratifications and behavior regarding their playing of digital games and context, using semi-structured interviews and observations. The research data was analyzed using Wester’s adaptation [36] of Grounded Theory [14]. Grounded Theory involves a cyclic process in which data gathering and analysis alternate, to the point at which theoretical saturation is reached and a theory that is firmly grounded in the empirical data emerges.

The data collection was done by means of semi-structured interviews [3] that took place in four rounds, during each of which 8 or 9 respondents were visited. We started the interviews by asking our respondents to explain the role of digital games in their lives, and then we discussed their answer with them. Using this approach, the respondents were able to discuss the topics that they found meaningful to their gaming experience.

We took particular care to ask our questions in a way that did not put words into the respondent’s mouths. After the interview, we asked if we could observe them as they played their favorite games. The four rounds took place over a time span of one year. Following the final round, we revisited the respondents from the first two rounds to discuss any changes in their playing habits.

Each interview round was followed by an analysis phases [36]. During the first two phases of analysis (i.e. exploration and specification) we applied open and axial coding [31] to generate grounded concepts, which we summarized in a list of meanings that we will present in the ‘results’ section of this paper. During the last two phases (i.e. reduction and integration) we analyzed the connections between the concepts and the core category Need Gratification, and tested the resulting conceptual framework with new data and the existing research literature.

RESULTS
We will now present the list of meanings that our respondents attributed to playing digital games.

“Digital games are a fun way to compete with my partner and children.”
Competition with the partner was not common among the sample. This could be due to the fact that most respondents did not have a partner that also played games or that was interested in playing the same games the respondent liked to play. Only Yves\(^2\) (68), Georgette (65) and Jeannine (71) told us that they had a friendly competition going against their partner. They related this to playing the same games as their partner liked to play on the same computer. Since they were able to see the partner’s high scores, what started as an innocent game of “Let’s see if I can beat his/her score?” often resulted in verbally challenging their partners to do better.

Competition with the children was also not common among our respondents. Nevertheless, Marleen’s (55) son was the driving force behind her gaming, and he occasionally liked to challenge his mother when they enjoyed the same puzzle game. For Marleen and her son, competition was limited to challenge his mother when they enjoyed the same puzzle game. Together they played a very broad variety of console games on the latest consoles, with the Pro Evolution Soccer series being their favorite. He challenged his son in real-time games, whether it was the latest one-on-one fighting game or a new racing game. Even so, the actual competition was not the driving force behind playing. Jacques liked to win every once in a while, yet he clearly emphasized that spending time with his son was a lot more important and enjoyable, than beating his son.

“In digital games, my children or grandchildren and I overcome challenges together.”
Many of the respondents played with their grandchildren but the difference in skills seemed to be too large to consider this as true competition. Grandchildren were much

\(^1\) The categories should not be regarded as mutually exclusive, senior gamers can be both 2D and 3D gamers, and play on line and offline.

\(^2\) The findings presented in this paper are part of a larger study that also considered the meaning of digital games with regards to aging, time investment and content preferences. These meanings will be presented in future articles.

\(^3\) In order to preserve the anonymity of our respondents, the names used in this paper are fictitious.
better than their grandparents in any game that emphasized reaction times, while grandparents were much better in any game that emphasized cognitive skills or acquired knowledge. Due to these different skill sets, teaming up to overcome a challenge was a fun activity for grandparents who were able to play with their grandchildren in a collocated setting.

Many respondents told us about how they played single player games with their (grand)children. We defined this phenomenon as Vicarious Play; a form of collocated play in which one player is playing a game, while the other is participating mentally without actively using game controls. Our senior respondents would only be in charge of the controller if they were playing with very young children. This was satisfactory to them as this enabled them to contribute to the education of their grandchildren. With older children, however, the children were the ones in control as they have more mastery of a controller or keyboard. The games that were played vicariously were diverse, ranging from little children’s games to classic adventure games, sports games or story-driven first person shooters. If playing together with their own children had come to an end, respondents were sad about this. They indicated how they missed playing vicariously and some even went as far as saying that they would love to play some games again if their son or daughter would visit and ask about it.

Playing multiplayer games together was more rare. Jacques (50) played cooperative console games alongside his son as well as competitive games, and François (55) played in the same World of Warcraft-guild as his daughter and her husband. In both cases, both respondents enjoyed this very much. For François, this was meaningful as he would only see his daughter and son-in-law on rare occasions since they had moved abroad. Jacques (50) also described how pleased his wife was with her husband playing games with their son.

“Digital games are something I can do while my partner does an activity I do not like to do.”

Many respondents – both male and female - discussed how they played digital games while their partners watched television shows that they did not like to see. Some respondents would grab a handheld console and sit next to their partner, thus spending time together, yet apart. Some respondents even told us that they had moved their computer into the living room, so they could play while their significant other watched the television. These respondents also admitted that they liked to keep an ear on the television set while playing. Others preferred to be alone while playing and liked to have their console or computer away from the television set. For some respondents this decision was due to them talking over VoIP while playing, others just wanted to avoid the distraction a television screen brings.

“Digital games allow me to seek the help of my children.”

This meaning had a strong gender component as many of the female respondents relied on their son to help them play digital games. We already described how (grand)children can take their (grand)parents on a ride through a digital game by letting them play vicariously. For Godelieve (68) her son was only needed when she got stuck at Tomb Raider or needed to face a swimming section. Godelieve had always been afraid of drowning, and she could not bear to see Lara Croft drown when she screwed up the camera controls in an underwater section.

Aside from game play support, some mothers relied on their sons to offer technical support in installing new games or buying new computer hardware to support their gaming habit. In the case of Bernadette (62) this had led to a conflict as her son was tired of always having to do this for his mother, and refused to help because he felt that it was the only way for her to learn to do it herself.

Finally, while we did not encounter any situations in which a father needed technical or in-game assistance from his children (or where it was the daughter who delivered such support for that matter), there were cases in which a son helped his father find a new game he would like. In fact, the 3D gamers who had a son that played games as well, held the game-related opinions of their son in high regard, e.g. when making a new purchase.

“Digital games are a way to play traditional multiplayer games more easily.”

Some respondents had been avid players of traditional, non-digital games their entire lives. For them, digital games were just the next step in their hobby and they played the same games they used to play before, but now on a computer. This had a lot of advantages for them. Online digital play enabled them to enjoy a game without being required to relocate themselves. Therefore more time could be spent on playing, from the comfort of their own home, and they had more control over possible distractions. As most respondents preferred to play against a real person, they were very pleased that they could go online at any time of the day and find someone to play within minutes. And if nobody is available, then there was always a computer opponent to spar with. Finally, Robert (55), François (54) and Jacques (50) were not retired yet and reported that digital games had become a regular pastime they did online with their co-workers. This would never have been possible if they all had to get together. For them, digital games were a subject that was even discussed at work.

“Digital games are a luxury, a freedom and a sign of autonomy.”

Anna (56), Isabelle (56) and Elisabeth (62) had been through a divorce and talked about how liberating it was not to have their partner interfere with their playing...
anymore. Digital games gave them a sense of freedom, and contributed to a feeling of autonomy. Anna also considered digital games to be a luxury, something she was now able to afford to do. She explained that, even though she did not consider playing as a very useful way to spend time, she did it anyway just for the sheer fun of it. Jacqueline (52), Luc (56) and Ingrid (59) shared this perspective on gaming did it anyway just for the sheer fun of it. Jacquel ine (52), digital games to be a luxury, something she was now able to test their English or improve their knowledge of the language. A game like Bookworm Adventures or even a simple crosswords puzzle presented a certain kind of usefulness to our respondents which they were quite fond of.

However, on online portal sites, English could be both a positive as well as a negative feature. Respondents who were able to speak English well, enjoyed the opportunity to hone their skills, but Myriam (56) – who understood English but had trouble writing it – was frustrated about native speakers forcing her to write English, even when she was playing with a friend who spoke Dutch. She felt an outsider in the game rooms and this had a negative impact on the online experience for her. She was especially frustrated at the shortsightedness of American players who automatically seemed to assume the entire world spoke English. Being a fluent speaker in French, Dutch and German, she felt that she did not deserve to be considered an outsider just because she did not speak English as well. For the 3D gamers, and more specifically the MMORPG players, writing English was not a big issue, although Robert (56) said that he only used VoIP with Dutch-speaking players as people had trouble understanding him when speaking English with a Flemish accent.

The 3D gamers had also become affluent at the internet-variant of English, and frequently mentioned internet abbreviations during the interviews, like lol, pwnage, n00bs, frag, hax0r, etc. They explained that this had come naturally for them and they liked how it advanced communication and gave them a sense of being an insider. Nevertheless, they did not consider themselves to be gamers, as they associated that term with younger players. The 2D gamers on the other hand were annoyed at internet lingo and felt that it was a bad influence on the grammar skills of younger players.

Finally, cultural aspects were also a fun part of playing digital, especially for the 3D gamers. For example, François (55) boasted about knowing people from all over the world. He had even visited a family in Cyprus he developed a good relationship with through playing World of Warcraft.

“Digital games are a way to meet different cultures and languages.”

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“Digital games are a way to meet new people.”

The majority of the respondents in our sample –also the older ones – clearly indicated that they prefer to play games with people that they can have long-term meaningful relationships with. With regards to meeting new people, they prefer quality over quantity and meeting new people through playing digital games are not the best way to build qualitative, long-term relationships in their opinion. “This is a change in perspective related to aging.” Ingrid (60) added.

Still, some respondents in our sample were often alone because their partner was away from home or because their job was solitary. Some members of this subgroup of the sample did use digital games to meet as many people as possible, as they lacked any social interaction during large parts of the day. Other respondents that were often alone just played single player games to keep their mind away from their loneliness. When asking them how meaningful or worthwhile playing digital games was for this reason, they answered that they did enjoy to play digital games but that they would prefer having more people around instead. Bernadette (62) and Isabelle (56) described how digital games were a way to add to a conversation, in the sense that it gave them something to talk about with people they met online.

On a negative note, Frank (50) and Nicole (50) pointed out that they had heard many horror stories about people being stalked or scammed by people they had met in online games. Frank had even been the victim of a scam which led to an online item of his being stolen. Many of our respondents that played online also told us that they were careful about handing out information about their real-life identity because they did not trust online strangers, apparently “there are a lot of weirdoes out there”. Finally, we had three respondents that played in online clans. They indicated that joining clan was much more interesting to them then playing with random strangers, as clans led to more qualitative relationships. They were able to get to know the other player very well and even met them in real life (e.g. the visit of Franncis to the family in Cyprus) when they visited the clan’s LAN parties.

“Digital games are only fun with the right playing partners.”

All of the respondents that played games with other people indicated the importance of finding the right player to play with. Those who could play with somebody they knew in real-life did not have any issues with this, but the respondents that played with strangers explained how difficult this could be. We have outlined their comments into the following criteria for finding a good online playing partner:

- Age: Most respondents claimed that they did not care much about the age of their playing partner, but they did stress the importance of being able to have “a good talk” with their playing partner.
They also added that they did not enjoy playing with people below the age of 25 for this reason.

- Gender: Gender was not an issue in finding a playing partner as long as a common interest in a game could be found. Nevertheless, Bernadette (62) and Frank (50) described that playing with someone from the opposite sex could lead to problems as they had experienced how people started to get romantic feelings they did not share.

- Skills: A playing partner needed to have a comparable skill set. If a player was too good or not good enough, then frustration or boredom arose.

- Interests: Shared interests were also part of being able to have a good conversation with the playing partner in question. Frank (50) told an anecdote of a playing partner, who turned out to be a convinced racist, which subverted and eventually obliterated their partnership.

- Fair play: A good playing partner should not cheat and should be able to deal with a loss well. When playing in an offline setting this was seldom an issue, but online it seemed to be very hard for our 2D gamers to find players that would not ‘rage quit’ before a game had ended.

- Language: A good playing partner should speak the mother tongue of our respondents. None of the respondents had a long-term online partnership with a player that did not speak Dutch.

These criteria might seem reasonable but in practice they were difficult to accommodate for our senior respondents. As a result, they either hung on to a good playing partner for as long as possible (by using friend lists and other online features that made this possible) or they joined a clan with many older players. None of the respondents were part of TOG, the international The Older Gamers clan, but Robert (56) was part of DOG which is a Flemish clan with a similar objective to TOG. DOG has a more casual approach towards the time investment, necessary to be part of the clan.

Robert (56) also vented his frustration about overly aggressive and highly competitive teenagers online, who he was now able to avoid by playing with this clan buddies. François (55) recognized this issue, but he did not mind them at all as he was an above average player. He enjoyed to teach such kids a lesson with his clan buddies: “I don’t care about it at all. I’ll call them boogernoses and they call me an old fart. And then my clan and I will show them who is the boss. And if we lose, more often than not, they appreciated the good match.”

“Digital games are something I have to balance with my real life.”

Many respondents described how difficult it can be to balance digital games with real life. Although none of the respondents had ever experienced withdrawal symptoms, many respondents indicated that it might have become close to an addiction, albeit one they have managed to incorporate into their lives. Many of the respondents described that they needed to balance digital games carefully, in order to avoid it getting out of control. The partner often played a part in this, and many respondents had concrete rules in place that ensured that digital games did not lead to conflicts at home. For example, Robert (55) was not allowed to play digital games for more than two nights per week. Didier (66) was only allowed two hours of play each day by his girlfriend, in order to make room for quality time with his wife. Jacques (50) described how he always made sure that his household chores would be done before he started playing. On the other hand, Jacques also told that his wife made exceptions when his son was present, because she valued how he and his son played games together.

“Digital games are something I do alone.”

The respondents who did not play multiplayer games had often tried their hand at multiplayer games but did not enjoy them. The most common reason for this was that they did not find suitable playing partners online (see the criteria above). Consequently, they had made the decision to limit their play to singleplayer games. Some respondents told us that their favorite genres did not have enough multiplayer features to play online. Christiane (63) compared the experience of playing those games to the experience of going on busses of elderly travelling to a casino to each sit down at their own slots machine.

Some respondents saw ongoing conversations during a game as a distraction. For example, Chantal (61) told us that she needed to be able to focus on her games and did not want to divide her attention over both a game and a conversation. Finally, many respondents explained that computer-mediated communication was a poor alternative to face to face communication, it felt strange to them. Ingrid (60) believed that this was due to not growing up with digital games, which led to a reluctance to adopt this new form of communication. She preferred long telephone conversations with people she knew well over computer-mediated chatbox conversations.

“Digital games are something my friends look down upon.”

Some respondents indicated that they felt insecure about how their playing habit would be perceived by their non-playing peers, as they were afraid that digital games were considered a childish pastime. They often did not talk to other older adults about it, and they indicated that they would approach the subject very carefully if they would ever choose to do so. The 2D gamers had less issues with

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4 The age of 25 is set by TOG (The international Older Gamers clan), which only accepts players older than 25.
this than the 3D gamers, as many 2D games (like Sudoku, card games, chess, and so on) were perceived as games for all ages. 3D games (like Medal of Honor, Tomb Raider, World of Warcraft, and so on) and gaming consoles were perceived as something the general public relates to younger players. Nevertheless, we also talked to 3D gamers who felt that this was just a matter of their peers not knowing games like they do. René (63) referred to games being a very worthwhile pastime, Jacques (50) wondered why people consider a fifty year old still playing soccer as something worth admiring while a fifty year old gamer is a curiosity, and Bernadette (62) quoted a bible reference – Marc 10:14-15 – in defense of her hobby: “He who does not become like these children will not enter the kingdom of God.”

THE MEANING OF PLAYING GAMES

Finally, our respondents talked about how digital games were ‘important’ or ‘meaningless’ to them. We illustrate these two extreme perspective with two extreme respondents in our sample, i.e. François (55) and Guido (70).

“Digital games are important to me.” For François, digital games were his favorite pastime. As soon as he saw his children play digital games, he was intrigued by them. He started playing tactical shooters and strategy games (e.g. Command & Conquer, Counter-Strike and Stronghold) at considerable length of times, and soon after he fell in love with World of Warcraft. Nowadays, he comes home from a job as a truck driver, eats, plays World of Warcraft, and goes to bed. While he is playing, his wife will watch television or play casual games on her own computer. François enjoys World of Warcraft’s tactical aspects, is part of a guild, and sees his daughter on line almost every day. During the interview, François enjoyed talking about his gameplay, to the extent that a large part of the interview was too in-depth to use in this study. For François, World of Warcraft is a big part of his life and a very meaningful activity.

“Digital games are meaningless.”

As a retired army general, Guido’s life has always been about being in the best shape possible, both mentally and physically. Now he is retired, and likes to play puzzle games (e.g. Mah Jong and Sudoku) every once in a while. He plays them when he does not have anything else to do, and more specifically when he is waiting for his son – who lives abroad – to come online on Windows Live Messenger. Guido equates his gameplay to doing mental fitness exercises, giving him a sense of personal growth and usefulness while he is waiting for his son to come online, or while his wife is watching television shows he does not like. Nevertheless, Guido clearly stated that his games are a poor way for self-improvement in comparison to other activities (e.g. reading books or doing sports).

Guido and François are opposites, and even though we met similar cases for Guido (e.g. Jean) and François (e.g. Robert and Jacques), the majority of our sample were situated somewhere in between Guido and François with regards to the meaningfulness they attributed to digital games. Nevertheless, they illustrate how the meaning of digital games can be described through need gratification. If the puzzle games Guido plays would be perceived as a more potent way towards self-cultivation, perhaps he would consider them more meaningful. Playing games could become something he would make time for, instead of something he does when he has too much time on his hands. And would François also prefer World of Warcraft over tactical shooters if this was not a way to spend time with his daughter?

In the next section, we apply the Meaningful Play in Elderly life model [8] to elaborate upon these findings.

MEANINGFUL PLAY INELDERLY LIFE

While the meanings of digital games with regards to the psycho-social context of our respondents are divergent, the underlying values that are addressed in this study appear to be similar to the needs of meaningful play for elderly addressed in [8] (i.e. connectedness, cultivation and contribution). Therefore, we compare our findings with the meaningful play model (see table 1).

Digital game play is an important direct means towards connectedness. Collocated multiplayer gameplay is rare, family and friends are often not interested in game playing together or have different skill sets. Yet, digital gameplay can provide a means to spend time together apart; while one partner is watching television, the other is playing games. Moreover, social interaction is offered via on line play, or via vicarious play with family members that have superior gaming skills. Digital gameplay can even become a means for requesting help and attention from sons, or something to structure the conversation with friends. In some instances, digital gameplay even facilitates meeting new people, although most seniors expressed quality over quantity. They rather invested in a playing partner they knew well than meeting complete strangers. Finally, for some seniors, digital games provide a means to cope with loneliness.

Table 1: The social meaning of digital games in view of connectedness, cultivation and contribution.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Competition with my partner and children.</td>
<td>✔</td>
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<td></td>
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<tr>
<td>Overcoming challenges with my (grand)children.</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>While my partner does an activity I do not like.</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Learn from my children.</td>
<td>✔</td>
<td>✔</td>
<td></td>
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<tr>
<td>A way to help and teach my grandchildren.</td>
<td>✔</td>
<td>✔</td>
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</tr>
<tr>
<td>Stay in touch with my children.</td>
<td>✔</td>
<td></td>
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<tr>
<td>After work activity with my colleagues.</td>
<td>✔</td>
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<tr>
<td>Part of a passion for traditional games.</td>
<td>✔</td>
<td></td>
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</tbody>
</table>
A luxury, freedom or a sign of autonomy. ✓ ✓
A gateway to different cultures and languages. ✓ ✓ ✓
A way to meet new people. ✓ ✓ ✓
A way to stay in touch with younger people. ✓ ✓ ✓
Coping with loneliness. ✓ ✓ ✓
Only fun with the right playing partners. ✓ ✓

Digital game play also allows for cultivation, improving gaming skills, learning from younger, avid gamers, or simply staying mentally fit. Digital gameplay also provides opportunities for meeting new cultures, or improving on the English language, As for contribution, seniors rely upon digital games to introduce new skills to their youngest grand children, or teach some avid, teenage players a lesson. Contribution is a need that was very important to the non-playing respondents [8], nevertheless it seems less important in this study.

The negative meanings (i.e. "Digital games are something I do alone." and "Digital games are something my friends look down up.") we discussed earlier are not included in table 1, as they should be understood as a result of digital games not being able to gratify these three needs. Playing digital games were perceived as a time balancing exercise, contributing negatively to connectedness and cultivation when our respondents spent too much time playing them. When playing digital games was something respondents preferred to do alone, this was because they stressed the cultivation (i.e. learning how to play games or improving skills) to the extent that social interaction becomes a distraction. Some respondents considered online play to be a lousy alternative for real life play or communication, which indicates that the mediated communication of online games were not fulfilling connectedness needs that were fulfilled by face to face communication. Finally, when digital games were not approved by their peers, our older adults felt a lack of connectedness resulting in a negative meaning towards digital play.

To conclude, the aforementioned model [8] provides a valuable lens to envision the meaning of digital games in the lives of older game playing adults. In order to design meaningful play for this target audience, designers need to facilitate connectedness, cultivation and contribution.

**RECOMMENDATIONS FOR GAME DESIGN**

With regards to the MDA game design method described earlier [17], these meanings and the underlying needs (connectedness, cultivation, contribution) could be interpreted as aesthetics (i.e. the emotional responses designers aim to evoke in their players). To conclude this paper, we propose a set of design recommendations that are closer to what Hunicke et al. refers to as game mechanics and dynamics. Implementing these can help designers (and seniors) in fulfilling the targeted aesthetics. Hence, we end this paper with the following recommendations for game designers with regards to this audience:

**Finding the right playing partner**
Finding the right playing partner is critical to this audience. We already defined the criteria for finding the right playing partner. Still, we wish to emphasize that it was difficult for our respondents to apply those. Most games do not offer a way to sort players by age, by language, and so on, and this is an obstacle for older players. Furthermore, many respondents want to play with players they know well (i.e. quality over quantity), games that are targeted at this audience should facilitate this as much as possible.

**Vicarious play**
We argue that this is a form of play that games are seldom designed for. Nevertheless, many of our respondents loved to help out in a game their partner or child was playing without actively using the game controller. It seems an interesting challenge for designers to find a way to immerse a vicarious player even more in the game, e.g. by having them solve puzzles, keep an eye out for hints on the corners of the screen, or even search the internet for more information while the other player is controlling the game.

**Time management**
As this audience is often on a strict time schedule and forced to balance digital games with other activities, time management tools – like the in-game alarm clock of the Civilization series – could be a useful feature for a game that targets this audience.

**Language supports**
The language barrier is something that can stand in the way of meaningful play, a lack of pragmatic use of English stopped some of our seniors. Perhaps automated translation tools could be very useful to this audience, e.g. a chat translation tool.

**Sharing high scores**
Sharing high scores is an easy way to get a partner or colleague playing, which is now lacking. Facebook does this very well, but nevertheless we did not find many Facebook players among our respondents as Facebook was perceived as something to share photos instead of something to play games on.

**Balancing teams**
When playing with younger players – by which we also mean teens and adolescents, who are an often forgotten in intergenerational play research – it is highly recommended to balance the playing field through handicaps or by requiring different skill sets. Furthermore, allowing for setting up teams with diverse skills can also help in bridging this divide.

**DISCUSSION**
In this paper, we outlined the different meanings our respondents associated with digital games (with regards to their psycho-social context). We demonstrated how these meanings could be interpreted as need gratification by
applying the MPE model. Finally, we formulated design recommendations based on these findings.

We argue that these recommendations are supported by findings from previous studies. For example, Pearce [25] and Nap et al. [23] also found a preference for vicarious play among their respondents. Nap et al. [23] also discussed the difficulties their respondents had understanding languages other than their mother language in digital games, and indicated that game design could consider ways to share scores with family members. Finally, Khoo et al. [20,21] and Vanden Abeele et al. [35] also balanced their intergenerational games in order to level the playing field between younger and older players.

Finally, we argue that the older players of digital games are not that different from younger players. While our respondents indicated that they are not as good or as avid as the younger gamers they know, they are still capable of playing the games and are able to play them well. They do not even seem to need additional technical support, however, some players – mothers in particularly – actually enjoyed getting stuck at a game as an excuse to get their children to help them and spend time together. Our respondents were also very capable of perceiving a well-designed or badly designed game, and they were quite critical towards certain game developers they had bad experiences with in the past.

They might be an older audience, but definitely not a completely different one.

ACKNOWLEDGMENTS

We would like to thank all the older adults that participated in this study, as well as the excellent reviewers of the Fun and Games 2010 conference.

REFERENCES


