Hi, I’m Bob De Schutter. I’m the C. Michael Armstrong professor of applied design at Miami University where I am associated with the College of Education, Health and Society, the Armstrong Institute for Interactive Media Studies, and the Scripps Gerontology Center. On Twitter I am @bobdeschutter.
The question I am dealing with during this talk is how should we design games for older adults, what would such a gerontoludic framework look like?
Now this is a response to what I call the “Challenge of 2050”.

In essence, our society is ageing rapidly, and by 2050 the amount of 60+ year olds on this planet will be approximately twice the amount it is today.

Of course, this will lead to a lot of issues as our contracting retirement funds and a smaller workforce will not be able to support that many older adults that might rely on very expensive healthcare.

In fact,
there has been a lot of drama about this issue.

And to some extent the drama is justified, because an ageing society is quite a wicked problem.

On a macro-level, there are huge ramifications to our ageing society, and those consequences are spread across social, political, medical, economical and other domains.

Of course, society starts with the individual. To change the world, you start with yourself, right?
So here is a To Do List that we need the check off by 2050 so we can all stay healthy.

Stay at work, physically active, with a sense of purpose, with a lot of friends, without partying and no stress...

I try to do that every new year, but so far my motivation has failed me.

So that brings us to games...
We all know how motivating games are and how they can improve the lives of older adults...

- **Fitness** - 3D cameras and embodied controllers allow seniors to be physically active and fit
- **Brain Training** - Games can lead to better reaction times and dual attention skills
- **Social (Online)** - And the internet will have them play together and not be lonely anymore

Of course, there are some problems that occur when older adults are introduced to new technologies...
This is not how you start a vacuum cleaner.

So, to get older adults to use new technology, we need to do some research first, to make sure we are making a product that they will like and be able to figure out.
And we as academics have been doing that.

I did a scrape of Google Scholar looking for articles on games, gaming, play, older adults, seniors and the elderly.

I manually looked at the results and ended with these numbers.

108 in 4 years! Wow, if we produce a similar amount of articles for the second part of the 2010s, we are looking at a 1162% increase in comparison to the 2000s.

Now looking at all the research out there, I noticed how it had largely justified its reason for existing on two principles...
Reason number 1:
How can we make games that are useful for older adults? A look at the cognitive, physical and social benefits of games. Think all the brain training and exercise games. Basically, let’s make games that will keep people productive longer, that will keep people healthier longer, right?
Nothing wrong with that, and it is good way to get grant money for research and development.

Reason number 2:
How can we make games that are easy enough to use for older adults? A look at the usability factors as well as the learning curves of games. Well duh, if the games are too complicated or difficult to play, then nobody will play them and nobody will benefit from all these very useful games that we are making. Again, nothing wrong there, and it is very necessary and relevant research.
But I would argue that this is quite a limited point of view. For a start, games are much more than a motivator devoid of any real purpose or meaning. Let me show you a short clips from the Game Developers Conference this year.
In this 18 second clip, Frank Lantz, the director of the NYU Game Center puts his finger on what games really are...

An aesthetic form. A though-provoking, emotionally moving form of thinking and doing things, of interactivity.

Games are a culturally relevant art form. Why on earth would they need to be injected with an external kind of usefulness to become relevant to older adults?

I’m sorry but that is ridiculous.

And that brings me to my second point.

Here is an emotion that gamers go through every time they play...
Games are not supposed to be easy. They are supposed to be challenging.

Sometimes they are supposed to be frustrating, so we feel like this after we beat them.

Nicole Lazarro calls this Fiero and it is a very powerful emotional response.

So usefulness and ease of use are not what games are really about.

Now I can hear some people thinking, “you do realize that we are talking about Older Adults here, Bob?”

Yes, I do.
And I disagree.

I disagree that ageing is only about cognitive decline.

Take the work of Paul Baltes for example. He advocated how ageing is not just decline, but also about growth. Older adults come up with new strategies to overcome decline and improve in areas that they are still good at.

Media researchers like Margot Van Der Goot found that many older adults do not use media to compensate for losses either. They use them selectively for content that is meaningful to them.

Finally, what if medical advances by 2050 make this entire issue go away and it is all about entertaining this audience?

I therefore set out to develop an alternative approach for designing games, and to set an example for future research as well.
Inherent qualities of games

Ageing as a both growth and decline

A positive and inclusive discourse

The goals for which are to

• Respect the inherent qualities of games
• To Consider ageing as both growth and decline
• And to develop a positive and inclusive discourse that considers older adults as valued members of society as opposed to a ‘problem’ or ‘market’.

Now considering that the majority of research has used the rhetoric of usefulness and ease of use,
Which are actually concepts of the technology acceptance model, and adoption theory,
I decided to cast research with non-players aside – as we know what they will lead to – and to take a look at research with active players instead.
So I found 16 articles that looked exclusively at actively playing older adults and how they played games.

A remarkably small number, especially considering these are the people who really know how older adults play games.
So what does the research tell us about ease of use?

There are some concerns in a few studies, but the majority of articles do not mention them. When usability issues are mentioned, the articles also refer to strategies that older adults have to overcome them. Furthermore, it also seems that older adults are not phased by games that are clearly above their skill level.

For active players, ease of use seems important but it is not an insurmountable issue.
How about usefulness then?

The research indicates that usefulness in the sense of spending time in a useful way, is important for some of older adults but other older adults don’t care too much about that and are happy to just have fun playing.

More importantly, the actual perceived usefulness of games goes far beyond cognitive, social and physical side effects. It seems much more common for older adults to either play to indulge themselves in a topic that one personally care about, or to engaging with interesting challenges and amazing aesthetic experiences.

And that brings me to the point... While numbers are not provided, the research on actively playing older adults shows how the current academic view on usefulness and ease of use is focused on a subgroup. The rest of the audience plays in function of inherent qualities of the games, in function of personal growth, and seems to feel empowered by the games they play.
Just look at some of the games mentioned in the literature: Tomb Raider, World of Warcraft, DTM, Pro Evo, Medal of Honor, Okami, and then we have the games that you were thinking about when I started talking such as Sudoku and Mah Jong.

There is one caveat however. The actively playing older adults mentioned do experience physical and cognitive decline, but they manage to overcome this. We need to be aware of that and we need to look at what happens after even a game like Sudoku becomes simply too complicated to play. And who better to talk about that the brilliant Kathrin Gerling from Lincoln University in the UK:
So let’s take a look at what this means for some older adults, and how all of us might age.

Instead of having to cope with minor things where we have come up with assistive devices like small changes in vision and hearing, where you can just use glasses or a hearing aid, some older adults experience age-related motor impairments that can range from problems with fine motor skills such as tremor, to mobility impairments that may require the use of walking aids or wheelchairs. Additionally, some older adults experience age-related cognitive impairments that go beyond difficulties remembering where you placed your keys, for example, progressive diseases such as dementia.

Unfortunately, for some older adults, changes are so severe that it becomes hard to lead an independent life, which means that they have to rely on others for care. Many times, the first step in the caregiving process is that family members get involved, and depending on the level of care and assistance that they need, other older adults may move into care facilities, for example, senior residences or nursing homes.
From the perspective of a post-industrialized society, this is not only challenging because everyone should have equal access to the media we create, but also because it puts immense pressure on our care and medical systems because a growing number of older adults has to be cared for by a smaller number of younger persons.

In this context, hysterical pop media reports – but also preliminary findings from the research community – have suggested that games may be a magical solution as they could be a self-directed activity to provide mental and physical stimulation for older adults in long-term care.

Talk about some people’s work: Games for cognitive training. Games for physical therapy. Games for emotional well-being. Many studies were carried out in a tightly controlled research context or with older adults who did not experience severe age-related changes.
So we were curious to see whether the media was right and games were the magical solution to what is generally looked at as a problem of the aging society, and we explored the design of motion-based video games for older adults in long-term care.

In that line of work, we addressed

- Accessibility issues
- The design of games to connect older adults and family caregivers
- And how older adults living at care facilities who experience different levels of age-related changes engage with games over a longer period of time.
Through our work, we identified two fundamental changes that are relevant in the context of game design for persons at this stage of life that may be hard to accommodate with games that were developed for younger audiences, hence Bob’s considerations regarding game content and the adaptivity of interfaces need to be extended.

(1) First, what we saw in all of our studies was that we need to designing for cognitive and physical abilities of older adults in long-term care, but that these may be extremely diverse, leading up to the point where we actually do have adapt in-game challenge as well as game mechanics.

(2) Second, if we’re designing for the context of care – either in the older adult’s own home or at a care institution – we need to be mindful of requirements of their environment, for example, routines at care facilities, but also need to understand psychological vulnerabilities of players especially when persons are transitioning into this stage of life, for example, if older adults and their caregivers are adapting to the caregiving process, or if older adults are self-conscious about age-related impairments that may be revealed in social gaming sessions at care facilities.
However, to take off on a high note, we also found that older adults were pulled into play, were excited about games, and actually interested in competing with themselves or others, and that was true regardless of age-related changes.

So if you consider the fact that many care facilities basically are environments where life is extremely scheduled and most things are done for you (which goes against our basic need to be in charge of our lives and experience competence), I think there are is a really exciting design opportunity here that extends beyond the use of games to facilitate basic mental and physical stimulation. What I would like you to think about is whether it would be possible to leverage games to re-introduce challenge and autonomy in a space that our societies have stripped off these aspects, and whether we could design them to empower older adults to experience competence in a playful context.
So Kathrin’s perspective on this story is from the other side of the spectrum. So the question for the gerontoludic design framework is, can we find a common ground. How do we put 1 and 2 together?
Let’s start with the assumption that well-designed games lead to meaningful experiences for their players. See Salen & Zimmerman’s excellent book Rules of Play for more about that.

So how do you create such meaningful experiences for older adults then as opposed to a younger audience?
Well, this is the typical way it goes according to Hunicke, Leblanc and Zubek, who are veterans of the game industry.

On the left there is me, le game designeur. On the right there a player, in other words, a person who I am trying to provide with a meaningful emotional experience. Let’s call that emotional experience the aesthetics of the game. Now, she is in control of those. I am not even in the room when she might play the game, so that is out of my control. Then there are the dynamics, the run time behavior. The way the game evolves while it is actually being played, creating meaning and fun for the player. This is what is in between us. By designing the game I will influence this, but I also need the player to respond to it and actually provide input for the game. Finally, there are the mechanics of the game. The interrelationships between all elements of the game. This is where I rule. I design the game and decide what possibilities it brings. So this conceptualization of the relationship between the designer, the player and the game is called MDA.

It is a deceptively simple look at the game design process, and how to create meaningful games, but it has been very successful and has been taught at the Game Developers Conference in San Francisco for years. So how does it apply to that big buzzword, Gerontoludic Design?
Gerontoludic Design uses both the idea underlying idea of MDA to design for older adults.

It provides a complete design strategy based on variety of disciplines to create meaningful games.
It also provides ease of use and usefulness with an appropriate function and conceptualization in the design process.

As it would take about an hour to explain the complete approach, so I am going to focus on two of the six parts of the table.

First, Geronto-aesthetics.
Aesthetics typically look like this...

Sensation.. the player’s sense are stimulated by the game
Fantasy.. The player indulges herself into a fantasy world
Narrative... the player relates to an awesome story and cool characters
Challenge... the player is overcoming interesting conflicts

And so on...
Geronto-aesthetics expand this list towards aesthetics that are specifically reported in research with actively playing older adults.

List...

This is how perceived usefulness is re-defined and adjusted. Brain training and such can be meaningful as cultivation, compensation or even contemporaneity. Within geronto-aesthetics, it is also clear that it is not the primary meaning for older adults. Brain training games are about these aesthetics, not about the form that brain trainings have received over the years. So from this perspective, a lot more routes open up. It is also all about autonomy as well as these concepts imply freedom of choice and self-direction. You cannot decide what personal growth is for someone else for example.

So what is the value of connectedness? How do you empower older adults using contribution of contemporaneity? How can you cultivate them using their specific interests? How can games provide a sense of nostalgia? And what dynamics and mechanics can accommodate all this?
Dynamics is going to be a story for a different day, but how about the game mechanics?

Well, similar to the aesthetics, it starts with good game design principles. Tools like Joris Dormans’ machinations, or Jesse Schells lenses help to make good designs.

There is no age limit to good game design.

So what about older adults then?
Well, some of general mechanics are highly important to older adults, others are more specific to them.

Like scaffolding principles that guide them through levels of a game. Specific themes like travelling, history, in fact, research shows that there is a correlation between the reading preferences of older adults and the games they play.

But most importantly it is a heterogenous audience so mechanically there are a lot of directions to take.

Their interests as wide as the rest of the gaming audience, but they are arguably even more heterogeneous as they are ageing.
So that brings us to the ease of use and accessibility. And there is a lot to go around here.

BUT, there are four general principles based on the combination of literature with both players and non-players that I recommend.
1. Brain training and wii bowling is perceived as childish by older adults who play hardcore games.
2. Until you are dealing with older adults who have huge cognitive problems or alzheimers, it is not about adjusting the challenge. Older adults persevere. And they want to be put to the test. I have tons of stories of older adults from my own research who try and try again to overcome the game. If they can with practice, they will.
3. At some point though, cognitive decline and decreased reaction speed becomes too much. Then you need customization, and this is very personal. If you are a middleware developer then you are looking at a gold mine right now.
4. And finally, the game will be played in a specific context that goes beyond just the personal. The role of caregivers and family increases the more cognitive decline becomes an issue.
And that will be as far as my 20 minutes will take me.

As a final point, I want to emphasize that this presentation was not a conclusion but a starting point. There are many areas in the Gerontoludic Design approach that require further research. However, I felt that a conceptual change was needed for games design and research to fit the context of older adults. Gerontoludic design aims to support this thesis and to provide a suggested solution. It is now up to the field to criticize, deconstruct, and expand the submitted approach, so that it can grow into a design paradigm that can truly make a difference in meeting the challenges of an ageing society, and more importantly, the actual needs of older adults.

So get in touch with me on Twitter (@bobdeschutter), my wonderful guest speaker Kathrin Gerling (@kathringerling), and/or the Gerontoludic Society (@gerontoludic) to help improve this framework into an established approach.