

Teaching Older Adults to Play Minecraft

Bob De Schutter

Miami University
800 E High Street
45056 Oxford, OH
USA

b@bobdeschutter.be

Danielle Eynon Black

Miami University
800 E High Street
45056 Oxford, OH
USA

eynonbde@miamioh.edu

Henk Herman Nap

Vilans
Catharijnesingel 47
3503 RE, Utrecht
The Netherlands

h.nap@vilans.nl

ABSTRACT

Digital games have become a popular pastime among older adults and are increasingly used in therapeutic interventions for this age group. Nonetheless, the literature on how to instruct older gaming neophytes to a new medium is scarce. The goal of this paper is to contribute to the body of knowledge on game instruction for older adults through the exploratory, in-depth analysis of a 5-session workshop with 3 retired older adults (aged 64, 67 and 78). During this course, the older adults were introduced to the game Minecraft. The paper provides a number of recommendations with regards to the instruction, as well as an overview of how the participants perceived the game and the potential added value it holds for their lives.

Categories and Subject Descriptors

I.6.8 [Types of Simulation]: Gaming - K.8.0 [General]: Games

Keywords

Older adults, Minecraft, learning

1. INTRODUCTION

May moved her fingers tentatively over the keyboard, looking anxiously at the screen, then down to the keys she was pressing, and back up. She sat forward in her chair, obviously out of place on the inner rim of a ring of 25 computers. The chaotic display of polygons on the computer's display looked less like a window onto a game world and more like a sequence from an experimental film. "I'm stuck," said Sue, sitting next to May. "Can I just get out? Then I can walk out there? Is that grass?"

The cubist world of Minecraft is seldom thought of as a great pastime for older adults. While an increasing percentage of 50+ year olds have started to play a wide range of digital games [3, 12], the literature on the topic of ageing and games has typically focused on potential health benefits [6], usability concerns [7], and explorations of older players' gaming habits that do not specify single games [1]. Furthermore, prior research provides few guidelines concerning the training of older adults in how to play a specific digital game.

The overall aim of the present study was to introduce Minecraft to a small but diverse group of older adults and gather their experiences and perceptions towards the game. Minecraft is a game that can be described as an open 3D world in which players can create their own world and story-line, i.e., a creative platform. The choice for Minecraft was made because the game allows the player to become invested in a process of learning that builds on itself. Minecraft offers layers of complexity, making it suitable for different types of gamers. Furthermore, the game is popular with young children, and the prospect of getting to know a hobby of their grandchildren was expected to be enticing to our target age group [13].

In Minecraft, there are thousands of additional content sources and game modifications (known as "mods") that extend the base game to a large extent, but for the workshop we relied on "vanilla" (i.e., unmodified) Minecraft. Primarily, we aimed to avoid overwhelming the participants with unnecessary complexity. This is to increase comfort and familiarity as the participant increases their aptitude for the game. This can be called "progressive disclosure", characterized by slowly introducing incrementally more complexity only as quickly as the player is comfortable [8].

The study had the following research goals:

1. to study the introduction of Minecraft in the lives of older adults (through a classroom experience),
2. to research the possibilities and challenges of playing Minecraft in later life, and
3. to explore what design adjustments were needed (if any) in a Minecraft modification aimed at older adults.

2. METHODS

The study was performed in the fall of 2014. Through The Institute for Learning in Retirement (Oxford, OH, USA) the study was promoted as follows:

Want to learn more about the world of online gaming? Minecraft appeals to all ages; your grandchildren are probably obsessed with it at the moment. The game is a massive, open-ended world. There's no "winning" in Minecraft—only cooperative game play with your family and friends.

The course was offered as "Gaming with Minecraft" and aimed for a maximum of four participants, since we anticipated that the participants would need intensive individual instruction while exploring the world [9]. Four older adults did respond to the call and three eventually attended the five-week trial class. (The older adult who did not show up had a scheduling conflict.) It was held on Thursdays, from 8:30am – 10:00am.

The classes were co-taught by the two researchers, who have experience with older adults as participants in game-related research. The course was designed as follows:

- Session 1: Accessing the game, intro to basic Minecraft concepts (gathering resources, altering the world around the players), basic exploration of local server, explain the difference between playing on a server vs. playing single player, try to survive the night.
- Session 2: Advanced mining concepts in Minecraft, basic tools for survival and exploration such as the pickaxe, sword, and shovel.

- Session 3: Group exercises, basic structures (caves, houses, etc.), continue exploration
- Session 4: Creative mode introduction, advanced systems (tools that require multiple resources such as a diamond axe).
- Session 5: Mods and online servers, explore online resources, gather feedback from the participants.

The study was held with 1 male and 2 female participants; May (F, 78 years old), Sue (F, 64) and Tony (M, 67). (Pseudonyms are used throughout this paper to ensure the privacy of the participants.) All participants were retired, and in good health. Sue and May had limited experience with computers, while Tony was a proficient computer user who had designed simple computer games for his children in the past. All three participants did not identify themselves as gamers, and cited solitaire, Sudoku and hearts as non-computer games that they played on occasion.

The participants were given access to Minecraft accounts that were owned by the University. These characters had gender-neutral names that had been created using an online generator: Gloomowl (Tony), Archsea (Sue) and Donnyboar (May). For the final 2 sessions, they were given the player skins below, as having the same skin for each player sometimes led to confusion.



Fig 1. GloomOwl, Archsea and Donnyboar

The sessions were recorded using an audio recorder and transcribed for analysis. The researchers took notes throughout each session. At the end of every session, the participants filled in a quick online survey that asked them about their perceptions of the game. Finally, a focus group session was held at the end of the final session.

3. RESULTS

3.1 Overview of the Course

At the first class, an instruction was given about the controls, the monsters, the tools and weapons, and health and food indicators. We wanted to avoid "teaching" them how to play Minecraft but rather promote and witness an organic approach to learning, as Minecraft supports experiential learning through exploration and flexibility. After a brief explanation of the game's mechanics, the three participants were left to figure out how to survive the first night.

In response, the participants dug out a cave, closed themselves in and were lost in darkness, which was confusing for the participants. We intervened and set the game to daytime again, and explained that they could climb out of their cave as no

monsters would spawn just yet. Once out they began chopping down trees, and they made a crafting table and wooden tools. The participants quickly learned that wooden tools did not last long and started to look for a solution to this problem. It was not until the third week, that the participants managed to adapt and two participants were comfortably making and using stone tools by the end of the course.

In the first week, two participants were collaboratively figuring out how to build something more complex: houses. They built houses close to one another and approached home construction similarly to real-world homes, and were traditional in what they put inside their homes: tables (crafting tables), beds and ovens (furnaces). There is no particular need within the game mechanics to restrict placement in this fashion. The obvious hypothesis is that they mimicked what they knew from real life, perhaps presuming some need to do so.

The three participants had distinct gameplay behaviors. May was giggly and was having loads of fun, even when she would get stuck or make a mistake. Sue was unsure of her surroundings, saying "Am I up there? I have to get up there? I lost you." Tony liked individual instruction and seemed to feel more comfortable in Minecraft. He asked specific and detailed questions and emailed outside of the class to ask about servers and mods.

Each week, our participants enthusiastically logged onto Minecraft after giving a brief on what they have been playing with their grandchildren. They would ask questions to get refreshed on the controls as well as specific questions from their time playing outside of class. The participants would typically have played the game at home (even without being instructed to do so) and they always seemed to encounter in-game problems that they did not manage to overcome themselves. After a couple minutes of answering questions and refreshing the participants' memories, they would get right into the game.

The second week ended up a continuation of the first week (free play), as we did not manage to cover all intended topics. In the third week we created a small farm and planted wheat seeds. The next step was to harvest the wheat and make bread. This led to a discussion about burning wood or coal. They were interested how to obtain other foods. After we told them they could hunt or domesticate animals, the participants headed out to find some chickens. Building a farm with chickens took the players to the end of week 4.

For the final class meeting, a new flat world was generated and logged in the participants. It was told that they had 20 minutes to prepare to survive their first night, and that we would not intervene this time. Tony announced that the group needed shelter and began to chop down trees. He took the lead in telling the other players what was needed and let them work. He had made a cave with a door, torches to light up the cave and surrounding area and constructed a crafting table and furnace in twenty minutes. Tony was the most adventurous player, typically exploring further from safety. May was collecting wood and talking with the others to coordinate their efforts. Sue was still having a hard time navigating around, got stuck in a ditch but made it out in time to get into the cave and not die. The participants had noticeably more comfort with the game and spoke about how they would play with their grandchildren.

3.2 Difficulties and Challenges

As mentioned earlier, it proved to be difficult for the participants (and in particular Sue) to recall the controls for Minecraft.

However, recalling the key presses was not the only difficulty the players experienced. Even when knowing the controls, it proved to be difficult for May and Sue to navigate the 3D space of Minecraft. At times, they would stand close to a wall or a tree and assume that the game was malfunctioning, or they would fall in a ditch only to struggle for some time to jump out of it again.

The players also had a lack of confidence that could be heard throughout the class time. May said, "I'm not doing well building my house." She mentioned telling her grandson what she had been working on in class and he responded with, "That's all?" She explained to him that she was only beginning. These feelings are pertinent because the stereotypes of aging directly affect their self-perceptions. May would make comments about how she should have known the controls. Sue often apologized for not remembering what we covered the prior week and expressed her low self-perception after the class was over. There was a noticeable difference in the self-talk between the male and the females in class, with the former being more confident, probably due to the male participants having more IT experience.

The participants came to the workshop with different experience playing Minecraft. We found this brought some difficulty to offer group instruction. The more experienced players could have learned how Minecraft can be modified to be more challenging and exciting. Since a couple of the players were not as comfortable with the game it meant we had to spend quite some time working on the basics.

3.3 The Impact of Minecraft in Later Life

There was no question that the participants had been able to gain confidence in their gaming capabilities. They had become more comfortable navigating and they could even recall the formulas to craft tools and weapons. Both the students and the instructors therefore felt that the class was a success. Tony even mentioned, "I'm addicted", when he was asked what he thought of the game now. Apparently, he had missed dinner the night before because he had gotten so engaged with the game.

Each player had advanced their knowledge of Minecraft by the end of the session. Most noticeably, Sue was able to recall formulas and commands more easily by the final class. Furthermore, she became capable to navigate the 3D world without problems, while she was not even capable of accurately turning her character 180 degrees around at the beginning of the workshop. While Sue made the largest stride of all participants, she would probably not have been able to survive the final night in session 5 by herself, without others helping her. May and Tony however, were able to work together to survive the first night in a new terrain without any problems. The growth of all three players was impressive. Considering the examples above, Minecraft seemed to have potential for training memory, improving spatial navigation in a virtual world, creating bonds between generations and stimulating creativity for our participants.

They summed up their experience with Minecraft as follows:

- May: "I love it, but it is hard."
- Sue: "It is overwhelming."
- Tony: "Fun and creative."

They went on to state that they felt that they now perceived people who played Minecraft a lot as smart, creative and intuitive. They all agreed that Minecraft would be a great bonding activity to do with their family, and all three

participants were found to be interested in learning more about the game by watching YouTube videos.

4. DISCUSSION

As indicated by the results section, we had to throw most of our plans for the course out of the window. While older adults recruited through the Institute for Learning in Retirement typically have a good understanding of computers, this was not the case for all of our participants. As a result, they struggled even when having received instruction on how to do so. We found that setting up a safe server and giving the participants individual instruction with small goals (e.g., try to cut down a tree, try to make a wooden axe) worked best.

The official Minecraft: Essential Handbook [11] also proved to be helpful. The book was not used as part of the instruction, yet we did provide each participant a copy after session 2. The participants were able to use the book as a memetic aid, in particular with regards to crafting.

The three participants ended up with very different playing styles. As soon as we logged them into Minecraft May was exploring, Sue was trying to get a handle on the controls and Tony wanted to discuss how to play the game and other details about the world before using his Steve.

During the study, some common gerontological observations could be made. For example, Sue's struggles with memorizing crafting formulas could arguably be due to the disassociation of fluid intelligence from crystallized intelligence [10]. Her (and to a lesser extent also May's) improvement in navigating the three-dimensional space at the beginning of the course is reminiscent of Feng and Spence's [4] study on how video game training can improve spatial cognition. Finally, the study revealed confidence issues for older adults with regards to the use of new technology [9].

Usability issues were limited in comparison to the often extensive lists of age-related accommodations that are cited in the existing literature [5]. The participants were able to play on large 27" iMac screens and use the biggest setting for the interface. The most significant issues were due to limited computer experience. In order to optimize Minecraft to an older audience, we suggest the following:

- A tutorial mode with short-term goals.
- Memetic tools, in particular with regards to crafting.
- Start players with a "bonus chest" that includes some basic starter tools and food.
- Watching "Let's Play" videos about Minecraft to familiarize players with the visual grammars.
- An auto-jump feature that will have players climb one block inclines automatically.

The last of these features has actually been implemented successfully in the mobile version of Minecraft, alleviating the difficult UI problem of having too many controls. The case could be made that the difficulty some older players (not to mention other potential players who are differently abled) with the standard PC Minecraft UI is analogous to the difficulty posed to players on a mobile touchscreen Minecraft UI.

In the future we would like to create a child-led intergenerational Minecraft class. One benefit of a child-led class is the option of intergenerational apprenticeships. This is where the child and older adult would work together within Minecraft to create authentic learning experiences. The purpose of the apprenticeship workshops is to take advantage of the

memorability of visceral, shared experiences. These experiences are what make it easier for older adults to recall what needs to be done at certain points in the game [2].

Finally, we are hoping to replicate this setup with other games that are popular among younger age groups, in order to develop a better understanding of how digital games can be introduced into the socio-cultural context of older adults.

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6. REFERENCES

- [1] Brown, J.A. 2012. Let's play: understanding the role and meaning of digital games in the lives of older adults. *Proceedings of the International Conference on the Foundations of Digital Games* (New York, NY, USA, 2012), 273–275.
- [2] Cheok, A.D., Lee, S., Kodagoda, S., Tat, K.E. and Thang, L.N. 2005. A social and physical inter-generational computer game for the elderly and children: Age Invaders. *Ninth IEEE International Symposium on Wearable Computers, 2005. Proceedings* (Oct. 2005), 202–203.
- [3] ESA 2011. 2011 Essential Facts about the Computer and Video Game Industry. ESA.
- [4] Feng, J., Spence, I. and Pratt, J. 2007. Playing an Action Video Game Reduces Gender Differences in Spatial Cognition. *Psychological Science*. 18, 10 (2007), 850–855.
- [5] Gamberini, L., Mariano, A., Barresi, G., Fabregat, M., Prontu, L. and Ibanez, F. 2006. Cognition, technology and games for the elderly: An introduction to ELDERGAMES Project. *PsychNology Journal*. 4, 3 (2006), 285–308.
- [6] Gerling, K.M., Schild, J. and Masuch, M. 2010. Exergame design for elderly users: the case study of SilverBalance. *Proceedings of the 7th International Conference on Advances in Computer Entertainment Technology* (2010), 66–69.
- [7] IJsselsteijn, W.A., Nap, H.H., de Kort, Y.A.W. and Poels, K. 2007. Digital game design for elderly users. (Toronto, Canada, 2007), 17–22.
- [8] Kapp, K.M. 2012. *The gamification of learning and instruction: game-based methods and strategies for training and education*. John Wiley & Sons.
- [9] Levy, L.M., Gandy, M., Solomon, R., McLaughlin, A.C., Allaire, J.C. and Whitlock, L.A. 2012. Fear of Failure: Gender Differences in Older Adult Gamers. *Proceedings of the International Conference on the Foundations of Digital Games* (New York, NY, USA, 2012), 292–293.
- [10] Perfect, T.J. and Maylor, E.A. 2000. *Models of cognitive aging*. Oxford University Press.
- [11] Scholastic 2013. *Minecraft: Essential Handbook: An Official Mojang Book*. Scholastic Inc.
- [12] De Schutter, B. 2011. Never Too Old to Play: The Appeal of Digital Games to an Older Audience. *Games and Culture: A Journal of Interactive Media*. 6, 2 (2011), 155–170.
- [13] De Schutter, B. and Vanden Abeele, V. 2010. Designing meaningful play within the psycho-social context of older adults. *Proceedings of the 3rd International Conference on Fun and Games* (New York, NY, USA, 2010), 84–93.