



Introduction

Industrialised countries struggle to adequately cater for a **growing number of older adults** (for a number of reasons).

Movement-based gaming for older people holds the promise of **providing mental and physical stimulation**, and improve **quality of life**.

We generally assume that games are **beneficial for older players**.



On the Nature of Games

The 'motivational pull' of games can be leveraged to draw players in, games are immersive and engaging.

Games can satisfy psychological needs of players (Ryan et al., 2006), interactivity immerses (Jennet et al., 2008).

Challenge is an inherent element of games, overcoming challenge leads to a positive experience.

Concept of 'flow' (Csíkszentmihályi, 1996); also applicable to exergames (Sinclair et al., 2009).



Games, Physical Activity, and Vulnerability

1 Reflections on **physical vulnerability**

2 Reflections on **emotional vulnerability**

Games, Physical Activity, and Vulnerability

Disclaimer:

All projects have been reviewed by ethics committees and carried out with occupational therapists and care home staff.

1 Reflections on Physical Vulnerability

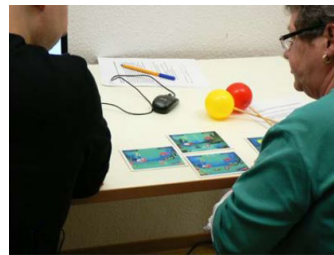
How does element of challenge affect experience with off-the-shelf games?



Gerling, K., Masuch, M. 2011. *When Gaming is not Suitable for Everyone: Playtesting Wii Games with Frail Elderly*. 1st Workshop on Game Accessibility at FDG 2011, Bordeaux, France.

1 Reflections on Physical Vulnerability

How does immersive nature of games affect players' perception of their own bodies?



Smeddinck, J., Gerling, K., Tiemkeo, S. 2013. *Visual Complexity, Player Experience, Performance and Physical Exertion in Motion-Based Games for Older Adults*. Proceedings of ASSETS 2013.

1 Reflections on Physical Vulnerability

Our research shows that games are successful at engaging older players, and that they can be a tool to provide physical stimulation...

1 Reflections on Physical Vulnerability

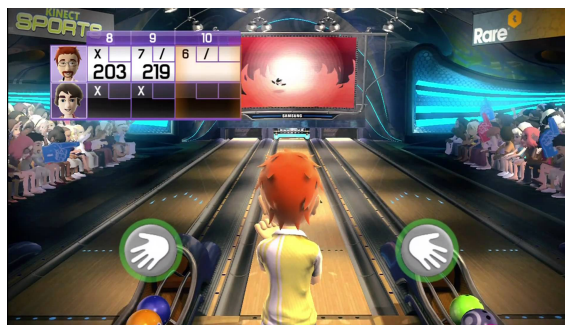
Our research shows that games are successful at engaging older players, and that they can be a tool to provide physical stimulation...

...but we need to reflect on physical risks they pose, and design flexible solutions.

Overexertion is real – how can we reduce risk of injury, and what is potential of adaptive games?

2 Reflections on Emotional Vulnerability

What are older adults' perspectives on challenge?



Gerling, K., Mandryk, R., and Linehan, C. 2015. *Long-Term Use of Motion-Based Video Games in Care Home Settings*. Proceedings of the 2015 CHI Conference on Human Factors in Computing Systems, 1573-1582.



2 Reflections on Emotional Vulnerability

What are older adults' perspectives on challenge?

"[...] it would be good to have some purpose like these games."

vs.

"I can hardly walk, how can I bowl?"

Gerling, K., Mandryk, R., and Linehan, C. 2015. *Long-Term Use of Motion-Based Video Games in Care Home Settings*. Proceedings of the 2015 CHI Conference on Human Factors in Computing Systems, 1573-1582.



2 Reflections on Emotional Vulnerability

How does challenge play out in a social setting?

"[...] you know everybody was watching, you know they are there [...]"

Gerling, K., Mandryk, R., and Linehan, C. 2015. *Long-Term Use of Motion-Based Video Games in Care Home Settings*. Proceedings of the 2015 CHI Conference on Human Factors in Computing Systems, 1573-1582.



2 Reflections on Emotional Vulnerability

What are older adults' perspectives on challenge?

'I am too old to play games.'

'I am not very good at this.'

vs.

'Your game sucks.'



2 Reflections on Emotional Vulnerability

What happens when players aren't challenged enough?

Perceived to be designed for children.

Loss of interest / drop-out.

...or wanting to move on to other games.

Gerling, K., Mandryk, R., and Linehan, C. 2015. *Long-Term Use of Motion-Based Video Games in Care Home Settings*. Proceedings of the 2015 CHI Conference on Human Factors in Computing Systems, 1573-1582.



2 Reflections on Emotional Vulnerability

Our research shows that challenge in games can put older players at the risk of emotional vulnerability, through individual reflection or social setting...



2 Reflections on Emotional Vulnerability

Our research shows that challenge in games can put older players at the risk of emotional vulnerability, through individual reflection or social setting...

...but the lack of challenge can also be belittling and plainly boring when games aren't challenging enough.

How can we create adaptive games that recognise player abilities and adjust accordingly?

A grayscale photograph of an elderly couple. The man on the left is wearing glasses and a suit, looking towards the right. The woman on the right is also wearing glasses and a floral lei, smiling. They are in an indoor setting with a lamp and framed pictures in the background.

Discussion

Understand relationship between games, challenge and vulnerability

- Source of physical discomfort and pain – risk of overexertion and injury
- Source of frustration and negative self-image
- Mitigation strategies – balancing and DDA

Re-think affirmatory nature of games (HCI?) research

- What are unexpected effects?
- How can we study risks in a structured way?
- Is a game useful?

A grayscale photograph of an elderly couple. The man on the left is wearing glasses and a suit, looking towards the right. The woman on the right is also wearing glasses and a floral lei, smiling. They are in an indoor setting with a lamp and framed pictures in the background.

In Summary...

Movement-based games have potential to **engage older people**, but we carefully need to consider the effects they have on players, and ensure challenge is adequate to **reduce instances of vulnerability**.

