Title

Gaming for Elderly Users

Keywords
Gaming, Human Computer Interaction, HCI, User Experience, UX, Learning.

Abstract
Digital game design for Elderly users.

Index

Analysis

TARGET OF THE STUDY

The population distribution in the United Kingdom has an increasingly large number of older people, many of whom live alone. It has been proposed that the use of games and gaming hardware can help elderly people sustain faculties or improve them where they suffer impairment through physical or mental disability.

It is recognised that such games require interfaces that are designed with the needs of an elderly user in mind. Hendley and Wang of the University of Birmingham in the UK conducted research into the use of gaming for elderly users with impairments. Their research focussed on the existing lifestyle of the target group and how gaming might improve wellbeing.

The research was conducted in 2012 and this compendium article compares their findings and those of recent research completed in 2017.

LIFESTYLE AND IMPAIRMENTS

Many elderly people have a different lifestyle to the younger generation. Whilst many no longer engage with paid employment, they are active and occupied with hobbies and the provision of care to grandchildren.

Many of the group lack significant formal education beyond the mandatory schooling regimes in force up to the age of 16. Some engaged with schooling to no significant degree and their levels of literacy and numeracy skills low.

Aging often leads to impairments to sensory abilities. Mobility of the limbs, motor control, eyesight, response time, hearing and an ability to detect colour may be poor. The design of gaming interfaces must take account of these issues. (Gerling, 2010)

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AIMS OF THE RESEARCH

The research sought to research the nature and range of the impairments found in elderly people and consider their effect on the potential of the use of gaming by elderly people. They investigated the use of customisation of interfaces because of the variety and extent of the impairments experienced by the elderly users. They note that the customisation of the interface itself requires special focus because of the limitations placed by complex adjustment systems. They note that simple steps such as the use of 'single-click' instead of 'double-click' might improve access considerably. (Ijsselsteijn, 2007) It is proposed that decline in working memory can limit the ability to sustain useful cognitive processing to follow the processes used in a game. They note that elderly users are attracted to games where frequent instructions are offered to assist in the requirements of the game and the methods that might be used to perform well.

They study the interfaces of games played at the time of writing and note the following:

Features	
Good	**Bad**
Clear training	Pen navigation
Clear instructions, Voice instructions	Overly simplistic layouts
Use of humour	Complex backgrounds
Large icons	Small text size
Requirement for frequent use	

The authors state that the potential audience is large and that it represents a potentially useful income source for the companies involved in the production of games. Although engagement is small currently, it is noted that many elderly people are open-minded about the potential of gaming to help with their impairments, and to improve their social connections.

Hendley and Wang proposed that there could be physical and psychological benefits to elderly people who choose to use gaming as a form of entertainment. Heritage Live in Care note that the use of games can improve social interaction, literacy and education, and can help relieve arthritic pain experienced by some. (Heritage Live in Care. 2019). Many other organisations involved with the provision of care to the elderly make similar claims.

However, it must be noted that the assessment of the value of games to improve brain health is disputed. Age UK report that research has suggested that the learning of a language, or the taking of learning classes for the development of new skills, may be more effective in the sustaining of cognitive skills than many games proposed as effective by their manufacturers. (Age UK. 2017)

CONCLUSION

The research suggests there is potential for the use of gaming to improve physical and psychological health in the elderly population. Many of the elderly population are attracted to games because of the perceived benefits and are less likely to be resistant to the cost of a game than a younger group. Some commercial care organisations promote the use of games as a valuable activity, perhaps over-extending the observed psychological value as a physical health value.

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Science Daily (Science Daily, 2017) cites research by Université de Montreal's Gregory West (West, 2017) confirming some of Hendley and Wang's findings, in that elderly enjoyed the activity of playing games. The use of Magnetic Resonance Imaging (MRI) in 2014 and 2017 allowed monitoring of users aged 55 – 75 over a period of six months. They noted improvements in the structure of the hippocampus when the brain was learning new things, but atrophy with general aging. They propose that it is the act of learning and its use in the creation of pathways in the grey matter of the hippocampus that constrains the otherwise natural atrophy.

This aligns with the research cited by Age UK (q.v.) suggesting that the potential value of gaming for elderly people may best be found in the demands of learning required for its use through the acquisition of new skills. West's work in this area builds strong evidence to support this theory.

Undoubtedly, commercial organisations will seek to market products targeted at the elderly age group, and they will make spurious claims about efficacy. Confirmation of the value of learning may serve as a spur for the development of games that exploit that feature and may provide games that are more beneficial for elderly people.

The benefits of gaming to social interaction and general wellbeing are clear and this may be of significantly greater value to elderly people than the efforts to minimize or defer inevitable physical impairment.

FURTHER INFORMATION

Links

Age UK. (2017). *Playing 'brain games' has little benefit for our health, says new evidence | Latest news | Age UK*. [online] Available at: https://www.ageuk.org.uk/latest-news/archive/brain-games-little-benefit/ [Accessed 30 Jan. 2019].

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