A. PARK, H. TSANG, E. HWANG. Evacuation simulation of older adults from hi-rise buildings. Gerontechnology 2010;9(2):241; doi:10.4017/gt.2010.09.02.312.00 **Purpose** This research study models and simulates the behaviour of older adults when they evacuate from high-rise buildings in the case of an emergency such as fire. **Method** Agent-based models of older adults were developed based on simple parameters such as sight range and speed of walking. These agents are autonomous and find their escape routes in the case of emergency. According to a literature review, the knowledge of evacuation routes obtained by fire drills plays an important role when people need to quickly and safely evacuate from high-rise buildings[1]. To distinguish two different behaviours of older adults, depending on whether or not they had fire drills, two kinds of path choices were modeled: one had the full knowledge of evacuation routes which are the shortest paths from the current position of the agent to the closest exits on the ground level of the buildings; the other had to find the evacuation routes on each floor using the visual sense. The former model represents those who fad fire drills and gained the knowledge of the evacuation routes. The latter illustrates those who have not had any fire drills and do not know which ways would lead them to the closest exits. These older people panic in the case of an emergency and try to find any close stairs or elevators on each floor. After the agents with these two different behavioural models were developed, a multi-agent simulation system was built using a 3D game engine called Dark-basic Professional. This system allows users to create a high-rise building with different numbers of floors and different numbers and locations of stairs and elevators. The different types, number and location of agents can be placed on each floor. Fires can be simulated on different floors and at different locations within the building. The system shows 3D animation of agents' movement through the transparent high-rise building. Using this system, several realistic evacuation simulations were run and their results were compared with those of experiments done with real people. **Results & Discussion** The simulation results show that those who have knowledge of the evacuation routes through fire drills escape quicker than those who do not. This agrees with the results of human experiments, although the exact measurement of the time that is required to evacuate needs refinement in the simulation system. This simulation system can be a great research tool for similar research studies and can also be used to educate older adults who live in high-rise seniors' apartments.

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A. PEINE, E. MOORS. Images of aging: How science and technology studies and gerontechnology might benefit each other. Gerontechnology 2010;9(2):241-242; doi:10.4017/gt.2010.09.02.222.00 **Purpose** This presentation tries to link two hitherto largely unrelated bodies of the social science and engineering literature together – the social study of science and technology, commonly referred to as Science and Technology Studies (STS) and Gerontechnology. **Method** We develop our argumentation in three steps: (i) lay out the basic tenets of Science and Technology Studies (STS), (ii) circumscribe what this could contribute to the field of Gerontechnology and vice versa, and (iii) define the cornerstones of an agenda for future STS research inspired by these mutual benefits. **Results & Discussion** STS perceives science and technology to be the result of social practice, while, at the same time, social practices emerge and become reinforced through the use and production of technology. A focal point in the STS literature is the entanglement of technology use and technology design. Forms of use co-evolve with technology design, and user needs are thus not just 'out there' and ready to be elicited before actual use takes place. The STS literature has explored the relationship between use and design for a number of societal issues, such as sustainability, gender, disability or health. Aging, however, has thus far not been part of the STS agenda (with only a few remarkable exceptions[1-3]). Our contribution makes a first step towards filling this gap. For a long time, Gerontechnology has looked at the particular link between technology and aging.[4] An STS of aging, therefore, has much to learn from Gerontechnology. We specify this around issues of user-producer interactions, person-environment interactions and technology generation. At the same time, we believe that there is also a contribution STS could make to the field of Gerontechnology. In particular, we suggest that STS insights connect well with Lawton's attempt to integrate technology into Riley's sociological explanation of aging[5,6]. We develop how Lawton's model could benefit from a richer understanding of how the practices of technology use and production constitute and reinforce certain images of aging. We

use our discussion to flesh out an agenda for an STS of aging. This agenda revolves around the poles 'images of aging' and Gerontechnology.

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S. PERÄLÄ, M. ÄMMÄLÄ, R. LATVALA, K. MÄKELA. Location based technology for memory impaired elderly. Gerontechnology 2010;9(2):242; doi:10.4017/gt.2010.09.02.274.00 **Purpose** The population of Finland is 5.3 million with 120,000 persons diagnosed with memory impairment and 13,000 new cases diagnosed yearly[1]. Of these, 60% are caused by Alzheimer's disease; 15-20% are due to vascular diseases, 10-15% due to Lewy Body Disease (LBD) and less than five per cent due to frontotemporal dementia (FTD)[2,3]. The aim of this study was to investigate location based technologies suitable for use by elderly persons with memory impairment that are prone to wandering. We studied several devices taking into consideration overall safety aspects of independent living. **Method** This study was carried out in the Seinäjoki region of Finland; the study commenced in March, 2008 and concluded in 2009. A total of 32 persons (13 men and 19 women) suffering from mild to severe dementia participated. They ranged in age from 66 to 90 (mean=81 years). All were living at home either alone or with a caretaker (spouse or children). All participants underwent a mental status examination (CDR, MMSE and GDF-FAST) prior to the intervention[4]. At the beginning of the study 15 were diagnosed with mild stage memory impairment, 13 with moderate and four with severe memory impairment. The location based technologies tested were divided into three types: those that operated within the home, devices used in close proximity to the home (for example, in the garden), and devices for use outdoors at arbitrary distances from the home. **Result & Discussion** A total of 23 individual devices were installed (10 door alarm systems, 10 GPS or RF based location devices, 2 GSM camera systems, and 1 short range RF communications device). In 9 cases, location based technology could not be installed due to a variety of reasons: permission was not granted by elderly person or relatives, stage of memory impairment precluded use of technologies available, or the person was moved to a care institution due to progression of dementia. No satisfactory devices were found for use outdoors in close proximity to the home. Although several such devices exist that operate up to 300 meters from a central base station, none of the devices tested operated satisfactorily as there were too many false alarms triggered. One significant observation was that irrespective of the technology used, it should be installed when the elderly is at the early stage of dementia; at later stages of dementia it is usually impossible for the elderly to adequately adopt the device. This is a major challenge, as the elderly themselves might not recognize early stage dementia and will reject tracking devices. Caregivers or relatives might similarly downplay early symptoms of dementia and reject the use of appropriate technology. Dementia can progress very rapidly. Very often it will be too late to implement new devices if the elderly person was not acquainted with them at an early stage of the disease. Acknowledgements: This research was supported by the EU ESR fund as part of the 'Kulkurin valssi' project.

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