R.M. BAECKER, N. SHIM, K. TONON, V. PANDELIEV, J. BIRNHOLTZ, Y. STERN, J.R. STEINERMAN, K. MOFFATT. *'Serious' online gaming environments to enhance brain fitness in senior citizens. Gerontechnology 2010;9(2):190;* doi:10.4017/gt.2010.09.02.265.00 **Purpose** Much research is currently underway on the science of brain fitness[1]. There is significant interest in the use of cognitive exercise, aerobic physical exercise, balanced nutrition, and social stimulation to increase cognitive reserve[1] and slow down mental aging. There is also vigorous commercial activity in brain fitness software, estimated at $265M in 2008 and projected to grow to $1B to $5B by 2013. Yet progress in the field is hindered by numerous factors, including the high cost to produce games, the tendency for games designers to focus only on the play of the game and to neglect support for social interaction during game play, and the lack of tools for evaluating the efficacy of games. **Method** Our research method is a classic user-centred design process in which we understand human needs through literature reviews and field work, create low-fidelity prototypes, subject these prototypes to the scrutiny of multidisciplinary design teams and potential users, develop higher-fidelity prototypes, test them through real usage by individuals who need them, and iterate the process. We are developing three novel systems: (i) a game development toolkit and programming language to facilitate the design and implementation of a large variety of board and card games; (ii) TableTalk Poker, an online Poker environment that allows and encourages players to communicate privately via voice chat with partners who could be peers, mentors, or novices seeking to learn from them; and (iii) a mental fitness games testing environment for running over the Internet randomized controlled trials of mental fitness and online gaming interventions. **Results & Discussion** Versions of both the game development environment and TableTalk Poker are now operational. An early version of the mental fitness games testing environment, featuring rigorous cognitive assessments and adaptations to optimize recruitment and retention, is also running. Early feedback from senior citizens on TableTalk Poker has been encouraging. The game development toolkit has been used to produce a boggle game that will be used for a first experiment with the games testing environment. All three systems will be demonstrated, and feedback from users will be reported. We will also present first results from a controlled study of TableTalk Poker with a group of senior citizens in which we compare leaning, enjoyment and engagement, and social connections between two versions of TableTalk Poker, one of which has the private voice chat disabled.

References
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R.M. BAECKER, A. LEVY, M. MASSIMI, K.TONON, M. WATSON, K. FENWICK, W. SCOTT, E. ROCHON, D. MULHOLLAND, L. LAIRD, S.E. BLACK, K. MOFFATT, G. POORSHAHID. *Context-aware mobile phones to aid seniors with word recall and production. Gerontechnology 2010;9(2):190-191;* doi:10.4017/gt.2010.09.02.311.00 **Purpose** Disorders such as aphasia and degenerative conditions such as Alzheimer's create major barriers to everyday communication. People with aphasia struggle to speak at all, while those with Alzheimer's often forget the names of those around them. Such individuals are predominantly senior citizens. Both these groups have been poorly served by existing aids, because these devices ignore the contextual nature of communication. Knowing that we tend to use certain words in certain places ('coffee' at a coffee shop) and that people can be linked to places ('Coach Smith' at the hockey rink), these devices can be re-invented. Our group has therefore begun to develop and test context-aware[1] devices that suggest words on the basis of location. Our technology may also prove useful to normally aging seniors who increasingly struggle to remember names[2]. **Method** Our research method is a classic user-centred design process in which we understand human needs through literature reviews and field work, create low-fidelity prototypes, subject these prototypes to the scrutiny of multidisciplinary design teams and potential users, develop higher-fidelity prototypes, test them through real usage by individuals who need them, e.g., individuals with anomic aphasia, and iterate the process. Our current prototypes, called Friend Forecaster and Marco Polo, are based on highly interactive cell phone interfaces that support both the

browsing of vocabularies and the automatic suggestion of plausibly useful proper names, words, and sentences. **Results & discussion** Testing of an early version of Friend Forecaster[3] with a real estate agent in his 60s who reports name recall difficulties yielded encouraging results[4]. The first version of Marco Polo currently supports browsing of several thousand words and sentences assembled by a stroke survivor in his 60s who has anomic aphasia. Within a month of starting to use Marco Polo on an iPhone, he consistently reports that he now uses it constantly in place of a loose-leaf notebook and traditional AAC device that he had employed for a decade. Building and testing these early implementations of both Friend Forecaster and Marco Polo has yielded insights into appropriate system architectures and interface designs[5]. These insights are currently being applied in constructing a new version of Marco Polo. Implementation and first results from this new context-aware Marco Polo implementation will be reported at the conference.

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S.C.J. Bakkes, B.J.A. Kröse. Pervasive healthcare technology for assisted living residences. Gerontechnology 2010;9(2):191-192; doi:10.4017/gt.2010.09.02.286.00 **Purpose** In the Netherlands, a contemporary way of accommodating elderly people with their desire for independent living takes the form of assisted living residences (In Dutch: 'aanleunwoningen'). These residences are built alongside, or nearby, a traditional nursing home. Senior citizens that are relatively mobile and suffer from no or limited deficiencies in health, are eligible for placement in these residences. Accordingly, the residents benefit from (health care) services provided by the nearby nursing home, while at the same time living independently, and in much more privacy than would have been possible in the nursing home. Current trends are to assist elderly people by means of, among others, telemonitoring of vital signs and video communication. Recently, systems have been proposed that monitor activities of daily living with networks of simple sensors[1]. However, with consideration to the desire for independent and privacy-conscious living, literature shows that any healthcare technology that is perceived as interfering with the daily activities of elderly residents will be regarded as obtrusive[2]. Therefore, in this paper we investigate the requirements for incorporation of sensor networks into the domain of assisted living residences, and examine a design that considers literature-defined factors of acceptability. **Method** Alongside a detailed study of relevant literature, in our investigation we also perform in-depth interviews with three target groups. Namely, we interview (i) healthcare professionals, (ii) managers of healthcare professionals, and (iii) elderly people housed in assisted living residences. The results provide valuable guidelines for the incorporation of pervasive techniques. **Results & Discussion** Results from our interviews indicate that residents may accept potentially obtrusive technology to the extent that it is used solely for the purpose of detecting and responding to emergencies (e.g. falls). However, any additional form of monitoring is received with strong opposition, even if it were to concern slowly developing medical conditions (e.g. cystitis). Interestingly, the latter view is generally shared by healthcare professionals, who reason that additional monitoring techniques are remotely relevant to the domain of assisted living residences. Still, managers of healthcare professionals reveal that additional monitoring may be required in the near future to relieve the work routine of health professionals, and, ideally, provide a higher quality of service for the residents. From these findings, we may conclude that pervasive healthcare technology in the domain of assisted living residences should be focused foremost on detecting and responding to emergencies. Though additional