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
1. Valenzuela MJ, Sachdev P. Brain Reserve and Dementia: A Systematic Review. Psychological Medicine 2005;36(4):1-14
2. Stern Y. The Concept of Cognitive Reserve: A Catalyst for Research. Journal of Clinical and Experimental Neuropsychology 2003;25(5):589-593
3. Fernandez A. Speech given at the Business of Aging Conference, Toronto, December 2 2009; www.sharpbrains.com/market-report/; retrieved January 2010

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