

# Victoria Longitudinal Study

Edmonton • Victoria  
Canada

## VLS Newsletter

Issue 4: 2010-2011

We are delighted to offer the latest issue of the *VLS Newsletter*. By tradition, we publish a *Newsletter* every two years.

The first goal of the *Newsletter* is to summarize some of our recent research activities for our many loyal and dedicated participants. To our participants, we would like to extend a very special greeting and our sincere gratitude for your long-standing commitment to the VLS. We do our very best every year to honour your crucial contributions by representing the VLS in publications and conferences around the world.

The second goal of the *Newsletter* is to acknowledge our gratitude to funding agencies (especially the National Institute on Aging) and our host institutions (Universities of Alberta and Victoria). We have featured the crests for these two institutions on page 4 of the *Newsletter*. In addition, on page 2 we display the logos of several of our contributing and cooperating institutions.

The third goal is to share a brief VLS update with our colleagues and collaborators near and far. Like all previous issues, this *Newsletter* is being distributed to multiple recipients in North America, Europe, Australia, and Asia. Please let us know if you have any suggestions for future issues. Our contact information is on page 4.



### Dr. Roger A. Dixon

VLS Director (Edmonton and Victoria)  
Canada Research Chair (University of Alberta)  
Professor of Psychology (University of Alberta)  
Adjunct Professor of Psychology (University of Victoria)  
Principal Investigator, NIH Grant R37 AG008235 (VLS)



## New Research From the VLS: *When, How, and Why Does Memory Change with Aging?*

**New VLS Memory Research.** VLS Director, **Dr. Roger Dixon**, was invited to visit Tsukuba, Japan, in March 2010. He joined several other international speakers (from Australia, Germany, Japan, Sweden, and the USA) at a conference on the latest approaches and results of research on memory and aging. All of the hour-long invited talks have now been converted into chapters for a new book on this complex and fascinating topic. For his presentation, Dr. Dixon focused on the latest VLS research on declarative memory—the dual aspect of memory that includes (1) episodic memory, or how well people can learn and remember new information, and (2) semantic memory, or how well people can remember previously accumulated knowledge.

**VLS Co-Authors.** Three VLS colleagues joined Dr. Dixon as co-authors of the book chapter. These collaborators are **Drs. Brent Small** (South Florida), **Stuart MacDonald** (Victoria), and **John J. McArdle** (Southern California). The co-authors addressed three crucial questions: (1) *When* does memory performance begin to change with normal aging?, (2) *How* does memory change occur (gradual decline or rapid drop in performance)?, and (3) *Why* or what modifies or accounts for the normal memory changes we observe with aging? Note that only longitudinal data—in which information is collected on the

same individuals over time—can directly address these questions about actual changes in memory. Therefore, the VLS, having collected such data for up to 20 years, is ideally placed to contribute unique results to the field.

**Main Results.** Here are some notable VLS research findings. First, when plotted over waves, the average changes for both episodic and semantic memory are quite gradual. However, lurking behind these average changes are dramatic differences across individuals in level of performance and in change patterns. Second, when plotted over age, new statistical techniques allowed us to identify *when* and *how* typical and normal memory changes occur. Again, there are vast differences across individuals in how memory changes with aging, but the overall curves are quite gradual until surprisingly older adulthood. Third, the *why* of memory change remains an intriguing question. Contemporary researchers are addressing such “explanatory” variables as genetics, general health and fitness, cognitive practice, brain and vascular health, and everyday lifestyle activities.

**Citation:** Dixon, R.A., Small, B.J., MacDonald, S.W.S., & McArdle, J.J. (in press, 2011). Yes, Memory Declines with Aging—But When, How, and Why? In M. Naveh-Benjamin & N. Ohta (Eds.), *Memory and Aging*. New York: Psychology Press.

## Update on the VLS Genetics Initiative

**The Initiative.** In the last VLS *Newsletter* we announced an exciting new interdisciplinary initiative for the VLS. We had just begun inviting VLS participants to contribute saliva samples so that we could include new genetic information in the project. Increasingly, large-scale longitudinal projects such as the VLS are incorporating genetic and other biological information in the studies. As a function of the dramatic growth of the VLS since the mid-1990s, we are now studying various aspects of health, medications, biological status, and physical functioning. We are pleased to announce that the first phase of the **VLS Genetics Initiative** has been completed—and it was a resounding success!

**Progress Reports.** We recently prepared a series of three progress reports, all for conferences held in Edmonton. The first report (November 2010) was presented at the *Glenrose Hospital Foundation Spotlight on Research* conference, held at the Shaw Conference Centre overlooking the Edmonton river valley. Subsequently, in December 2010, we presented an updated version at the annual *Translational Neuroscience Symposium*, which was held on the campus of the University of Alberta. Finally, in March 2011, we presented the third progress report at the annual *Joseph Royce Research Conference*, sponsored by the UofA Department of Psychology, and held in the spectacular new foyer linking the venerable Biological Sciences Building with the new Centennial Centre for Interdisciplinary Science. A copy of this latter poster is available in both VLS labs and on the VLS website. We hope to take our progress on the road soon, and present

our new information to national and international audiences.

**What We Have Accomplished So Far.** Thanks to the enthusiastic contributions of the VLS participants we have been able to collect about 700 samples for genetic analyses. Contributing saliva turned out to be as simple and safe as we had expected. It was typically accomplished in about 10-15 minutes. As promised, all samples were “de-identified,” which means that the samples are not associated with the identity of any individual VLS participant. The next step was DNA extraction, and this has been completed on all 700 samples. Subsequently, we began “genotyping” the samples for genes relevant to cognition and aging. At the publication of this *Newsletter*, we are pleased that all 700 VLS samples have been genotyped for the first three genes. The progress reports describe the distributions of these genes, but do not yet link them to any cognitive or other outcomes. This will be the next step!

**Genetics Initiative Team.** As we reported in the last *Newsletter*, the new initiative is funded by a grant to three Co-Principal Investigators at the University of Alberta:

**Drs. Roger Dixon** (Psychology), **Jack Jhamandas** (Neurology), and **David Westaway** (Centre for Prions and Protein Folding Diseases). Other Investigators on the project include: **Drs. Richard Camicioli** (Neurology), **Florin Dolcos** (Psychiatry), **Satya Kar** (Psychiatry), **Kathy Lechelt**

(Geriatrics), and **Stuart MacDonald** (Psychology, UVic). **Dr. Brent Small** (South Florida) has generously provided us with expert advice on creating genetic data bases. Key postdocs and graduate students come from both UAlberta (**Dr. Sanda Dolcos**, **Peggy McFall**, **Dr. David Vergote**, and **Bonnie Whitehead**) and UVic (**Anna Braslavsky**, **Correne DeCarlo**, and **Jacob Grand**). Crucial research coordinators in this multi-site and multi-disciplinary enterprise include **Karrie Darichuk** (Prion Centre), **Jill Friesen** (VLS), and **Terry Perkins** (VLS-UVic).

**Project Plans and Goals.** The overall purpose of this initiative is to explore promising linkages among selected genetic and epigenetic markers and neurocognitive performance and change with aging. A unique opportunity is presented by the fact the VLS has been operating for over 20 years: We will examine genetic and epigenetic influences on actual long-term changes in cognitive health with aging. It is as important to us to contribute to the understanding of normal and healthy aging as it is to contribute to knowledge about cognitive diseases and decline. We are currently expanding our purview, as we are collecting corresponding genetic and cognitive data from volunteer participants with recent diagnoses of Alzheimer’s disease. When completed, this initiative may provide new information about important markers and predictors of sustained cognitive health, normal cognitive aging and decline, and the accelerated decline associated with neurodegenerative diseases such as Alzheimer’s.

## The VLS Genetics Initiative

We are pleased to acknowledge support and cooperation from these organizations.



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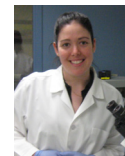
## Three Get Their First (VLS Publications)

Recently, three VLS graduate students—**Correne DeCarlo** (UVic), **Peggy McFall** (UofA), and **Bonnie Whitehead** (UofA)—have received the good news that they have achieved their first major VLS research publications. They have been conducting very important research on the biological, health, cognitive, and neurocognitive aspects of aging. Congratulations to all three trainees (and many happy returns)!

MacDonald, S.W.S., **DeCarlo, C.A.**, & Dixon, R.A. (in press, 2011). Linking biological and cognitive aging. *Journal of Gerontology: Psychological Sciences*.

**McFall, G.P.**, Geall, B.P., Fischer, A.L., Dolcos, S., & Dixon, R.A. (2010). Covariates of Type 2 diabetes-cognition associations in older adults. *Neuropsychology, 24*, 547-562.

**Whitehead, B.P.**, Dixon, R.A., Hulstsch, D.F., & MacDonald, S.W.S. (in press, 2011). Are neurocognitive speed and inconsistency similarly affected in Type 2 diabetes? *Journal of Clinical and Experimental Neuropsychology*.



## Four Get Their First (Professorships)

Four former VLS graduate students (and continuing VLS collaborators) have recently begun their first tenure-track professorial positions in universities. We are very proud of our VLS trainees and collaborators, and these four deserve a special acknowledgment for their impressive successes in their early professional careers.

**Allison Bielak, Ph.D.**, becomes Assistant Professor at Colorado State University in Fort Collins, CO.



**Anna-Lisa Cohen, Ph.D.**, is Assistant Professor of Psychology at Yeshiva University, New York, New York.

**Cindy de Frias, Ph.D.**, is a new Assistant Professor in the School of Behavioral and Brain Sciences at the University of Texas at Dallas.



**Stuart MacDonald, Ph.D.**, was recently awarded tenure and promoted to Associate Professor of Psychology at the University of Victoria.



## Transitions and Awards

**Graduate Awards:** **Correne DeCarlo** received the Erich and Shelley Mohr Fellowship in Psychology at UVic. **Ashley Fischer** received a SSHRC Doctoral award. **Peggy McFall** received a graduate fellowship from Alberta Innovates: Health Solutions. Peggy also received the Dr. Peter N. McCracken Legacy Scholarship from the Glenrose Rehabilitation Hospital Foundation.

**Dr. Roger A. Dixon** received a second seven-year term (2010-2017) for his Canada Research Chair (Tier 1). The CRC comes with a grant of \$1.4 million.

**Dr. Sanda Dolcos** was a VLS postdoctoral fellow until August 2010, whereupon she moved to the University of Illinois (Urbana). She continues to work on VLS research projects, and recently visited Edmonton.



**Dr. Celia Harris**, an Australian postdoctoral fellow working with Dr. Dixon, visited Edmonton in Fall 2010.

**Dr. David F. Hulstsch** retires from UVic in summer 2011. He has been a professor at UVic since 1984. He was one of the three founders of the VLS in the late 1980s.



**Dr. Brent Small** was recently named as Associate Editor of *Psychology and Aging*, one of the leading journals in the field.



Recent VLS undergraduates have conducted very interesting research. These include the following students:

- (1) **Rhonda German** (UofA, a "Superaging" review),
- (2) **Connor Keller** (UVic, research on effects of audition, vision, olfaction on cognition),
- (3) **Stephanie Pelech** (UofA, dopaminergic-related genes



and cognition), (4) **Ruoxi Wang** (UofA, olfaction and cognitive aging), and (5) **Teddy Cosco** worked at The Irish Longitudinal Study on Aging.

**Degrees of Transition:** Congratulations to the following VLS students who have received new degrees or are entering new degree programs: **Anna Braslavsky** (B.Sc., UofA, now in Master's program at UVic), **Correne DeCarlo** (entering Ph.D. program at UVic), **Ashley Demsky** (B.Sc., UofA, now in medical school at Calgary), **Ashley Fischer** (M.A., now in Ph.D. program at SFU), **Rhonda German** (B.A., UofA, expected 2011), **Stephanie Pelech** (B.Sc., UofA, expected 2011), **Ruoxi Wang** (B.Sc., UofA, entering law school in 2011), **Bonnie Whitehead** (B.Sc., new graduate student at UofA), **Sophie Yeung** (M.A., now in Ph.D. program at SFU).

**Wedding Bells:** **Bonnie Whitehead** was married in July 2010. **Allison Bielak** will be married in June 2011. Congratulations to both (and to their husbands)!



# VLS

Edmonton · Victoria

VLS NEWSLETTER

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**Editors:** Roger A. Dixon  
Jill Friesen



Roger Dixon, Stuart MacDonald, and David Hultsch meet regularly in Edmonton and Victoria to plan new VLS initiatives and to work on research reports.

**WE'RE ON THE WEB!**  
[www.ualberta.ca/~vlslab/](http://www.ualberta.ca/~vlslab/)

## A Change in VLS Venue in Victoria



The VLS lab at UVic recently moved to the Cornett Building (Suite B335). Many participants have now visited us in our comfortable surroundings. We look forward to welcoming more participants. Call or visit the VLS website for a map to the new location.

## The VLS at Recent Conferences

As always, the VLS maintains a strong presence at major research conferences in Canada and the USA, as well as elsewhere in the world. In fact, since our last *Newsletter* VLS researchers and trainees have presented over 30 research projects at various conferences. Here is a small sampling of our recent conference activity.

### **International Neuropsychological Society (Boston, February 2011)**

Burton, R., Dixon, R.A., Lek, I., & Caplan, J.B. *Qualitatively similar associative interference across the lifespan.*

Dixon, R.A., de Frias, C.M., Whitehead, B.P., & McFall, G.P. *Does cognitive status moderate memory aging?*

McFall, G.P., Whitehead, B.P., Demsky, A., & Dixon, R.A. *Effects of BMI on cognition.*

### **Cognitive Aging Conference (Atlanta, April 2010)**

DeCarlo, C.A., MacDonald, S.W.S., & Dixon, R.A. *Linking biological and cognitive processes in the VLS.*

de Frias, C.M., Dixon, R.A., & Camicioli, R. *Neurocognitive inconsistency in Parkinson's disease and normal aging.*

Dolcos, S., Braslavsky, A., Geall, B.P., MacDonald, S.W.S., & Dixon, R.A. *Is mild cognitive impairment associated with markers of biological vitality and lifestyle activity?*

Geall, B.P., Dixon, R.A., MacDonald, S.W.S., Fischer, A.L., & Hultsch, D.F. *Intraindividual variability in neurocognitive speed performance in Type 2 diabetes.*

McFall, G.P., Dolcos, S., MacDonald, S.W.S., & Dixon, R.A. *Do biomarkers mediate Type 2 diabetes-cognition relationships.*

Small, B.J., Dixon, R.A., & McArdle, J.J. *Tracking cognitive change from 55 to 95 years of age.*

### **Selected Other Recent Conferences**

The VLS has been represented at many other conferences including the Cognitive Neuroscience Society, Gerontological Society of America, International Conference on Alzheimer's Disease, and the Translational Neuroscience Symposium. Recent conference locations include Australia, Banff, Hawaii, Japan, New Orleans, and Montreal.

### HELP KEEP US UP-TO-DATE

If you have moved or changed your name or phone number, please contact one of our offices.

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