

# Seattle Longitudinal Study

November 2011 Newsletter

**W** UNIVERSITY of WASHINGTON

## Dr. Schaie returns to the UW

The founder and director of the *Seattle Longitudinal Study (SLS)*, Dr. K. Warner Schaie, retired from his position as Evan Pugh Professor of Human Development and Psychology at the Pennsylvania State University on July 1, 2008 at age 80. He has moved to Seattle to continue his work on the SLS and now holds a position as an Affiliate Professor of Psychiatry and Behavioral Science at the University of Washington. He is also a faculty associate of the Center for the Study of Demography and Ecology and of the Integrative Brain Imaging Center.

Dr. Schaie began the SLS as his doctoral dissertation in 1956, and has continued the

study throughout his long academic career at several major research universities, including the University of Nebraska, West Virginia University, the University of Southern California, and the Pennsylvania State University. He has also been a visiting professor at the University of Bern (Switzerland), the University of Trier (Germany), McQuarrie University (Australia), the University of Michigan, and a visiting research scientist at the University of California (Berkeley), the Lund Gerontology Center (Sweden), the Max Planck Institute of Berlin, and the University of  
*- continued on page 2*

## Focus on middle age within SLS

One of the unique features of the SLS is the study of adult development from young adulthood (age 22) through old age. Spanning all of adulthood has permitted us not only to study change across a wide age range but also to focus on particular age periods. In 2005, we began a more intensive study of middle age, defined roughly between age 40 and 60 years, although it is suggested that midlife is extending as life expectancy increases and

retirement is delayed. There were a number of reasons to focus more intensively on midlife. Most of the Baby Boomers, the largest generation in US history, are in midlife with the earliest cohorts recently entering the 60's; research on maintenance of cognitive and physical health in this cohort is an important public policy issue. For many individuals midlife is the period when peaks are reached – income,  
*- continued on page 4*



### MOVED?

Please help us keep up to date. Contact us with your new information.

(206) 281-4050

180 Nickerson St  
Ste 206  
Seattle, WA 98109

slnick@uw.edu

### MIDLIFE REFERENCES

Willis, S. L. & Martin, M. (Eds). (2005). *Middle adulthood: A lifespan perspective*. Thousand Oaks: Sage.

Whitbourne, S., & Willis S. L. (Eds.). (2006). *The Baby Boomers grow up*. New York: Erlbaum.

## Neuroimaging: New Addition to SLS

Since its beginning in 1956, a major focus of the SLS has been on understanding changes in cognitive abilities as one ages and how factors such as lifestyle, health and personality influence cognitive functioning. Now, understanding changes in the brain with age and the relationship between neural functioning and behavior is an important complement to cognitive studies. During the past 5 years, we have added a neuroimaging component to the SLS, facilitated by the return of Drs. Schaie and Willis to Seattle and affiliation with UW. Fortunately, a new Integrated Brain Imaging Center (IBIC) was created at the UW about the time our neuroimaging work began and has enhanced our efforts. Three types of neuroimaging procedures are included in our research:

### Schaie— continued from page 1

Geneva.

He has contributed over 300 articles and authored or edited 60 books on research and research methods in the psychology of aging and gerontology. He has received many honors, including honorary doctorates from the West Virginia University and the Friedrich Schiller University of Jena, Germany. He also received the Distinguished Scientific Contributions award from the American Psychological Association, the Kleemeyer Award for Distinguished Research from the Gerontological Society of America, and the Lifetime

structural MRI (studying brain volume), diffusion tensor imaging (studying white matter integrity), and functional fMRI (studying activity in the brain when at rest or involved in a task). Our imaging research is conducted at the South Lake Union UW campus. Given the expense and time required in neuroimaging, only approximately 200 SLS members have participated and were selected from those who have been in the SLS during both midlife and old age.

Findings remain at an early stage. Our early work has focused on identifying brain areas associated with cognitive abilities studied in the SLS (see article on page 3). We plan to share findings and references to journal publications as research progresses.

Distinguished Career Award from the Mensa Society.

Dr. Schaie recently completed a revised version of his book *Developmental Influences on Adult Intelligence: The Seattle Longitudinal Study*. This book will summarize results from the SLS through our 2005 data collection, and will be published by Oxford University Press in 2012.

Read the 2008 Seattle Times interview with Dr. Schaie, *Study on aging still going strong some 50 years later*, at [http://seattletimes.nwsourc.com/html/health/2008426924\\_nwaging24.html](http://seattletimes.nwsourc.com/html/health/2008426924_nwaging24.html).



The staff at SLS Nickerson Street office. From left to right: Dr. Willis, Dr. Schaie, Robin Dunlap, Teresa Osborn, Elaine Hardin, Holly Overman, Roger Collisson, Sara Rosen.

### STAFF UPDATE

We sadly say goodbye to two long time staff members who have tested many of you over the years: Nanci Freeman Browning (2003-2010) and Chuck Fick (1997-2011). We wish them all the best in the future.

In 2008 Teresa Osborn joined the SLS office staff in conjunction with the study's return to the UW.

### SLS TESTING TIMELINE

**Wave 10 Testing**  
Nov 2011 - Dec 2013

**Midlife Neuro**  
Jan 2012 - Feb 2013

## Midlife memory predicts brain volume in old age

Most research in aging has focused on normal versus pathological aging but little research has focused on optimal aging.

The SLS has found that some individuals during midlife appear to improve or decline on the cognitive measure of episodic memory (memory for time-related events and experiences). We sought to determine if memory performance in midlife or if change (stability, improvement, or decline) in midlife memory predicts hippocampus volumes in non demented adults in middle and old age.

84 SLS participants whose episodic memories had improved, declined or remained stable during midlife were selected for structural MRIs to equally represent two birth cohorts: Midlife and Old

Age. We analyzed the MRIs by comparing three measures of brain volume 1) hippocampus 2) total brain 3) hippocampus to total brain ratio.

Analyses revealed: 1) Hippocampus volume was greater for the Midlife cohort; Midlifers had 6% greater total brain volume than the Old Age cohort; 2) Those in Old Age with improving memory change had greater hippocampus volume than those with stable or declining memory within the same cohort; Old Age memory improvers had a greater hippocampus to total brain ratio than those with stable or declining memories in Old Age.

Results showed that midlife memory change predicts hippocampus volume in Old Age. Although Old Age improvers have relatively equal hippocampus volume to those

in Midlife, total brain volume for Old Age is less than total brain volume for Midlife. Episodic memory scores in Midlife did not predict hippocampus volume.

This study illustrates the significance of midlife memory change on future memory function and hippocampus volume. It is the first to examine the impact of midlife memory improvement on cognitive and brain aging. Implications of this suggest that early interventions in midlife can improve brain health in old age.

Reference: Borghesani, P., Weaver, K., Aylward, E., Richards, A., Madhyastha, T., et al (In Press). Midlife memory improvement predicts preservation of hippocampal volume in old age. *Neurobiology of Aging*.

## Spousal levels of happiness correspond over time

The SLS examined the relationship between happiness and marriage of 178 married couples using 35-year longitudinal data. On average, ages ranged from 40-70 years old, couples were married 25+ years and had 2+ children. These individual factors and broad sociocultural contexts influence relationships and contribute to shaping levels of happiness between couples across time.

Using a question from our cognitive testing, "Would you describe your life as being...": "very happy" to "very

unhappy," (on a 5 point scale), we measured levels of happiness from both members of married couples.

Analysis revealed significant spousal similarities both in reports of happiness and in how happiness changed over time. Randomly paired women and men from the same birth cohort were compared to married couples, and results showed spousal happiness trajectories exceeded in size that of random couples. Spousal levels of happiness wax and wane in relation to their respective partner over time

and individual levels of happiness across middle and old age are related to their spouse's levels of happiness

This is the first study to demonstrate associations in happiness trajectories between couples across midlife and old age using longitudinal data spanning across three decades.

Reference: Hoppmann, C., Gerstorf, D., Willis, S., & Schaie (2010, November 1). Spousal interrelations in happiness in the Seattle Longitudinal Study. *Developmental Psychology*, online publication.

## Middle Age – continued from page 1

**W**

UNIVERSITY of WASHINGTON

### MOVED?

Please help us keep up to date. Contact our office with your new address information.

### TRAVELING TO SEATTLE?

Please contact our office to schedule a testing session.

(206) 281-4050

180 Nickerson Street  
Suite 206  
Seattle, WA 98109

slsnick@uw.edu

### WE'RE ON THE WEB

[www.uwpsychiatry.org/sls](http://www.uwpsychiatry.org/sls)  
To read complete articles  
click on Publications

occupational status, professional knowledge and skills, leadership roles, etc. Of particular interest was how life experiences and cognition in midlife influenced how well one functioned in old age. Social scientists and more recently neuroscientists are studying a concept called *cognitive reserve* – how cognition, personality, and life experiences facilitate one's ability to function when disabilities and pathologies arise. An example is the impact of cognitive reserve on maintenance of functioning in early dementia. On the other hand, there is growing awareness that cognitive impairment and dementia begin much earlier than previously thought, for some beginning in midlife. New guidelines for diagnosis of Alzheimer's disease now include a preclinical phase, occurring many years before clinical symptoms or diagnosis. Some questions on midlife

being addressed in the SLS study include: Does one's mental ability performance in midlife predict cognitive functioning in old age? Does change in certain abilities in midlife influence subsequent change in other abilities? What health and lifestyle factors in midlife influence cognition in old age? What neural changes occur in midlife, and does neural structure and function in midlife impact neural integrity in old age?

We have published two edited volumes on various topics related to midlife, with some chapters focusing on SLS findings and others written by colleagues conducting research on midlife topics. In this and in forthcoming newsletters, we will be sharing findings from our research on midlife.

Help us reduce costs!  
Please send us your  
email to receive on-  
line newsletters.

### UNIVERSITY OF WASHINGTON

Seattle Longitudinal Study  
180 Nickerson Street, Suite 206  
Seattle, WA 98109

Address Service Requested