A Welcoming Message from the Editor
By Brenda Wong, MA
On behalf of the RSPP Newsletter Editorial Team, I would like to welcome everyone to the first issue of our RSPP Newsletter! This newsletter serves as a way to share findings from our research with our RSPP members, as well as to highlight the outstanding achievements of our researchers in the Department of Psychology. We hope that these articles will spark your interest in psychology research and provide insight into your daily functioning!

Assistant Editors: Bonnie Armstrong, Erika Sparrow, Linda Truong

Researcher Spotlight: Dr. Julia Spaniol

Dr. Julia Spaniol, Associate Professor of Psychology and Director of the Memory and Decision Processes Lab, recently received an Early Researcher Award from the Ontario Ministry of Research and Innovation, and a Canada Research Chair (Tier 2) from the Natural Sciences and Engineering Research Council of Canada. Canada Research Chairs were created by the Government of Canada to attract and retain exceptional emerging researchers who have the potential to lead in their field. Dr. Spaniol is the first member of Ryerson’s Psychology Department to hold a Canada Research Chair appointment.

A native of Germany, Dr. Spaniol obtained her undergraduate education in Trier, Germany and then went on to complete her Master’s and PhD degrees at the University of North Carolina at Chapel Hill. Before joining the Department of Psychology at Ryerson, she pursued postdoctoral studies at Duke University and at the Rotman Research Institute in Toronto.

The research conducted by Dr. Spaniol and her students at Ryerson pursues the central question of how aging affects the way we think, remember, and make decisions. In particular, Dr. Spaniol is interested in age-related changes in the influence of motivation on cognition. Some of Dr. Spaniol’s recent work has looked at brain responses when younger and older adults are given money as an incentive to perform well on a task and how this could affect attention and memory. Dr. Spaniol’s group is also currently conducting projects on the role that motivation plays in how we think about the future, carry out intended actions, and make decisions in the face of risk and uncertainty. In most projects, participants complete tasks on the computer or respond to interview questions, but Dr. Spaniol and her students also use brain-based methods such as electroencephalography, a technique used to record electrical activity along the scalp of the brain, and functional magnetic resonance imaging, a neuroimaging tool used to measure brain activity by detecting associated changes in blood flow.

Dr. Spaniol feels that aging is one of the most mysterious and fascinating aspects of the human condition. She is deeply grateful for the support of the participants who make this research possible, and looks forward to keeping in touch to share her lab’s discoveries.

Changes in Multistable Perception in the Oldest Old Adults

By Khushi Patel & Dr. Maureen Reed

Multistable perception occurs when sensory information is ambiguous, and two or more distinct interpretations of a single sensory input are exclusively available to the viewer. To illustrate, in the Necker Cube shown on the next page, we are able to see the cube in one orientation and then over time the orientation appears to change. Perception is constructive in nature, which means we generate a coherent whole from the ambiguous fragments that we encounter in our everyday visual scenes. Stretzer et al. (2009) show that multistable perception (i.e., the Necker Cube) can help researchers understand the constructive nature of visual processing and how individuals resolve the complexities in their experiences in the face of often fragmented inputs. Age-related visual declines, including impaired contrast, motion, and spatial detection in well-lit
conditions, are frequently reported, but the contributing sources of those declines are less well understood. Indeed, relative to younger-old adults (ages 65-79), the oldest-old adults (ages 80+) are known to have more declines in both neural structures as well as cognitive processes, such as attention, that impact visual perception. In order to examine the impact of these age related declines on the constructive nature of visual processing, we asked oldest-old adults, younger-old adults and young adults (ages 18-27) to view a Necker Cube and report the number and timing of reversals (i.e., the switching of the cube from one orientation to another) under four conditions; free viewing, priming (briefly flashing a real cube that can only be viewed in one orientation prior to viewing the Necker Cube), volition (trying to view the Necker Cube in only one orientation), and adaptation (staring at a real cube for an extended period of time prior to viewing the Necker Cube). The length of time in one percept (one of the two orientations) was measured. Support for cognitive contributions (attention and inhibition) to multistable percepts was found in priming and volition, while adaptation addressed the neural contributions (activation measured at the brain level). We found that all older adults were less stable in controlling their percepts of the Necker Cube illusion than were younger adults (e.g. less able to hold their attention). However, the oldest-olds, unlike their younger counterparts, also showed a deceased ability to adapt in the adaptation condition, suggesting different neural contributions. These results suggest that vision is constructed differently in people ages 80 and above, which means age related cognitive and neural declines affect the oldest-old adults’ ability to generate a coherent whole from the fragmented inputs available to them in their everyday environment.

The SMART Lab Singers: Improving Age-Related Hearing Difficulties Through Choir Lessons

By Saul Moshé Steinberg and Dr. Frank Russo

Many older adults who experience little difficulty hearing in quiet environments will report having trouble understanding speech in the presence of competing background noise. This is often first noticed when attempting to follow a conversation at a large social gathering, in which many people are talking at the same time. While amplifying the audio signal through a modern digital hearing aid equipped with noise reduction can often go a long way towards correcting the problem, in many cases there is still a residual difficulty that persists. Part of the problem may lie in age-related changes in the brain. Specifically, many older adults experience a degradation of neural timing in brain mechanisms responsible for encoding the pitch of the voice. Being able to follow the pitch of a speaker’s voice helps to alert the listener to conversational cues, particularly in noisy situations. Several researchers have recently proposed the idea that musical engagement may be a means of supporting this neural timing. Research has found that musicians show significantly less age-related decline in their ability to detect speech in noise as compared to non-musicians. Further, studies have shown that musicians demonstrate more precise neural timing as compared to non-musicians. Actively engaging in music requires the ability to track and discriminate multiple sources of complex sounds, just as a listener must do when attending to a single voice among many. However, studies have not shown that being a musician directly increases the neural timing of sound. So far studies have only shown that musicians happen to show more accurate neural timing than non-musicians.

For our current study, we are interested in determining whether older adults with mild hearing loss can show improvements in their ability to understand speech in noise as a result of short-term musical training. Specifically, we are testing the effects of singing training through group choir lessons. Since January of 2015, 14 older adults have attended weekly choir sessions over a 13-week period. Participants were also required to complete one hour of homework per week, through the use of online music training software, designed to aid users to improve voice pitch control. So far, the results are very promising. There has been significant improvement in the ability to perceive...
The Attributes of and Benefits to Older Adults Learning and Volunteering to be Caring Clowns

By Dr. Maureen Reed and Dr. Marilyn Hadad

Twenty-five older adults were trained in a Caring Clown Program over one year (50 hours of training) to volunteer as clowns in long-term care facilities. The goal of the program was to provide long-term care to residents and facilitate positive interactions through humour. Here we examined the attributes of the older adult who volunteered in the Caring Clown program and the psychosocial benefits to the older adult clown in participating in this form of volunteerism. Program participants were surveyed about their life, program experiences and completed psychosocial measures of life satisfaction, self-esteem, extraversion, resourcefulness, depression, life purpose, loneliness and resourcefulness prior to the Caring Clown program, during training, immediately after training, and six months after program completion. Overall, we found that those older adults who volunteered to become clowns were typically highly educated females who had previous drama experience (professional and community based) and chose to participate in the Caring Clown program to ‘try something different’. Clowns who dropped out of the Caring Clown program were typically professional actors. Those who continued in the Caring Clown Program showed mild increases in self-esteem and mild decreases in loneliness. In addition, older adults who volunteered as clowns believed that their interactions with residents in long-term care were meaningful and provided an opportunity to understand the needs of others. They also self-reported that volunteering as clowns increased their self-confidence and the program expanded their peer group. However, some also noted that volunteering as a clown for residents in long-term care caused them stress due to seeing the challenges in aging.

How Can I Contribute to Our Knowledge on Aging?

By Linda Truong

If you would like to make a difference and advance our knowledge about the aging process, we have the perfect opportunity for you! We are looking to expand the membership of The Ryerson Senior Participant Pool, which is our internal database of healthy older research volunteers. Our volunteers make extremely valuable contributions to research on aging by participating in a large variety of studies conducted in our psychology laboratories. In 2015, participants helped us tackle research questions about the aging process in interesting domains such as decision-making, how emotion affects attention, cross-cultural differences, and memory (and forgetting!). Our studies used many different techniques to examine aging: memory and attention tests, imaging of brainwaves, and collection of psychophysiological measures, including heart rate and skin sweat. Some studies also aimed to strengthen cognitive and physical functioning, whereas others focused on enhancing emotional communication. Our volunteers often comment that participation in our studies gives them opportunities to learn about psychology and aging. Because our tasks are often stimulating, participants also receive an excellent “brain workout”!

Participation in our studies helps advance knowledge about how we age and also allows us to identify factors that could possibly offset some of the more negative changes that could occur. All of this exciting work would not be possible without the valuable contributions of our research participants - thank YOU very much! If you have not yet volunteered but would like to learn more, please call us at 416-979-5000 ext. 4987 or email us at rspp@ryerson.ca. You can also visit our website at www.ryerson.ca/rspp. We look forward to hearing from you!