

Psychology News

School of Psychology, University of Aberdeen

I am proud to announce that our School has been officially recognised for its efforts to advance gender equality, becoming the first of the University's Schools to hold an Athena SWAN Bronze Award. This wonderful achievement is mostly due to tireless work of Dr Madge Jackson and her team, and you can read more about this important recognition on Page 2. In similarly good news, we've had success with RCUK, with Dr Martin being awarded an ESRC grant for his research on stereotypes and Dr Andersen being awarded a BBSRC grant for research on attentional mechanisms. Both projects will begin in the next year. Last but not least, recently we found out that the university has allocated one million pounds to improve our building. Some repairs were already under way, but with this scale of funding we can expect a thorough refurbishment and modernization of all our research and teaching facilities as well as office accommodation.

At the start of the semester, we were delighted to welcome a new generation of undergrads and postgrads, as well as all the returning students. The building is abuzz with students and there's a whole lot of final year undergraduates who have already started collecting data for their thesis experiments. Our vibrant student community is further enlarged by our second intake of MSc Psychological Studies students. On page 7 you can read more about this exciting one-year programme accredited by the British Psychological Society, which enables a career change into psychology. To last year's Masters students who will be graduating this winter, I wish all the best in their future careers.

Dr Jasna Martinovic, Director of Communications



A PHD STORY

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The Athena SWAN self-assessment team



Back row: Dr Mingyuan Chu (Lecturer); Dr Paul Bishop (Deputy Head of School & Director of Teaching); Prof Louise Phillips (Director of Research); Dr Bert Timmermans (Lecturer); Sacha Nicol (HR Partner); Dr Doug Martin (Senior Lecturer); Front row: Dr Madge Jackson (Co-Lead; Senior Lecturer); Dr Rachel Swainson (Co-Lead; Lecturer); Dr Maria-Grazia Cascio (University Athena SWAN coordinator); Karen Forrest (Admin); Laura Prosser (PhD student); Dr Clare Kirtley (Research Fellow); Not present: Dr Amy Irwin (Lecturer); Lewis Baird (undergraduate); Pauliina Vuorinen (undergraduate)

Psychology earns University's first departmental Athena SWAN award

The School of Psychology at the University of Aberdeen has been officially recognised for its efforts to advance gender equality by earning an Athena SWAN Bronze award – becoming the first department to hold the title. The School's successful application was led by Dr Margaret Jackson with essential support from a committed self-assessment team.

The Bronze award formally recognises a commitment to assessing current practices and culture in our School, and to take action to identify and overcome barriers to career progression for female, male, and transgender staff and students. We aim to achieve this by also working together with other equality and diversity groups in the University, such as the Advisory Group on Equality and Diversity and the LGBT+ Staff and Postgraduate Network. The award is valid until April 2019 when it can be renewed or we can apply for a higher level Silver award. An example of an initiative that was commended by Athena SWAN was the

establishment of a Family Conference Support Fund, which provides financial support for women and men with caring responsibilities to attend conferences. The School has also made a formal commitment to ensuring key meetings and events are held within sociable hours, and creating a culture that is inclusive and welcoming to all.

“We are delighted to be the first School at the University to earn the Athena SWAN Bronze award,” says Head of Psychology Professor Arash Sahraie. “First and foremost we are proud and happy to work in an environment that actively promotes a culture of inclusiveness and equality and where we've put in place real initiatives that support that. This award is important and is recognition that we are making a difference and my thanks and congratulations go to the team that worked tirelessly to ensure we achieved it.”

Our commitment to improving culture and practice within academia has been further demonstrated by the recently appointed Principal's PhD studentship in Equality and Diversity within the School of Psychology. The candidate will explore how cognitive bias impacts equality and diversity within higher education, supervised by Dr Doug Martin.

On the origin of stereotypes

Dr. Doug Martin explains his latest research project funded by the ESRC

Together with colleagues from the University of Abertay (Dr Sheila Cunningham) and the University of Edinburgh (Dr Kenny Smith), we were recently awarded a grant from the Economic and Social Research Council (£294, 895) to establish how the membership and status of social groups influences how societal stereotypes form and change. Societal stereotypes are template-like depictions of social categories whereby group membership is associated with the possession of certain attributes (e.g., scientists are geeky, Scottish people are miserly, men like the colour blue). Stereotypes exert substantial influence on people as individuals and on our society: when people endorse stereotypes, it leads to prejudice and discrimination towards members of minority groups; even when people refute stereotypes, the mere knowledge of their content can lead to bias in thoughts and behaviour. Yet, in the face of an infinitely complex social environment stereotypes play a vital social cognitive role by efficiently organising and structuring social information. Given their ubiquity and influence it is perhaps surprising that relatively little is known about how societal stereotypes form and change.

We propose that stereotypes form and change via a process of cumulative cultural evolution. Because people possess shared biases that influence how information is remembered and communicated, when knowledge is repeatedly passed from person to person these biases accumulate causing the content of information to change in predictable ways. Research has shown that when information is passed down chains of individuals - a bit like the children's game often called 'Chinese whispers' or 'telephone' - it becomes increasingly simplified and structured. For example, we recently demonstrated that as novel social information passes from person to person it

develops a stereotype-like structure that was not previously present. Thus, through the process of cumulative cultural evolution, even very small amounts of bias at the level of individual people can translate into much bigger societal biases like cultural stereotypes.

The grant we received will help us to establish whether individual biases associated with a person's membership of social groups influences the formation and evolution of stereotypes. Whether people perceive others as belonging to the same social group as themselves (the in-group) or a different social group (the out-group) has profound implications for their thoughts and behaviours. Group membership tends to lead to intergroup bias, with people more likely to favour in-group members and discriminate against out-group members. Our research will determine whether repeatedly communicating social information about in-group and out-group members results in the formation of relatively positive in-group stereotypes and negative out-group stereotypes. In addition, we will also attempt to establish whether it is possible to predict how the content of stereotypes will evolve based on the perceived status of different out-groups (e.g., whether groups are perceived to be high status or low status).

By establishing how social cognitive biases influence the way that social information evolves in the lab, it is hoped that future research might shed light on how the content of harmful, inaccurate real-world societal stereotypes might be changed.



FIND OUT MORE ABOUT THIS RESEARCH

Dr Doug Martin leads the Person Perception Lab together with Dr Sheila Cunningham (University of Abertay). The lab examines social cognition across the lifespan; that is, how people extract, store and recall social information and how these processes impact us all as individuals and our society.

Martin, D., Hutchison, J., Slessor, G., Urquhart, J., Cunningham, S.J., & Smith, K. (2014). The spontaneous formation of stereotypes via cumulative cultural evolution. *Psychological Science*, 25, 1777-1786, doi:10.1177/0956797614541129

Visual selective attention and the equations of the brain

Find out more about Dr Andersen's soon-to-start BBSRC-funded project on visual perception

How does the brain achieve coherent perception and adaptive behaviour despite the overload of information provided by our senses? This question lies at the heart of a new 3-year research project funded by the BBSRC and awarded to Dr Søren K. Andersen. Fully processing all of the information provided by our senses would exceed the capacity of the human brain, therefore attention selects only some of this information for in-depth processing at the expense of other, less relevant information. Thus attentional selection critically influences what we see, remember, think, and feel.

Selectively attending to a visual stimulus enhances its processing in visual cortex and increases accuracy and speed of motor responses. While the connection between these findings seems obvious, our understanding of it is surprisingly vague: we know that specific measures of cortical processing and behavioural performance are enhanced when the eliciting stimulus is attended, but we have very limited understanding of how these effects are quantitatively related. A more precise understanding of these relations is important because it would help identify missing pieces of the puzzle when observed behavioural effects cannot be satisfactorily explained by observed changes in specific brain activity.

This problem is a direct consequence of the standard approach in neuroscience research, according to which brain activity and participants' performance on a task are measured together, but analysed separately after averaging over observations. Although we have learned much from this approach, it is limited in its ability to establish direct links between the different types of measures and yield a more precise and mechanistic understanding. For

example, if the same approach was applied to study the function of a car, one might erroneously conclude that driving at intermediate speeds is achieved by concurrently stepping on the gas pedal and brakes. The new project seeks to bypass those limitations by developing a quantitative model of visual attention that directly links electrophysiological measures of stimulus processing in visual cortex with behavioural outcomes. Rather than just asking whether differences in EEG measures are related to behavioural performance on a task, the project asks whether such differences are big enough to explain the magnitude of observed behavioural effects.

In summary, the project seeks to fundamentally contribute to our understanding of how visual attention affects perception and behaviour. It may have implications for research in special populations (e.g. children and older participants, patients with attentional disorders) as the experimental protocols and modelling approaches could in the future be applied to gain a better understanding of group differences. Additionally, this work may facilitate the further development of Brain Computer Interfaces (BCIs), which allow subjects to convey their intentions by shifting attention and which commonly employ similar technical approaches as the present project.



FIND OUT MORE ABOUT THIS RESEARCH

Andersen, S.K., Müller, M.M. & Hillyard, S.A. (2015). Attentional selection of feature conjunctions is accomplished by parallel and independent selection of single features. *Journal of Neuroscience*, 35 (27), 9912-9919.

Do it for the team!

Jamie Allsop, a second-year PhD student, explains the potential for group activity to be more effective than individual efforts

From the classroom to the boardroom, the sports field to the operating theatre, working in groups is a common feature of daily life. Groups offer the opportunity to achieve far more than we are capable of on our own. However, groups often underperform. We have all met that one person who views group work as an opportunity to slack off and have others do the work. How, then, can we maximise group productivity?

In addressing this question, researchers face a significant challenge; how are two minds – each seemingly independent, complex, and self-contained entities – able to work together? Unsatisfied by mainstream cognitive and neuroscientific arguments, researchers have started to turn to more general explanations. Just as a murmuration of starlings can temporarily come together as if they were a single organism (e.g., a swarm), ecological theories propose that when people act together they can also be viewed as a single unit.

My PhD research examines whether, in the context of a simple group task, the behaviour of separate individuals can be understood as a single collective whole. In my first study (Allsop et al., 2016), participants were asked to move small objects both individually and in pairs, as quickly and accurately as possible, from one location to another. The results indicated that despite not being permitted to communicate, pairs were more than twice as effective as individuals. Examination of their movement patterns revealed a remarkable insight — groups, just like starlings, spontaneously coordinated their actions so as to best realise the task goals (accuracy and efficiency). Only by considering behaviour at the level of the pair (e.g., a single social unit) were we able to provide an adequate explanation of task behaviour.

Thought of in this way, the social unit was seen to emerge from the interaction of the individuals — a phenomenon that has clear parallels throughout the natural world. Our next steps are focused on identifying the parameters that best facilitate the emergence of collective activity. Finding methods to improve the effectiveness of group activity has valuable application. Realising ways to encourage the reluctant group member to pull their weight might just lie in the moves people make.



FIND OUT MORE

Allsop, J. S., Vaitkus, T., Marie, D., & Miles, L. K. (2016). Coordination and collective performance: Cooperative goals boost interpersonal synchrony and task outcomes. *Frontiers in Psychology*, 7, 1462.

If you would like to know more about the research Jamie is conducting with his supervisors Dr. Lynden Miles and Dr. Danette Marie, please contact Jamie (jamie.allsop@abdn.ac.uk)

MSc in Psychological Studies now offered in Aberdeen

Dr Emily Nordmann explains the MSc in Psychological Studies that the School introduced.

This year is the second year that the School of Psychology has offered a “conversion course”, the MSc in Psychological Studies. Conversion courses are designed to introduce graduates from other disciplines to the study of psychology and provide a British Psychological Society (BPS) accredited degree from a one-year masters’ level course. The MSc covers the same BPS core content areas offered as part of our undergraduate programmes - biological psychology, developmental psychology, memory and language, perception, psychological assessment, and social psychology – and concludes with a postgraduate level research project that is conducted under the supervision of an academic member of staff over the summer.

This year we have a cohort of 17 MSc students from a variety of backgrounds. One of our students, Rebecca Haragan, joins us as a qualified primary and secondary school teacher from England with the aim of combining her qualifications in teaching with psychology and applying for the Educational Psychology doctorate. Rebecca chose Aberdeen due to its reputation and from the positive experience of her brother who completed his medical degree here. From a completely different context we also have Emily Hoskins who is returning to study after a brief 21-year gap. Emily previously studied Theatre and Media Drama and worked as a professional actress before having two children, Esme, 14 and Ivo, 11. For the last three years Emily has been working in a care home and has been instrumental in the implementation of a project that creates links between the care home and a local children's nursery. Emily’s passion about the ways in which we can improve the day-to-day experience of life for service users living in residential care and a desire for more knowledge led her to apply for the MSc.

Memory and Motor Performance: Studying human grasping movements

Dr Constanze Hesse talks about the outcomes from her recently completed Carnegie Large Collaborative Grant

In this project my collaborator Dr Gavin Buckingham (University of Exeter) and I investigated how the human motor system controls hand movements towards objects when vision is unavailable and the action-relevant



properties of the target object have to be retrieved from memory. Even though visual information often guides our actions, we still perform grasping movements every day without looking at the objects we are interacting with (e.g. reaching for a cup of coffee while reading the newspaper). While numerous studies have investigated how movements change when visual information is unavailable, little is known about how different visual attributes like object size and object position are retained over time. We have shown that information about object position decays extremely rapidly whereas object size is stored in a much more stable fashion. This is the first study to examine the time-dependent decay of different visual attributes used for action in behavioural tasks. The findings extend upon recent neurophysiological observations suggesting that object position and size are processed by separate neural pathways in the human brain. This has important implications for the interpretation of previous studies on grasping as well as for current theories on visual processing for action control.

FIND OUT MORE

For more information, please search for ‘psychological studies Aberdeen’ or contact the course co-ordinator Dr. David Sutherland (d.sutherland@abdn.ac.uk)

FIND OUT MORE

Hesse, C., Miller, L., & Buckingham, G. (2016). Visual information about object size and object position are retained differently in the visual brain: Evidence from grasping studies. *Neuropsychologia*, 91, 531-543.

Recent activity

As an internationally leading research School and a world class teaching unit we are constantly involved in publishing our work, obtaining funding and gaining recognition for our activities. In the following pages we list some of these recent activities.

Key: **members of academic staff**, **research assistants/fellows**, **postgraduate students**, **undergraduate students**

PUBLICATIONS

Allsop, J. S., **Vaitkus**, T., **Marie**, D., & **Miles**, L. K. (2016). Coordination and collective performance: Cooperative goals boost interpersonal synchrony and task outcomes. *Frontiers in Psychology*, 7, 1462.

Clarke, A. D. F., **Mahon**, A., **Irvine**, A., & **Hunt**, A. R. (in press). People are unable to recognize or report on their own eye movements. *Quarterly Journal of Experimental Psychology*.

Clarke, A. D. F., **Barr**, C., & **Hunt**, A. R. (2016). The effect of visualization on visual search performance: Does visualization trump vision? *Attention, Perception & Psychophysics*.

Craddock, M., **Opperman**, F., **Martinovic**, J. & **Müller**, M.M. (in press). Modulation of microsaccades by spatial frequency during object categorization. *Vision Research*.

Hesse, C., **Miller**, L. & **Buckingham**, G. (2016). Visual information about object size and object position are retained differently in the visual brain: Evidence from grasping studies. *Neuropsychologia*, 91, 531-543.

Kliegel, M., **Schnitzspahn**, K. M., **Souchay**, C., & **Moulin**, C. (2016). Prospective Memory: New Perspectives for Geropsychological Research. In N. A. Pachana (Ed.), *Encyclopedia of Geropsychology*. Springer, Singapore.

Kopiske, K. K., **Bruno**, N., **Hesse**, C., **Schenk**, T. & **Franz**, V. H. (2016). The functional subdivision of the visual brain: Is there a real illusion effect on action? A multi-lab replication study. *Cortex*, 79, 130-152.

Macrae, C. N., **Visokomogilski**, A., **Golubickis**, M., **Cunningham**, W. A. & **Sahraie**, A. (In press) Self-Relevance Prioritizes Access to Visual Awareness. *Journal of Experimental Psychology: Human Perception and Performance*.

Nowakowska, A., **Clarke**, A. D. F., **Sahraie**, A., & **Hunt**, A. R. (in press). Inefficient search strategies in simulated hemianopia. *Journal of Experimental Psychology: Human Perception and Performance*.

Pilz, K. S., & **Thornton**, I. M. (in press). Idiosyncratic body motion influences person recognition. *Visual Cognition*.

Sahraie, A., **Smania**, N. & **Zihl**, J. (2016) Use of NeuroEyeCoach™ to Improve Eye Movement Efficacy in Patients with Homonymous Visual Field Loss. *BioMed Research International*, Vol. 2016, Article ID 5186461

Ross, A. I., **Schenk**, T., **Billino**, J., **Macleod**, M. J. & **Hesse**, C. (in press). Avoiding unseen obstacles: Subcortical vision is not sufficient to maintain normal obstacle avoidance behaviour during reaching. *Cortex*.

Ziaei, M., **Burianová**, H., **von Hippel**, W., **Ebner**, N.C., **Phillips**, L. H. & **Henry**, J.D. (in press). The impact of aging on the neural networks involved in gaze and emotional processing. *Neurobiology of Aging*.

RESEARCH FUNDING

Andersen, S. (2016-2019). A quantitative framework of attentional selection. BBSRC New Investigator Grant. *PI* (£ 397,635).

Martin, D., **Cunningham**, S.J., & **Smith**, K. (2017-2020). Establishing how intergroup bias influences the formation and evolution of stereotypes. ESRC Research Grant. *PI* (£294,895).

Mantiuk, R., **Wuerger**, S.M., **Finlayson**, G., **Martinovic**, J. (2017-2020). A spatio-chromatic colour appearance model for retargeting high dynamic range image appearance across viewing conditions. EPSRC. *CI* (total value of the project £ 625,414).

Pannasch, S., & Schnitzspahn, K. M. (2016 – 2019). Eye PM - Can eye movements reveal (dynamic) age and task related changes in prospective memory? German Research Council. (GZ: PA 1232/8-1). *Cooperation partner* (total value of the project: £ 169.990).

Swainson, R. (2016-2017). Switch costs following cue-only trials. Experimental Psychology Society. *PI* (£ 2,488).

PUBLIC ENGAGEMENT

Dr Philip Benson gave a talk on eye movements and mental illness at the *Café Scientifique* in Aberdeen (Aug, 2016). He also gave an interview for *SHMU.fm* and published articles on his work in the *Scotsman* and *Press and Journal*.

Dr Madge Jackson and **Dr Marlene Poncet** held an Explorathon event in the Bon Accord centre in Aberdeen (Sept, 2016), and an ESRC Festival of Social Sciences event in the Aberdeen Science Centre (Nov, 2016). They demonstrated their ESRC project on the impact of emotional expression on remembering who was where in working memory.

Dr Doug Martin gave a talk at a meeting of the *Aberdeen Skeptic in the Pub group* (Oct, 2016) on the origin of stereotypes.

Dr Jasna Martinovic gave a talk at the Aberdeen Science Centre (Nov, 2016). The interactive talk showcased several musical illusions and was held as a part of the Sound Festival.

Prof Louise Phillips was involved in the *Aberdeen Birth Cohorts anniversary reunion tea party* (Aug, 2016). Over a hundred members of the cohort came along to the event: <http://www.abdn.ac.uk/news/9862/>.

Prof Louise Phillips and **Ms Louisa Lawrie** co-wrote the cover story on aging for the latest issue of the *Psychologist*, the British Psychological Society's journal. Lawrie, L. & Phillips, L.H. (2016). Adult aging and processing emotions in others and the self. *The Psychologist*, 29, 908-911.

PROFESSIONAL RECOGNITION

Dr Sandie Cleland has been awarded Senior Fellow of the Higher Education Academy (HEA), and **D. Constanze Hesse** and **Dr Karin Pilz** have been awarded Fellow of the Higher Education Academy. **Mr Jamie Alsopp** has been awarded Associate Fellow of the Higher Education Academy. HEA Fellowships are awarded to those who have met the appropriate standards in teaching and supporting learning in Higher Education under the UK Professional Standards Framework with Senior Fellows also rewarded for their leadership, mentoring and management.

FOR YOUR DIARIES – ANDERSON LECTURE 2017

We are delighted to announce that the School's flagship public engagement event, the annual Anderson lecture, will be given by Nicola Clayton, Professor of Comparative Cognition in the Department of Psychology at the University of Cambridge. The lecture is entitled "Ways of Thinking: From Crows to Children and Back Again" and will be held on 2nd March 2017 in the James Mackay Hall (Kings Conference Centre). This is a free ticketed event so if you are interested in attending, please check the events announcements from the University.

KEEPING UP WITH THE NEWS

For more information about what we are up to in the School please visit our website, follow us on Twitter, or get in touch with us via e-mail or phone.



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