RIO group

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Welcome to the first edition of the Research in Imagery and Observation (RIO) group newsletter! We aim to produce an annual newsletter for the RIO group in November/December each year. The purpose of the newsletter will be to provide updates relevant to RIO and to highlight research developments from individuals and groups within RIO.

Save the Date – 2017 RIO Conference

The next RIO Conference will take place on 18th and 19th May at the University of Roehampton (London), as hosted by the current RIO organizing committee: Adam Bruton, Daniel Eaves, Cornelia Frank, and David Wright. We are looking forward to building on the excellent 2016 conference in Manchester, and hope to see all RIO members at the event!

We are excited to confirm three invited speakers for the event:

Dr. Mark Wilson (University of Exeter)
Dr. Wilson is interested in the processes underpinning skilled performance; why skills might break down under pressure; and optimizing the skill acquisition process. We believe that Mark's research into eye movement training , as a form of observation-based training, will be of considerable interest to members of RIO.

Dr. Wolfgang Taube (University of Fribourg)
Dr. Taube 's research integrates neurophysiology and biomechanics to highlight neurophysiological mechanisms of motor control & motor learning. We believe that Dr. Taube's research on action observation, imagery and augmented feedback complements the work of existing RIO members and bridges several areas of group interest.

Dr. Angelika Lingnau (Royal Holloway, University of London)
Dr. Lingnau is interested in the way actions that we plan, imagine, observe, or perform are represented in the brain, and to what degree these representations are required to understand other people's actions. Dr. Lingnau's use of fMRI, TMS, and MEG to study action observation and imagery fits nicely with existing research within the RIO group and will interest all group members.

Further details regarding abstract submission, the conference venue, and accommodation will be provided in the near future.

RIO Crowdfunding Initiative

We are currently in the middle of our first RIO crowdfunding initiative and appeal for donations through this newsletter (http://www.crowdfunder.co.uk/rio-group-support/).

Unlike many academic conferences RIO has remained free of charge for its members and attendees, and we'd like to keep it that way. For ten years RIO has survived on the good will of the hosting institution to provide conference facilities and catering. Since the funding climate in academic institutions is ever-changing, we are now hoping to strengthen the existing RIO funding model with your help.

Please consider making a kind donation to support the future delivery of RIO, which in turn will continue to nurture high quality research in imagery and observation, along with an inclusive 'community' spirit. If you have benefitted from RIO in the past, please consider helping us now to safeguard RIO's vibrant future. Please note: donations are of course optional and that we aim to keep future RIO events free of charge for all attendees.

Update from Shaun Boe, Dalhousie University (new RIO member)

The Laboratory for Brain recovery and Function, like many others in the RIO group, is interested in using motor imagery (MI) to enhance learning as well as to promote functional recovery after brain injury. As evidenced in past and more recent research, not all patients who experience a brain injury can engage in MI however, particularly those with damage to the parietal lobe. Not knowing if someone can perform MI makes prescription of MI-based therapies challenging, as a therapist wouldn't know who would benefit. While reliable, the validity and thus effectiveness of subjective assessments used to determine MI ability are not entirely known, reducing their usefulness in assessing MI ability and aiding in the prescription of MI-based therapies. Ideally, clinicians would have a valid, objective and feasible screening tool to assess MI ability so they can appropriately prescribe MI-based therapies.

We have recently translated fundamental research conducted in our laboratory into a smartphone or tablet based application for screening MI ability that we call MiScreen. Briefly, our fundamental work led to the development of a protocol that uses MI-based implicit sequence learning (ISL) to determine MI ability. Imagined key presses are performed (i.e., through MI) in response to seemingly random auditory cues, in which a repeated sequence is actually embedded. The extent of learning, and thus MI ability, is then determined via reaction times to the repeated (implicit) sequence in a physical test block following the practice (see Kraeutner et al. 2016 *J Exp Psych Hum Percep & Perform* for details). In MiScreen, MI ability is thus determined by the extent to which one learns through MI. Through dose-related manipulations (stay tuned for a paper on this), we have reduced the ISL paradigm that forms the base of MiScreen to 15 min, comparable to current subjective assessments of MI ability (e.g., the KVIQ-10). We believe development of this paradigm coupled with the widespread penetration of smartphones and tablets in clinical settings make the availability of a portable, rapid, and accurate screening tool for MI ability a reality. To date we have developed an Android OS version of the app, and are looking to begin beta testing in patient populations. Our long-term goal is to use MiScreen to guide the prescription of MI-based therapies, ensuring patients engage in effective rehabilitation to optimize their recovery. For more information on this or other projects in our lab, contact Shaun Boe (s.boe@dal.ca) or follow us on Twitter, @dalLBRF.

Update from Adam Bruton, University of Roehampton

As part of my (relatively new) role in the Sport and Exercise Science Research Centre at Roehampton, I am continuing my line of research on observation and efficacy beliefs whilst conducting a number of additional studies on action observation and imagery.

I am collaborating with fellow RIO members David Shearer, Martin Edwards, Clément Letesson, and Roehampton colleagues Steven Trangmar, Chris Tyler, and Ceri Diss on the following studies:

- The effects of observation content familiarity upon changes in collective efficacy, gaze behaviour, and attentional effort of team sports athletes
- Exploring the relationship between sleep quality and imagery ability in athletes
- The effects of combined gait-retraining and video self-modeling on runners with knee pain
- The effects of whole-body hyperthermia on action prediction and action priming
- Who said there is no 'eye' in team? A team selection-based eye-tracking study
- Examining the effects of observation interventions on self- and collective efficacy beliefs in teams
- Assessing the neural correlates and eye movements underpinning action prediction and self-efficacy

I am also excited to welcome Zara Abbas as my first doctoral student at Roehampton starting January 2017. Zara's PhD will be exploring the role of feedback in skill acquisition and looks to incorporate eye-tracking and different forms of observational learning throughout the thesis.

Recent publications:

- Bruton, A. M., Mellalieu, S. D., Shearer, D. A. (2016). Observation as a method to enhance collective efficacy: An integrative review. *Psychology of Sport & Exercise*, *24,* 1-8.

Update from Emily Cross, Bangor University

The Social Brain in Action (SoBA) Lab is wrapping up the final stages of the ESRC-funded 'Watch and Learn' project, which explores how observational learning impacts brain and behaviour from adolescence through to old age. The studies composing this project combined week-long dance training interventions via Xbox Kinect with pre- and post-training fMRI measures, and have so far been run in a group of 12-14 year olds, 18-25 year olds, and 65+ year olds. We are now working on making our way through a sea of behavioural and imaging findings, with some exciting first results comparing observational learning among young and older adults' due to be presented by Dr. Louise Kirsch (former PhD student and postdoc in the SoBA Lab) at Motor Behaviour and Emotion in Lille in November 2016, and several new papers in the works to add to the already-published findings (e.g., Kirsch & Cross, 2015; Diersch et al., 2016).

I am also pleased to announce the recent PhD completion of Dr. Tom Gardner, whose dissertation focused on the role of familiarity in action perception using dynamic causal modelling of fMRI data (Gardner et al., 2015). Tom must also be commended for his ambition in constructing a scanner-safe bass guitar, which he used for his later-stage thesis studies examining the relationship between action observation, execution, learning and effective connectivity. Participants in these studies had the pleasure of strumming along to Radiohead songs while undergoing fMRI – certainly one of the more engaging scanning tasks we've run in the lab!

Finally, I am excited to welcome a new PhD student to the SoBA Lab, Felix Hekele. Felix is the first PhD student to join the lab as part of the ERC Starter Grant 'Social Robots', which began in October 2015 and runs for 5 years. While the 'Social Robots' project might not sound like it has much to do with imagery and observation at first blush, one of the core project aims is to explore the role of experience-dependent plasticity in human-robot interaction, and how we observe and interact with dynamic robots is key to this.

Recent publications:

- Diersch, N., Jones, A.L. & Cross, E.S. (2016). The timing and precision of action prediction in the aging brain. *Human Brain Mapping*, *37*(1), 54.66.
- Gardner, T., Goulden, N. & Cross, E.S. (2015). Dynamic modulation of the action observation network by movement familiarity. *Journal of Neuroscience, 35*(4), 1561-1572.
- Kirsch, L.P & Cross, E.S. (2015). Additive routes to action learning: Layering experience shapes engagement of the action observation network. *Cerebral Cortex, 25*(12), 4799-4811.

Update from Jennifer Cumming, University of Birmingham

Birmingham Research in Imagery and Observation (BRIO) Group

Recent PhD completions:

- Nurwina Anuar "Imagery ability in sport and movement" (co-supervised by Jennifer Cumming and Sarah Williams)

Recent publications:

- Anuar, N., Cumming, J., & Williams, S. E. (2016). Emotion regulation predicts imagery ability. *Imagination, Cognition, and Personality*. doi: 10.1177/0276236616662200
- Cumming, J., Cooley, S. J., Anuar, N., Kosteli, M., Quinton, M. L., Weibull, F., & Williams, S. E. (2016). Developing Imagery Ability Effectively: A Guide to Layered Stimulus Response Training. *Journal of Sport Psychology in Action*. doi: 0.1080/21520704.2016.1205698
- Quinton, M., et al., (2016). Imagery meaning and content in golf: effects on performance, anxiety, and confidence. *International Journal of Sport and Exercise Psychology*. doi: 10.1080/1612197X.2016.1242150

Update from Dan Eaves, Teesside University

It was a pleasure writing with the MMU group this summer on our recent review paper! We cover the emerging body of literature on the effects of motor imagery *during* action observation, which is in Frontiers in Neuroscience (Eaves et al., 2016a).

I'm also pleased to announce the enrolment of two new PhD students here at Teesside University, with me as their Director of Studies: Jonathon Emerson and Matthew Scott.

Jonathon Emerson is investigating automatic imitation effects and agency judgements in patients with schizophrenia. Building on past research using healthy adults (e.g., Eaves et al., 2016b), Jonathon is examining if motor imagery *during* action observation can modulate automatic imitation effects and self vs. other referencing in schizophrenia.

Matthew Scott is studying automatic imitation effects in healthy children, compared to children with developmental coordination disorder (DCD), and also healthy adults. He will then examine if these effects in DCD children can be modulated by concurrent motor imagery.

At RIO 2016 Matt Scott gave an oral presentation of his work showing motor imagery during action observation can improve eccentric hamstring strength via an acute non-physical intervention. This paper is currently under review. Both Jonathon and Matt co-authored the 2016 RIO student review (see end of this newsletter), along with Ryan Kenny (TU). While Ryan is studying EEG markers of balance for his PhD with Dan Eaves, he also presented a poster at RIO 2016 showing motor imagery during observation can help learning a martial arts kick (co-authored with Dave Wright, MMU).

Recent publications:

- Eaves, D. L., Riach, M., Holmes, P. S., & Wright, D. J. (2016a). Motor imagery during action observation: A brief review of evidence, theory and future research opportunities. *Frontiers in Neuroscience*, 10: 514.
- Eaves, D. L., Behmer, L. P., & Vogt, S. (2016b). EEG and behavioural correlates of different forms of motor imagery during action observation in rhythmical actions. *Brain and Cognition*, *106*, 90-103.

Update from Martin Edwards, Université catholique du Louvain

Psychological Interactions in Neuroscience, Action, Perception and Sport Group

Recent publications:

- Grade S, Pesenti M and Edwards MG (2015) Evidence for the embodiment of space perception: concurrent hand but not arm action moderates reachability and egocentric distance perception. Front. Psychol. 6:862.doi: 10.3389/fpsyg.2015.00862
- Jiang, D., Edwards, M.G., Mullins, P. and Callow N (2015), The neural substrates for the different modalities of movement imagery, Brain and Cognition, 97, 22-31
- Letesson, C., Grade, S. and Edwards, M.G. (2015), Different but complementary roles of action and gaze in action observation priming: Insights from eye- and motion-tracking measures, Front. Psychol. 6:569. doi: 10.3389/fpsyg.2015.00569

New PhD students:

- Calogero Montedoro - facial emotion gesture mimicry in humans and chimpanzees.
- Pierre Mengal - human and robot cooperative perception and action in virtual & augmented reality.

PhD Completion:

- Clément Letesson, PhD completed 2016, Towards an integrative approach to action observation processes, Examined by Patrick Bach and Marcel Brass.

Funding Success:

- Cooperation fund between the Universities of Gent, Lille and Louvain for action observation and simulation.

Update from Cornelia Frank, Bielefeld University

In the Social Motor Learning Lab at Bielefeld University, we are mainly interested in investigating the underlying motor, perceptual and cognitive adaptations that occur during the acquisition of complex motor skills. We hereby focus on different states of action such as imagery, observation, and execution, and conduct our experiments in both real world and virtual reality settings (in collaboration with the central lab facilities of the Cluster of Excellence Cognitive Interaction Technology (CITEC)).

Updates on ongoing research projects:
Currently, two PhD students are working in the SML-Lab: Alessio d'Aquino's research focuses on the investigation of eye movements' similarities and differences between motor imagery and execution for interceptive tasks; Taeho Kim's research focuses on the development of action representation during learning by way of observation and learning by way of imagery.

Recently, Daniel Boxberger joined the lab for his MSc thesis to investigate the effects of learning by way of imagery and/ or execution on gaze behavior and mental effort.

Another line of the lab's research focuses on the imagery of joint action and how this can be used to promote learning in team sports. A first manuscript on joint action imagery and the change in representation of joint action is currently under review.

With regards to virtual reality, we are mainly working on questions related to observational learning and (verbal as well as nonverbal) feedback, using a VR-based Intelligent Coaching Space (ICSPACE) that enables novel ways of adaptive, online feedback in a closed-loop interaction and training system.

Recent publications:

- Frank, C. (2016). Learning a motor action from within: Insights into the development of one's action representation with mental and physical practice. In M. Raab, P. Wylleman, R. Seiler, A.-M. Elbe, & A. Hatzigeorgiadis, Sport and exercise psychology research from theory to practice (pp. 91-121). Amsterdam: Elsevier.
- Frank, C., Land, W. M., & Schack, T. (2016). Perceptual-cognitive changes during motor learning: The influence of mental and physical practice on mental representation, gaze behavior, and performance of a complex action. Frontiers in Psychology, 6, 1981. doi: 10.3389/fpsyg.2015.01981

Update from Nicola Hodges, University of British Colombia (http://msl.kin.educ.ubc.ca/)

Motor Skills Laboratory: One of my long time PhD students, Des Mulligan, successfully defended his PhD in April 2016. Congratulations Dr Des! As a result of his PhD, we (along with former post-doc, Keith Lohse, now at U. of Auburn) have published 3 papers on the topic of action-prediction and the role of action simulation in this process. Results from a recent study on this topic are to be presented at the upcoming SCAPPS conference (http://www.scapps.org/waterloo-2016/) in Canada, which question the automaticity of action simulation processes when physical practice is followed by perceptual-training. In July 2016, Des went to Germany (Uni. Of Munster, WWU) to the lab. of Dr Karen Zentgraf, at the Institute of Sport Studies, as a visiting International Research Fellow (until Nov 2016). Here Des is continuing to conduct research on this topic using both eye movement recording techniques and fMRI. He will soon be starting a post-doctoral appointment at memorial university in Newfoundland, Canada.

Recent publications:

- Mulligan D., Lohse, KR, Hodges NJ. (2016). Evidence for dual mechanisms of action prediction dependent on acquired visual-motor experiences. *Journal of Experimental Psychology: Human Perception & Performance, 42(10)*, 1615-1626. *DOI: 10.1037/xhp0000241*
- Mulligan D., Lohse, KR, Hodges NJ. (2016). An action-incongruent secondary task modulates prediction accuracy in experienced performers: evidence for motor simulation. *Psychological Research, 80(4), 496-509. DOI: 10.1007/s00426-015-0672-y*
- Mulligan D., Hodges NJ. (2014). Throwing in the dark: Improved prediction of action outcomes following motor training without vision of the action. *Psychological Research, 78(5)*, 692-704. *DOI:* 10.1007/s00426-013-0526-4.

Update from David Wright & Paul Holmes, Manchester Metropolitan University

The Motor Cognition Research group has grown in size since the last RIO meeting. During the summer of 2016 the team were able to appoint two new post-doctoral researchers. Chesney Craig, who has submitted her PhD at Queen's University Belfast, joined the team in October 2016. Giorgia D'Innocenzo, who is completing her PhD at Brunel University and presented her work combining TMS and eye-tracking in action observation at the last RIO conference, will join the team in April 2017. Both Chesney and Giorgia will contribute to the ongoing action observation and imagery research of our group. Dr Greg Wood also joined the team in April 2016 and is leading on projects using his expertise in eye gaze and motor control. The team also continue to work with Dr Jackie Williams from University of Victoria, Melbourne.

The motor cognition group have produced the following publications since the last RIO conference:

- Eaves, D. L., Riach, M., Holmes, P. S., & Wright, D. J. (2016). Motor imagery during action observation: A brief review of evidence, theory and future research opportunities. *Frontiers in Neuroscience*, 10, 514, 1-10. doi:10.3389/fnins.2016.00514
- Marshall, B., & Wright, D. J. (2016). Layered stimulus response training versus combined action observation and imagery: Effects on golf putting performance and imagery ability characteristics. *Journal of Imagery Research in Sport and Physical Activity, 11*, 35-46. doi:10.1015/jirspa-2016-0007
- McCormick, S. & Holmes, P. (2016). See, Imagine, Move - Upper Limb Action Therapy (SIMULATe): iPad-based Mental and Physical Motor (re)Learning for Stroke Recovery. Stroke, 47 (Supplement 1), ATP157.

The Manchester Universities are collaborating in a number of studies related to AO/MI and have recently been successful in gaining funding to progress the further development of the stroke SIMULATe app* for the Parkinson's Disease community. Ellen Poliakoff (UoM) and Paul (MMU) will lead their respective teams.

Our research group has been very active over the summer and we are looking forward to presenting data from a minimum of three new experiments at the 2017 RIO conference.

RIO Notices

- RIO 2016 Conference review published as part of the European Federation of Sport Psychology (FEPSAC) Newsletter: http://www.fepsac.com/activities/publications/fepsac_newsletter. Please see overleaf for the review, submitted by Jonathan Emerson*, Matthew Scott, Ryan P. W. Kenny & Erica Jinks (Teesside University)**.**
- Call for submissions to a special issue of Imagination, Cognition, and Personality focused on the conceptualization, measurement, and development of imagery ability within different contexts across the lifespan (deadline – 31/01/2017, email Jennifer Cumming: J.Cumming@Bham.ac.uk)
- NASPSA 2017 call for abstracts (www.naspspa.com). Join NASPSPA for its 50th Anniversary Conference , June 4th - 8th. Symposia proposals are due December 15, 2016. Abstracts are due January 17th 2017.
- The Motor Cognition Research Team at Manchester Metropolitan University are currently advertising a fully-funded PhD studentship investigating the effectiveness of tablet-based apps to aid self-management and improve quality of life for individuals with chronic pain. The supervisory team will include Dr Zoe Franklin, Prof Paul Holmes and Prof Neil Fowler and the deadline for applications is 31st January 2017.

Review: The 10th anniversary meeting of the Research in Imagery and Observation Group

By Jonathan Emerson*, Matthew Scott, Ryan P. W. Kenny & Erica Jinks (Teesside University)

This engaging event offered students, academics, practitioners and researchers alike the opportunity to present their recent research and ideas in the field of imagery and observation and to engage in supportive group discussions. The two-day conference explored aspects of imagery and action observation related to Sports and Performance, as well as Neuroscience, Cognition and Clinical research applications. Across these disciplines, keynote speakers Dr. Beatriz Calvo Merino, City University London, and Prof. Giovanni Buccino, Università Magna Graecia, Catanzaro delivered the closing presentations on each day respectively, tying up what was a thoroughly fascinating conference.

With the audience varying from first time attendees to common faces within the RIO group, the majority of people seemed to find the meeting an excellent and engaging event. Although advertised as a conference, there was a casual feel with a sense of community and support for one-another prevalent throughout. The venue and organisation of the event was ideal for all who attended with it being situated in central Manchester. To compliment this, all aspects of the conference from talks and presentations, to organised social events were highly accessible, never being further than walking distance from the accommodation, restaurants, cafes and local student hotspots. Navigating the University campus proved to be an easy task with the conference booklets containing a map of the campus in addition to information on all of the presentations and their presenters.

The conference opened with a warm welcome from the recently appointed RIO organisers: Drs. Adam Bruton (University of Roehampton), Cornelia Frank (Bielefeld University, Germany), Dan Eaves (Teesside University) and David Wright (Manchester Metropolitan University). These organisors now take over from the founding members, who were congratulated on their excellent running of the group over the last decade: Prof Martin Edwards (Université Catholique de Louvain), Dr Jennifer Cumming (University of Birmingham), Prof Nichola Callow (Bangor University), Prof Paul Holmes and Dr Dave smith (Manchester Metropolitan University). This handover was followed by a heartfelt commemoration by Martin Edwards to his own PhD supervisor, the late Prof Glyn Humphreys. Edwards spoke about his late mentor in kind and endearing words, expressing his preference to dedicate this year's RIO conference to the memory of his former supervisor. It was a touching tribute. Next we highlight a small selection of the talks, which we personally enjoyed. Please see the RIO website for a full programme of all the excellent abstracts delivered in either oral or poster format (http://riogroup.weebly.com/).

In the first section of presentations (Sports and Performance) first-time attendee and undergraduate, Mason Blake of the University of Roehampton, delivered an excellent piece of research into visual gaze when observing team sports, exploring the influence of familiarity on efficacy perceptions. All presentations in this section were the work of either undergraduate or postgraduate students in the field, providing them with a good platform to share and discuss their research, and gain advice and valuable insights into future directions for their research. One of which was a contributor to this review (MS) who attended the event for their first time and found it to be an extremely enjoyable experience. This was followed by research in the domain of neuroscience providing an insight to the neurocognitive mechanisms behind the findings of earlier presentations.

Georgia D'Innocenzo (PhD candidate at Brunel University) delivered a very interesting presentation of the effects of visual fixation location on motor resonance during observation of phasic thumb movements. The results of which suggest that using a fixed location, rather than a free viewing option, facilitated extraction of motion information during action observation, resulting in stronger motor resonance effects. Following this, Dr. Stefan Vogt of Lancaster University, gave a fascinating talk titled 'motor imagery engages an insula-centered tactile network more than action observation: an fMRI study'. Extending the common belief that neural substrates of action observation and motor imagery overlap, his data showed motor imagery engages a tactile-kinaesthetic simulation greater than that involved in action observation. As a result, this gives motor imagery a privileged role in connecting perception and action.

Review: The 10th anniversary meeting of the Research in Imagery and Observation Group

By Jonathan Emerson*, Matthew Scott, Ryan P. W. Kenny & Erica Jinks (Teesside University)

The second day of the conference welcomed the theme of cognition with Dr. Emma Gowen of the University of Manchester leading the way with current research in the representations of non-biological stimuli. Showing the complexity of the human mind, it was revealed that once an object is perceived to represent human motion, the body can then generate an internal representation of the observed movement. Furthermore, the findings had considerable implications for human interactions with technology and robots, and respectively for rehabilitation.

There was a smooth transition from cognition into the next series of presentations in the domain of clinical practice. A stand out presentation was delivered by Stacey Humphries (PhD candidate at The University of Manchester) on the influence of high and low motor-verbal content on the way actions are depicted with hand gestures in those with Parkinson's disease (PD). Patients were required to describe a previously observed cartoon sequence involving high and low levels of action content. Interestingly, PD sufferers found it more difficult to produce gestures that reflected first person 'motor simulation' perspectives, compared to a control group of healthy individuals. The implications of which can help understand PD and enhance the rehabilitation protocols that are used.

The highly anticipated keynote speaker's presentations closed each day, with Dr. Beatriz Calvo-Merino of City University London finishing the first day of the conference. Closing the following day and wrapping up the conference was keynote speaker Prof. Giovanni Buccino of Università Magna Graecia, Catanzaro. Calvo-Merino gave a very clear and engaging presentation of her famous work into the specificity of motor resonance effects in experienced dancers. She then showed how her current work extends this line of enquiry to investigate sensorimotor evoked responses in the brain. Essentially showing that touch can facilitate sensorimotor representations in a novel way.

Buccino managed to capture the audience's imagination with his research in motor processing of visual and audio stimuli. Following this, he introduced his latest piece of research in which he had turned his attention to a developing area within observation research being its application to Parkinson's disease patients.

Throughout the conference, a series of fascinating poster presentations were on show around the hub, with their presenters offering further explanation of their research. Whilst themed around the concepts of observation and imagery, the variation of the disciplines and applications within the research were vast, varying from sports, dance, research in primates, Parkinson's disease, motor priming, virtual reality and autism. One of the current authors (RPWK) presented a poster at the conference and found it a very rewarding experience, the questions were well thought out and criticisms were very constructive.

Furthermore, the closing discussion panel headed by the new organisers of the RIO group (Bruton, Frank, Eaves and Wright), were accompanied by Calvo-Merino and Buccino. This open discussion on key issues in imagery and observation research between expert individuals within the area was extremely appreciated, as this provided an opportunity to explore previously unasked questions regarding research in observation and imagery. Overall, the panel promoted a highly stimulating and beneficial environment inviting the audience to weigh in and give their thoughts on the questions. With the broad and dynamic expertise of those involved, the panel provided tremendous potential to build on old theory, or explore new concepts, all the while debating research design and the future of research into action observation and imagery. With this part of the conference so well received, this addition to the programme is hoped to be a highlight of future conferences. The contributors and attendees of this review found the whole conference to be extremely satisfying and would highly recommend readers to consider attending and joining the RIO group meeting at the University of Roehampton, London, UK on 18-19 May 2017.

We would like to give a heartfelt thanks to all who have contributed towards this information packed newsletter and hope it has been an interesting read. We look forward to seeing you all at Roehampton!