Institution: University of Surrey

Unit of Assessment: UOA 4 Psychology, Psychiatry and Neuroscience

a. Overview

Since the first Chair in Psychology was appointed in 1971, the University of Surrey has developed an international reputation for creating and using psychological research for societal benefit. In tandem with its extensive professional postgraduate training and taught programmes, the School of Psychology is distinguished by its strengths in research that develops theory to address contemporary social, political, environmental, educational and economic issues. Sitting with the Faculty of Arts and Human Sciences (FAHS) our current structure is oriented towards fostering an environment for research that reflects this legacy and is based around three research groups:

- *Brain and Behaviour*: wherein we explore the neural bases of cognitive function in healthy people and patients suffering from mental and neurological disorders;
- *Enhancing Thinking*: wherein we draw cognitive, developmental and social psychology together to understand fundamental mechanisms in learning, communication, judgement, memory, problem solving, and creativity;
- *Health and Wellbeing*: wherein we examine behaviour change, chronic diseases, advances in clinical and counselling psychology practice, and risk processing.

Building on our history of theoretically-driven impactful work, the research groups' outputs feed into five multidisciplinary Centres, each addressing a topic of societal significance:

- ILLUME (NB, this is not an acronym) is led by **Sowden** and was the first interdisciplinary research centre to be hosted in FAHS. Working with researchers from English, Sociology, Business, Mathematics and the Arts, ILLUME is developing new ways of enhancing creative and pro-social thinking and decision-making;
- C-BeST (Centre for Behavioural Security Technologies) is led by **Ormerod**. Collaborating with Sociology, Computer Science and Engineering, C-BeST is applying cognitive and forensic sciences in designing technologies to address priorities such as security screening for infrastructure protection and investigative decision-making in large criminal enquiries;
- FCBH (Food, Consumer Behaviour and Health) is led by **Raats**. This multidisciplinary centre integrates the work of social and biological scientists to address issues relating to food safety, food choice and food management in order to facilitate the improvement of people's lives;
- EPRC (Environmental Psychology Research Centre) is led by **Uzzell (**who is being returned under UOA 23 Sociology). Environmental Psychology originated as a discipline at Surrey, and its importance continues to be highlighted through a programme of research on environment and behaviour transactions responding to EU, UK Government, RCUK, overseas Research Councils (Australia, Sweden) and industrial agendas;
- The Surrey Baby Lab is led by **Clifford** and works to increase our understanding of how infants and toddlers develop and interact with their world, with particular focus on the development of colour perception, as well as inform design and development programmes.

In addition, the research groups interface actively with University-wide research collaborations including the Food Security Network, Telemedicine, the Digital World Research Centre, and the Surrey Sleep Centre.

b. Research strategy

We have implemented the strategic plans set out in RAE2008 by taking the following actions (with identified benefits):

- To ensure sustainability we have appointed Early Career Researchers (ECRs) to enhance each research group (i.e., **Catmur** and **Clifford** to *Brain and Behaviour*; **Nash**, **Rusconi**, **Russell** and **Winstone** to *Enhancing Thinking*; **Hepper** to *Health and Wellbeing*).
- To grow our neuroscience capability we have hired a Professor in Neuropsychology (**Opitz**) and a Reader in Neuropsychology (**Sauseng**). These appointments were supported by investments in TMS equipment, in a joint fMRI upgrade with the CUBIC consortium, and in new laboratory facilities for chronometric neuroscience research. This has led to funding being secured from the Royal Society, ESRC, NIHR, MoD, Science Without Borders, and publications in *Current Biology, Cerebral Cortext, Neuroimage* and *Human Brain Mapping*.
- To enable the research on human infant colour perception we have invested to upgrade the Baby Lab. Research has since published in high impact journals (e.g., *Proceedings of the National Academy of Sciences; Journal of Experimental Psychology: General*), and featured in the media (e.g., BBC Radio 4; BBC Horizon).
- To lead C-BeST and to contribute to ILLUME, we have hired a Professor with expertise in investigative decision-making (**Ormerod**). Currently ILLUME members are involved in five funded projects on aspects of creativity and funders include the National Nuclear Laboratory (NNL) and EPSRC.
- To develop EPRC's work on sustainability, multidisciplinary grants have been made with engineers, environmental scientists and communication scientists, leading to funded projects on reshaping energy demand of users via information and communication technology (EPSRC); on sustainable lifestyles (ESRC); and on a major Swedish Research Council (Vetenskapsrådet) programme on civil society.
- To enhance the infrastructure and processes for supporting research across the School, we have established a SONA participant recruitment and management scheme, and purchased Qualtrics research support tools and other equipment. In addition, we have developed a 'volunteer research apprenticeships' programme to allow undergraduates the opportunity to support Faculty research through a formally monitored scheme.

Future strategic objectives to 2020

The actions taken above strengthen the School's research group structure and provide a stable and innovative platform for addressing societal challenges in the next decade. Our aim is to consolidate and further enhance these groups through the following initiatives:

Brain and Behaviour:

- Establish an interdisciplinary Centre for Neuroscience Impacts, to capitalise upon research outputs of the group and interests in neuroscience elsewhere at Surrey.
- Leverage developments arising from University strategy (e.g. the expansion of the Faculty of Health and Medical Science to include a new Veterinary School) to provide on-site neuroscience facilities to complement those available through the CUBIC consortium.

Enhancing Thinking:

- Make additional appointments to expand C-Best activities.

- Create a new Socio-Cognitive Interaction laboratory facility, in recognition that socio-cognitive interaction lies at the heart of many national and international funding priorities.
- Increase the cross-disciplinary activities of ILLUME, via the EPSRC 'Creativity Observatory' linking the life sciences and human sciences with mathematical modelling, and develop relationships with new collaborators such as NNL's innovation programme on accident management/avoidance and Surrey County Council's SHIFT Innovation Centre.

Health and Wellbeing:

- Use future RCUK network and centre bids to strengthen links with the Surrey Clinical Research Centre and regional NHS providers, in line with the University's overarching Health and Medical Strategy.
- Conduct further RCTs and other formal evaluations of interventions, particularly in the domains of exercise, obesity and mental health.

Besides these initiatives, across the School we intend to effect the following strategic enhancements to our general research environment:

- Develop centralised data management facilities in line with RCUK and University policies on data protection.
- Establish 'Impact Teams' that bring together practitioners and theoreticians to develop impacts proactively and to spread the ownership of impact cases across the School, in response to the growing importance of impact.
- Set up a Quantitative Modelling laboratory to facilitate the development of computational and statistical models of the fundamental psychological processes under study in each of the research groups.

Management and governance

The School undertook a strategic restructuring in the period to develop its three research groups. The current grouping recognises an intentional shift away from research produced by separate sub-disciplines towards a more interdisciplinary Psychology. Our structure encourages flexibility and synergies across sub-disciplines, For example, CYMBOL, a €259k project funded by the EU to explore consumer responses to health claims on food products brings together **Raats** (Health & Wellbeing), **Nash** (Enhancing Thinking) and **Seiss** (Brain and Behaviour) as co-investigators. Currently the School has 23 active research grants, and 13 involve collaborations between two or more members of the School. Establishing the research groups around key themes has increased grant submissions in recent years, and rates of grant submissions continue to increase.

In response to changes in RCUK procedures for demand management, Readers and Professors in each group review draft grant bids in a process supervised by the Faculty Associate Dean for Research and Innovation (ADR). Each research group holds regular meetings attended by academics, researchers and PhD students from the School and external visitors. Each research group can access pump-priming funds from School and Faculty budgets to explore new collaborations.

The School is part of the Faculty of Arts and Human Sciences (FAHS), and our research governance naturally feeds into Faculty and University structures. The School Research Committee (SRC) develops research strategy, seeks to enhance the School research environment, and responds to regional, national and international research initiatives. The SRC chair (**Cropley**) sits on the School Executive Committee, which determines overall strategy for the School of Psychology and meets monthly to align teaching and research. He also sits on the Faculty

Research Committee (FRC), which provides matching funding in support of presentations at international conferences, pump-priming and contract research staff bridging. The ADR (to be **Ormerod** from January 2014) chairs the FRC, which oversees the Faculty's research studentship scheme and assesses applications for annual leave and research funding data. The FRC reports to Senate and the University Research and Enterprise Committee (UREC). UREC, chaired by the Deputy Vice-Chancellor (Research & Innovation), directly inputs to the University's Executive Board, which sets the University's global research strategy. The ADR sits on the Faculty Management and Strategy Group and represents the Faculty on UREC. All research projects are scrutinised by the University's Ethics Committee, to ensure research is conducted within the guidelines of the British Psychological Society and ethical frameworks of funders (e.g., Modrec for MoD research, Corec for NHS research).

c. People, including:

i. Staffing strategy and staff development

The School has a workload model that allocates hourly 'weights' for different tasks, and has allowed research time to be maximised and shared fairly. The model allocates individuals at least 40% of their annual working hours for research and scholarship. An annual appraisal process provides an opportunity to review progress in individual research goals, set annual targets and maximise research opportunities. Probationary lecturers are given a reduced workload (60% in their first year), and are provided with a senior colleague as a mentor who advises them on developing a research strategy. The University has a sabbatical leave scheme for established staff, and 5 members of the school have had research leave since 2008.

The School's weekly seminars are typically attended by 40-50 staff and postgraduate students, and are timed to afford staff with caring responsibilities the opportunity to be present. Research groups take it in turns to invite national and overseas speakers of key relevance to each research theme. At monthly staff meetings, staff report on their research events, new grants, and media stories and honours in the last month. All PGR students are members of a research group and are expected to attend group events. We encourage our undergraduate and postgraduate students to follow us on Twitter (@SurreyPsych) where we tweet regular updates on research activities.

The University is committed to meeting its responsibilities under the Equality Act 2010. In recognition of its support of embedding equality, the University achieved an Athena SWAN Bronze award in 2013. **Tenenbaum** leads the School's Silver Award bid, to be submitted in 2014. She has also been designated as faculty lead to share good practice with other Schools in FAHS, in anticipation of Athena SWAN being expanded beyond STEM in coming years. **Hegarty** currently applies his research on sexual and gender minorities through an institutional study of the experiences of LGBT students and staff funded by the Equality and Diversity Office for 2013-14, which dovetails with the University's new LGBT Equality group.

The HR Excellence in Research Concordat encourages the recruitment and retention of researchers from the widest pool of available talent, including those from diverse backgrounds. The University endorses the Concordat and actively monitors diversity in the workplace. Currently 23 of the School's 37 academic staff are female (with 8 women and 9 men ranked at senior lecturer or above). The University operates a flexible working policy in order to respond to requests for changed work patterns.

Implementing the Concordat led the University to undertake an institution-wide gap analysis in 2011 and to develop a Researcher Development Programme as a result. In addition to providing

services for PGR training, the Programme offers workshops for early career and experienced researchers covering topics such as research project management, publication strategy, funding and impact. A Research Staff Lunchtime Series has been established for research staff to discuss topics with experienced academic and research staff from all areas in the University. Additionally, the Staff Development Service works alongside HR to offer a comprehensive staff development programme complimenting the appraisal system. The Staff Development Service also offers a Learning and Development Programme that provides support for attendance at accredited, non-accredited and award-bearing courses. As a School we have built expertise by retaining contract research staff on shorter-term contracts across a number of externally funded contracts with bridge funding (e.g. Brown, Egan, Hodgkins, Hollywood and Peacock).

ii. Research students

During the period the School graduated 73 students who were awarded the PhD by research, and 198 PsychD students whose portfolios contain a substantial research element. Surrey is the lead partner in the ESRC South East Doctoral Training Centre (SE DTC), a collaborative partnership between Surrey, Kent, Royal Holloway and Reading that disburses PhD funds. The partner institutions have agreed 20% co-funding arrangements with the SE DTC. Set up in 2010, the SE DTC made its first awards in 2011. Students from the School enter annual SE DTC competitions and can also apply for CASE and multi-disciplinary schemes run under its auspices. The DTC runs advanced training courses and holds an annual conference bringing together PGRs and their supervisors from its constitutive four universities and ten disciplines. From January 2014 the SE DTC will be directed by a senior member of the School. The advanced training courses and conferences run by the SE DTC are also available to our non-ESRC funded students. The Food Consumer Behaviour and Health Research Group is a partner in the BBSRC DTP in Food Security led by the University of Reading. FAHS has achieved new successes in joining doctoral training partnerships (DTPs) from AHRC starting in 2014, which will provide studentships in support of the ILLUME centre on creativity, and a DTP from NERC which will provide studentships in support of the EPRC.

FAHS runs a competition for Faculty studentships using criteria similar to those used in the SE DTC, and the selection processes are run in parallel. We also use our research links to seek funding for PhD students, with recent successes from sources such as the Royal Horticultural Society, the Science Museum, the Whitely Clinic, DSTL, Help for Heroes and the National Trust.

Student progress within the Faculty is monitored by the Faculty Postgraduate Research Director. All PGR students have a second supervisor in line with current RCUK best practice, and have monthly meetings with supervisors. Students initially register on a probationary basis and are normally confirmed onto the PhD program after 12-18 months, following successfully completing a review process that includes input from an internal assessor who is not part of the supervisory team. Students also have six monthly review meetings involving such an assessor.

PGRs from all Faculties organise and present at the annual University-wide PGR Conference. This conference is an opportunity for PGRs to develop their presentation skills while at the same time encouraging networking across the various disciplines. In addition the School runs its own PGR conference each spring with first year PGRs expected to produce a poster presentation and second and final year PGRs giving oral presentations. All PGRs are encouraged to publish their research where possible jointly with their supervisors and our returned outputs include the work of 8 of our PhD students.

d. Income, infrastructure and facilities

During the period the School attracted £4.6m in research income. Major sources of funding included large EU projects (£2.1m) and RCUK grants (£1.4m). This has enabled us, in conjunction with other sources of income and as part of the strategy to develop neuroscience, to invest in our research facilities. The CUBIC consortium, comprised of Surrey, Royal Holloway, Roehampton and Brunel Universities, maintains a Siemens Magnetom Trio 3T fMRI scanner based at Royal Holloway. In January 2012, the consortium invested in a £385k upgrade to the scanner supported by the Wellcome Trust. This upgrade successfully brought the scanner to the equivalent of 'TIM Trio' specification and extended its usefulness for another five years. Combining electrophysiological recordings with non-invasive neurostimulation is a research domain in which the staff members in the department are at the international forefront. Thus, in 2012 we invested in a TMS stimulator, enhanced by the addition of a TMS-compatible EEG system in 2010 and with a neuronavigation system. The purchase of the neuronavigator was partially supported by the Royal Society. We also have equipment for tDCS brain stimulation. To support both student and staff projects we have licences for E-prime, Inquisit, and Qualtrics research support tools. A stock of actigraphy watches are also available for staff and student projects and the University has recently invested in a further 200 watches to support larger-scale studies on recovery from work and activity and exercise levels. Our laboratories support two eye-tracking systems. One is dedicated to the Baby Lab and the other is portable and is currently being used by Health and Well-Being researchers to study the processing of health-related information.

We have 29 laboratories, some of which are dedicated to specific research programmes whilst others are bookable for short-term and/or student projects. Laboratories are shared across research groups. The core facilities comprise:

- Two chronometric neuroscience laboratories, fully equipped with EEG. One houses a 64-channel Brain Products Quickamp and one houses a 32-channel MRI-compatible Brainamp amplifier. The labs are also equipped with electrode-digitization devices (Polhemus), up-to-date EEG analysis software (BESA, Brain Vision Analyzer 2, Matlab based Fieldtrip) and experimental stimulation control software (NBS Presentation, E-Prime). These facilities support a wide range of Brain and Behaviour research on event-related potentials, time-frequency analysis, functional connectivity and phase-sensitive EEG measures, for which novel Matlab-based analysis routines are developed on site.
- A TMS laboratory, with Magstim Rapid 2 TMS stimulator. In 2010, this laboratory was enhanced by the addition of a TMS-compatible EEG system. In 2012 we added a Brainsight 2 neuronavigation system with part-funding from the Royal Society. These facilities support multi-method research such as ongoing work on imitation and the mirror neuron system.
- A 'dummy' fMRI scanner room, to prepare research participants to arrive at the 'real' scanner ready to participate with minimal time wasted on acclimatising participants.
- The Baby lab is equipped with a high density ERP system including a NuAmps digital EEG amplifier, a Quikcap and Neuroscan EEG analysis software. We have an ASL 504 pan/tilt eye-tracking camera, Tobii X120 portable eye-tracking camera and a Cambridge Research Systems ColorCal colorimeter. This lab is currently used actively to study infant colour perception and categorisation.
- A large observation room with one-way mirror and video recording facilities, refurbished in 2012. This is currently being used by Health and Well-Being researchers in a study of romantic couple's nostalgic interactions.

- A driving simulator based on the STISIM system, with a separate observation/measurement room. Upgraded in 2013 for use in a range of Health and Well-Being projects on snack eating behaviour and driving, the perseverance of obsessional thoughts following driving errors, and Enhancing Thinking research on the impact of mood and self-affirmation on glance duration towards positive and negative images.
- A physiology lab equipped with Biopac physiological recording equipment which can record heart rate, respiration rate and volume, temperature change, EMG etc. This is currently being used in Health and Well-Being research on individual differences in automatic social responses, narcissism and interpersonal mimicry using facial EMG data.
- Exercise laboratory, including a cycle ergometer for use in exercise research and associated Biopac physiological recording equipment. This is used by Health and Well-Being researchers to study affective responses during exercise.

Three full-time technicians support research activities in the School. The neuroscience laboratories are additionally supported by a full-time research officer dedicated to supporting research projects of the *Brain and Behaviour* group, along with a full-time technician supporting the CUBIC consortium fMRI scanner.

Central training facilities are located in the Library, which underwent a £13.2m extension in 2011. The University provides support for academic staff in raising the visibility and impact of research publications deposited in Surrey Research Insight (SRI), Surrey's Open Access Repository. This incorporates an internal publications database (Symplectic Elements), an externally visible institutional repository (Eprints), and financial support to meet Gold-route article processing charges. The Library provides off campus access to the majority of online research information, including over 140 databases of bibliographic and other information, 42,000 subscribed e-journal titles and over 300,000 e-books.

e. Collaboration or contribution to the discipline or research base

Most staff have active research collaborations outside the School, as evidenced by the range of national and international co-authors on our returned outputs. **Sauseng's** collaborations with colleagues in Salzburg and Konstanz have yielded two 'Most Cited Papers of the Year' awards from *Brain Research* (2009, 2010). **Hegarty's** leadership of the University of Michigan LGBT Summer Institute lead to a special issue of *Psychology and Sexuality* in 2012 showcasing collaborative work generated by the Institute.

Surrey's Global Partnership Network links Surrey with, among others, the University of Sao Paulo. This has led to staff exchanges (**McNamara, Seiss** and **Sterr**), and to 6 co-authored publications and a funded studentship (£45k; FAPESP and Science without Borders). The repeated success of FCBH in obtaining EU funding is attributable to the multiple networks to which its members belong.

We encourage Early Career Researchers (ECRs) to proactively get involved with discipline-based bodies. **Catmur** is a member of the ESRC Peer Review college and has reviewed grant applications for the Research Foundation of Flanders. Similarly **Clifford** and **Nash** have acted as grant reviewers for the ESRC and **Hepper** has done likewise for the Wellcome Trust and the FCT (Foundation for Science and Technology – Lisbon, Portugal). **Russell** was managing editor of *Group Processes and Intergroup Relations.*

Our staff serve on review panels for a number of major research funders such as the ESRC (**Sowden, Catmur**), BBSRC (**Sowden, Sauseng**), EPSRC (**Ormerod**), DSTL (**Ormerod**),

HMGCC (**Ormerod**), RfPB NIHR (**Ogden**), NSF (**Sowden**), the European Research Council (**Opitz**), the German Research Foundation (**Opitz, Sauseng**), the Israel Science Foundation (**Opitz**), Tel Aviv University **(Cropley**), the Icelandic Centre for Research- RANNIS (**Cropley**), Research Foundation Flanders (**Catmur**), Netherlands Organization for Scientific Research (**Sauseng**), Health and Medical Research Fund, Hong Kong (**Cropley**) and the Society for the Psychological Study of Social Issues (**Hegarty**). **Ormerod** is also a member of the UK Foreign & Commonwealth Office Scientific Advisory Committee, and served as mentor on an RCUK 'Ideas Factory' in 2010 on detecting terrorism.

Staff contribute to the editorial work that sustains academic communication. **Tenenbaum** is currently Editor of the *British Journal of Educational Psychology*, **Hegarty** was Associate Editor of the *British Journal of Social Psychology*, and **Ormerod** was Associate Editor of the *Quarterly Journal of Experimental Psychology*, and a consulting editor for *Psychological Science.* Since 2008 staff have edited or co-edited special issues of *British Journal of Developmental Psychology* (**Tenenbaum**) and *Stress and Health* (**Cropley**). Our ECRs have acted as reviewers of journal articles for over 48 different journals including *Current Biology* (**Catmur**); *the Journal of Neuroscience (***Catmur**); *Journal of Personality and Social Psychology* and *Personality and Social Psychology Bulletin* (**Hepper**); *Psychological Bulletin* (**Russell**) and *Psychological Science* (**Nash**).

Selected Keynotes and other significant invitations

Cropley: 'Recovery after work: the importance of the unwinding process on health and wellbeing.' XIII Conference on Social and Community Psychology, Lillehammer, Norway, 3-4 November 2011.

Hegarty: 'Finding a frontier in the taxonomic archive'. Invited paper presented at the symposium 'Stories from the Archive' marking the donation of British Psychological Society's papers to the Wellcome Institute, Wellcome Institute. 2011.

Hegarty. "The history of sexuality." An invited two-part symposium chaired for the Annual Meetings of the American Psychological Association. San Diego, CA, USA. Supported by APA Division 26, 2010, leading to Special Feature of *History of Psychology* in 2012.

Ogden: Sogn og Fjordane, Obesity Research Network, Norway, 'Successful weight loss and maintenance', June 2012.

Ormerod. "Optimizing and satisficing in spatial problem-solving". Keynote presentation at the International Conference on Spatial Cognition, Rome, August 2009.

Ormerod. "Detecting anomalies in human behaviour". Invited paper at RCUK/US Dept. of Homeland Security workshop on Anomaly Detection, Charlottesville VA, USA, March 2009.

Other notable activities

Catmur (ECR) won the Faculty of Arts and Humanities 'Researcher of the Year' award in 2013.

Opitz won *Brain Research's* 'Top Reviewer of the Year' award in 2011.

Ogden's work on obesity led to her being invited to give expert testimony to NICE in June 2013 on obesity stigma and the effectiveness of weight loss programmes.

Ormerod was awarded the Lloyd's of London 'Science of Risk' prize in the category of behavioural risk in 2013, for his work on expertise in handling fraudulent insurance claims.

Sauseng won the Brain Products Young Scientist Award 2010 of the DGPA (German Association for Psychophysiology and its Application) and Surrey's University Researcher of the Year in 2012.