

Institution: University of Roehampton
Unit of Assessment: 4 - Psychology, Psychiatry and Neuroscience
<p>1. Unit context and structure, research and impact strategy</p> <p>Research strategy and structure</p> <p>The Psychology unit at the University of Roehampton comprises 29 (28.4FTE) researchers working across experimental psychology, cognitive neuroscience, comparative psychology and counselling therapies. Our work aims to improve understanding of the factors that influence health, mental health and wellbeing in humans and animals. We develop strategies and interventions to improve mental health, particularly for young people and adolescents. In doing so, our research addresses one of the most important current societal challenges: enhancing understanding of the social, psychological and biological mechanisms that affect health and wellbeing, to inform mental health practice and policy nationally and internationally. To drive our multidisciplinary activities, we have invested both in senior scholars to ensure strong research leadership, and high-performing ECRs (7) to provide a firm foundation for future excellence. In 2014, Professor Mick Cooper was appointed to lead research in psychological and counselling therapies, followed in 2015 by Professor Paul Allen to lead our work in cognitive neuroscience and neuroimaging. They joined Professor Cecilia Essau, who has an international reputation for psychological research in child and adolescent mental health, and Professor Stuart Semple, who leads work in the field of animal behaviour and emotion, an area developed since 2014 to further extend the range of our multidisciplinary work.</p> <p>Research clusters</p> <p>Since 2014, we have organised our researchers into four clusters with the aim of delivering our strategic objectives, to facilitate a more collaborative, mutually supporting culture, to better integrate our research students into our research environment, and to produce outstanding impactful research. Our clusters are:</p> <p>(i) <i>Cluster for Cognition, Neuroscience and Neuroimaging (CCNNI)</i> (Allen, Aksentijevic, Brandt, Bruton, Dyall, Faulkner, Fuggetta, Gibson, Gilleen, Molina-Holgado, Sahai, Sandrini). CCNNI draws together our researchers in cognition and cognitive neuroscience who seek to understand the brain, cognition and behaviour in the context of psychopathology and associated risk factors. Research is also conducted to develop techniques for cognitive enhancement and behavioural change. We have access to state-of-the-art facilities including Magnetic Resonance Imaging (MRI) and repetitive Transcranial Magnetic Stimulation (rTMS). Since its formation in 2016, CCNNI has hosted seven PhD students and four Erasmus students. CCNNI staff have received approximately £850,000 of external funding as PIs, Co-Is, and seconded researchers in collaboration with other UK and international institutions. We hold monthly seminars and meetings to which external and internal speakers are invited to speak. Much of our work builds on the influential work of our former colleague, Eysenck, on anxiety and its effects on cognition, for example, adapting his work for fMRI to better understand the neural basis of attentional control and how this is affected by anxiety and worry (e.g. <i>Cortex, Brain and Behaviour, Neuroscience, Biobehavioural Reviews</i> and <i>NeuroImage Clinical</i>). Allen's work is focused on understanding the neural basis of psychiatric disorders and their development in young adults, auditory hallucinations, and effects of cannabis on the brain (e.g. <i>American Journal of Psychiatry, Trends in Neuroscience, JAMA Psychiatry, Translational Psychiatry</i>). Allen has also led real-time neurofeedback proof-of-concept work, for novel applications in people experiencing psychiatric and affective symptoms (funded by MRC, British Academy and Rosetrees Trust). Sahai explores the mechanisms of action of drugs – particularly novel psychoactive substances – using cutting-edge <i>in silico</i> techniques, with this work having significant impact on drug rehabilitation and education. Molina-Holgado has worked extensively identifying and understanding the mechanisms and mediators of the neuro-protective actions of endocannabinoids in the brain, helping develop the hypothesis that neuroimmune networks, via endocannabinoid system signalling, have important effects that influence neural stem cell renewal and fate. Sandrini has developed a programme of research with collaborators at the Casa di Cura Privata Del Policlinico, Department of Neuroriabilitative Sciences in Milan, Italy funded by a Marie-Sklodowska-Curie award to improve cognition in older adults using transcranial direct current stimulation (tDCS) (e.g.,</p>

Human Brain Mapping, Neurobiology of Aging). **Gibson** is conducting cognitive research to improve diet and reduce obesity-related behaviours among pre-schoolers in Malaysia ('ToyBox' study) funded by the Newton Fund Impact Scheme Grant (recently renewed). He collaborates with **Dyall**, who is leading a project on the role of omega-3 fatty acids combined with other nutrients for managing stress and anxiety in young adults.

(ii) *Cluster for Research in Social and Psychological Transformation (CREST)* (**Cooper, Davies, Hayes, Steffen, Rae J, Rae T**). Established in 2015, CREST's research in the psychological therapies and social policy is designed to develop knowledge on interventions and methods that support enhancements in psychological and social wellbeing. Our research is focused on themes around shared decisions with clients and personalisation, empowering children and young people, and engaging with death, dying, and bereavement. Led by **Cooper**, the cluster has recently completed an ESRC-funded (£835,000) multicentre trial of school-based humanistic counselling in adolescents. Findings from the 'Effectiveness and cost-effectiveness Trial of Humanistic Counselling in Schools: Individual RCT (ETHOS)' trial have been published in *The Lancet: Child & Adolescent Health* (January 2021). As well as individual research activity, CREST holds regular meetings to coordinate research activity, a monthly seminar series, and annual conferences (most recently on pluralistic counselling and psychotherapy). We facilitate public exchange through social media and provide a bank of resources for practitioners. A principal activity of CREST is also the psychotherapy research clinic. Research by CREST members has been published in leading international journals in the psychotherapy field, such as the *Journal of Consulting and Clinical Psychology*, and *Clinical Psychology: Science and Practice*. CREST has hosted 12 PGR students since 2015, all of whom are regularly engaged in activities such as organising seminars and workshops. **Cooper** has also been funded by the Health Foundation and British Association of Counselling and Psychotherapy (BACP) for work on school-based counselling interventions and for the development of a psychotherapy preference tool. **Steffen's** work has advanced the development of meaning-centred therapy for bereavement and **Hayes** has conducted work around psychological and relational approaches to hearing voices, the experiences of continued presence in grief and child and adolescent psychotherapy process research. **Davies** and **Rae** have collaborated to explore the scale of benzodiazepine and Z-drug usage in the UK, complementing **Davies'** exploration of prescription drug use and over-use, and providing data contributing to the Public Health England review (2019) and The National Institute for Health and Care Excellence response (2019) on this topic.

(iii) *Cluster for Applied Research and Assessment in Child and Adolescent Wellbeing (CARACAW)* (**Essau, Mayer, Lucas, Jackowska, Thrower**). CARACAW was established in 2008 with the aim of improving the social and psychological wellbeing of children, adolescents, young people and their families, through innovative research into public health, health services, policy and practice and mobile technologies. CARACAW research is focused on the following themes: applied family research; research related to culture and cross-cultural psychology; promoting social and psychological wellbeing via new interventions; personality and early life experience. Impact is central to the work of CARACAW, and we have received funding from the ESRC, the MRC, The European Commission, The British Council and Wandsworth Borough Council. Led and developed by **Essau**, the 'Super Skills for Life' (SSL) programme is a resilience-building programme that has been rolled-out within the UK and in all the schools in the state of Penang, Malaysia, supported and funded by the Penang government. This research has had considerable impact and has been funded by the GB Sasakawa Foundation and more recently the ESRC (in collaboration with University of Surrey and King's College London) and has been published in leading international journals (e.g. *Social Psychiatry and Psychiatric Epidemiology*, *Journal of Autism and Developmental Disorders*, *Journal of Affective Disorders*, *Journal of Memory and Language*). **Jackowska** has published extensively on the relationship between sleep and mood using data from large cohort studies, and **Lucas** and **Mayer** have conducted work examining reading and learning in children with Autistic Spectrum Disorders (*Sleep Medicine, Psychological Medicine*). **Thrower** investigates the psychosocial development of young athletes and parenting in sport, including issues such as the stressful nature of youth sport for young athletes and the negative impact this can have on their experiences and involvement. **Essau** organises an annual international conference entitled 'International Conference on Child and Adolescent

Psychopathology' (ICCAP). Since starting in 2006, ICCAP has been a major platform for disseminating new research and best practice and is at the forefront of promoting research to improve practice in young people's health.

(iv) *Cluster for Animal Behaviour and Emotion Research (CABER)* (**Semple, Berbesque, Lehmann, McElligott, Marshall, Perna**). CABER brings together researchers who study the social behaviour and emotionality of animals. In line with the unit's overall strategic aims, a key focus of this work is to explore the factors affecting health and mental wellbeing in such systems, informing understanding of health-related issues in modern society. CABER conducts research into sociality and wellbeing, emotion and welfare, evolution of cooperation, communication and coordination. We have secured research funding of approximately £382,000 from Innovate UK/BBSRC, NC3Rs/BBSRC, Leverhulme Trust, British Academy, EU, Royal Society, National Science Foundation, John Templeton Foundation, Farm Sanctuary, Fondation Fyssen, Swiss National Science Foundation, LSB Leakey Trust, Association for the Study of Animal Behaviour, The Carter Center and Santander. CABER researchers have published in leading journals including *Proceedings of the National Academy of Sciences*, *Current Biology*, *Proceedings of the Royal Society London*, *Evolution and Human Behaviour*, and *Trends in Cognitive Sciences*. **Lehmann** explores the link between sociality and wellbeing in wild macaques and, in conjunction with **Berbesque**, also investigates such links in Hadza hunter-gatherers. **Semple** and **McElligott** explore emotion, stress and welfare in a range of non-human animals (monkeys, goats, horses), providing new insights into the evolution of complex emotional capacity, and informing debates around animal wellbeing. Working with CCNNI colleagues, much of their work adapts methods from human studies (e.g. judgment bias task, emotional Stroop tests) for use in other species. **Marshall** and **Lehmann**, working with wild macaques, baboons and banded mongooses, have made ground-breaking discoveries about the evolution of cooperation. **Berbesque** has also provided similarly critical insights in this area through her work as a member of 'The Human Generosity Project', a large-scale transdisciplinary project investigating for the first time the interrelationship between biological and cultural influences on human generosity. **Perna** and **Semple** explore fundamental questions around communication and coordination in gregarious species, with theoretical and empirical work revealing important common principles underpinning the social behaviour of humans and other animals.

Coordinating research activity and support

The integration, planning and support for the work of our four clusters is overseen by an executive committee (**Allen, Cooper, Essau, Semple**) that works with the Head of Department and research support staff to provide research governance. The committee's primary role is to ensure research activity is in alignment with our strategic aims, to promote interdisciplinary approaches to research and bidding, and to allocate seed funding for projects that meet these criteria. Two members of the committee (**Allen** and **Semple**) also participate in a University-wide forum, as Research and Knowledge Exchange Leads, that facilitates the management of researchers who sit in different departments to their research unit and supports the identification of potential research affinities and interdisciplinary collaboration. The unit's research activities are further supported by the University Research Office, which supports bidding and facilitates the development of networks and partnerships. A bi-weekly unit-level seminar series is held to encourage a broader disciplinary understanding amongst staff. The seminar series attracts world-leading speakers from within and outside the UK, e.g. Professors Sophie Scott (UCL), Dame Vicki Bruce (Newcastle), Avi Reichenberg (Mount Sinai, New York), Kenneth Hugdahl (University of Bergen), Lucy Johnstone (Bristol). During the pandemic, the Departmental Seminar Series has been hosted online and has attracted around 300 attendees for each seminar from institutions and clinics across the UK.

Impact strategy

Our research is both fundamental and applied, and our approach to impact starts with targeted and sustained relationships with potential non-academic beneficiaries of our research who include: i) people who experience health and mental health difficulties; ii) practitioners, mental health professionals and associated policy makers; iii) commercial organisations working to increase accessibility to health and mental health interventions; and iv) facilities that look after animals. We work with our beneficiaries to understand their needs and objectives and focus our research

accordingly (e.g. our partnerships with McPin Foundation, Youth Access). The unit is also engaging with local stakeholders (e.g. Roehampton Youth Centre and Alton Green Regeneration). Research with the potential to have impact in clinical settings or at policy level is also identified and developed at the outset of research projects. Our three Impact Case Studies exemplify this approach. For example, through working with the Department for Education, **Cooper's** ESRC funded ETHOS study was designed to have direct impact on school counselling programmes and associated governmental policy; **Essau's** work has increased access to evidence-based mental health interventions for young people by underpinning the development and dissemination of 'Super Skills for Life', which to date has produced positive mental and emotional health outcomes for 10,661 children and young people across 13 countries. Recently, led by **Davies**, the unit has worked with a range of stakeholders (APPG, BPS) to produce a documentary film, *Medicating Normal*, as part of guidance for psychological therapists, that enables conversations with clients taking or withdrawing from prescribed psychiatric drugs.

Research findings with strong impact potential are identified in advance of publication, and we liaise with the University communications team to determine the most effective means for engagement with print, broadcast and online media, in particular seeking coverage in places that set the news agenda (e.g. BBC Online, AP news, Radio 4 *Today* programme). This approach has led to very extensive coverage of research projects including the work on antidepressants by **Davies** (e.g. Sky News, *Newsnight*, BBC Online, *The Times*, *The Guardian*, *The Telegraph*) and chimpanzee gestural communication by **Semple** (e.g. *Today* programme, BBC World News, *The Times*, *The Guardian*). Our successful dissemination strategies have been crucial to increasing the profile of our research, which has helped sustain existing collaborations and catalyse new partnerships.

Staff involved in impact related work are eligible for substantial workload allowance and support to allow for the development of ongoing and new impact and PhD bursaries have been awarded to support collaborations and research with impact potential. An example of how the unit embeds pathways to impact into our research is an NC3Rs funded project, 'Attention bias: a novel method to assess psychological wellbeing in group-housed non-human primates' (2014-2015, £74,000 - **Semple**, Co-I), which was designed and carried out in close partnership with an end-user of the research, the Medical Research Council's Centre for Macaques. The results of this study were translated into beneficial changes to the housing and husbandry of laboratory-housed primates. Recent external bids such as **Allen's** 'Identifying the cognitive-emotional mechanisms underpinning the onset of COVID-19 related anxiety' have also embedded impact by involving policy advisors, in this case the King's College London Policy Institute. To ensure that we continue to support the vitality and sustainability of our impact in the future, we will strive to create links to a greater number and diversity of end users. Nascent impact work will continue to be supported by departmental funding. We have already identified a number of studies with significant impact potential, including continuations of our existing high-impact work, led by **Cooper**, **Essau**, and **Davies**, respectively, which will be extended through new research collaborations. New research impacts addressing the effects of COVID-19 on the mental health of the general population (**Allen**) and on NHS staff (**Gilleen**), have also been invested in through internal pump-priming funds.

Supporting interdisciplinary research

Developing a unique brand of interdisciplinary research – across the areas of cognitive science, neuroscience, therapy, and animal behaviour research – is central to our future strategic aims. Members of the unit are strongly encouraged to explore questions that require interdisciplinary approaches both within and beyond the expertise in our clusters. To foster such work, we regularly invite speakers working across disciplinary boundaries to contribute to our seminar series, and in our research cluster meetings we use brainstorming sessions and discussion of new papers and emerging issues in order to identify topics. Departmental seed funding is available to support and facilitate interdisciplinary research ideas with potential and to encourage collaborative research projects across our clusters. For example, **Allen** and **Cooper** are developing neurocognitive outcome markers to measure therapeutic efficacy, while **Gibson** and **Essau** are working to develop wellbeing interventions (based on diet) to improve mental health outcomes in children and adolescents both nationally and internationally (funded by Newton Foundation). More broadly,

unit members are working with colleagues in the Life Sciences, Arts, and Humanities to address societal priorities around understanding and enhancing adolescent mental health and well-being through novel interdisciplinary approaches and interventions (**Cooper, Gibson**). To further facilitate this the unit has established strong partnerships with the local NHS Trust (Wandsworth Child and Adolescent Mental Health Service [CAMHS]), and national, local and youth organisations (e.g. Youth Access, Roehampton Youth Centre).

Open research

We recognise the benefits of open access research and data, both to promote a health research ecosystem, and as a way to extend the utility of our research beyond the academic environment. Since 2014, we have made significant steps towards fostering a more open research environment, which has also supported the reproducibility agenda by allowing for the publication of studies reporting negative results. We have a commitment to open data where this is feasible and ethically appropriate, with data from several studies uploaded and available via the Open Science Framework (e.g., Morgenroth et al., 2019, Sandrini et al., 2018). A notable example of open access data is the ESRC funded study 'Effectiveness and cost-effectiveness trial of humanistic counselling in schools for young people with emotional distress' (**Cooper**), which is publicly available via UK Data Services. Allowing for reuse and secondary analyses, we have also implemented a data archiving and sharing initiative for all MRI studies conducted since 2015. This has recently led to the publication of a study in *Addiction Biology* (Faulkner et al., 2020), with several other outputs using this resource in preparation. Further, a significant replication study using MRI data in people with a clinical risk for psychosis was published in *Schizophrenia Bulletin* in 2018 (Allen et al., 2018). The unit has achieved 94% open access compliance and the number of outputs from the unit for which all data were made publicly available and/or are pre-registered rose from 0 in 2014 to 12 in 2020 e.g., outputs co-authored by **Gibson** (*British Journal of Nutrition*), **Sandrini** (*Cortex*), **Allen** (*Cortex*), **Cooper** (*Lancet Child and Adolescent Health*). In order for all unit members to be informed of the nature, tools and benefits of open research, we have appointed a member of our academic staff (**Gibson**) to support and facilitate open research/science within the department, including the delivery of workshops and seminars on open science and data sharing initiatives.

Research integrity

We are committed to maintaining the highest standards of research integrity and rigour. All human research complies with the Declaration of Helsinki and with the British Psychological Society's Code of Ethics and Conduct (2018). In addition, we adhere to the University of Roehampton Ethics Guidelines and the Code of Good Research Practice and Research Integrity in accordance with the revised Concordat to Support Research Integrity (Universities UK, 2019). All ethics applications are overseen and scrutinised at institutional and departmental levels. Furthermore, in considering ethical issues surrounding animal research, we follow the guidelines of relevant professional bodies or scientific societies, e.g., *Association for Social Anthropology ASA ethical guidelines*, *International Primatological Society code of best practices for field primatology*, and the *Association for the Study of Animal Behaviour guidelines for the treatment of animals in behavioural research and teaching*. Work cannot begin until approval has been given, and any substantive changes to the project require sign off by the relevant ethics group. As part of the ethics application process, a health and safety declaration must be made after associated risk assessments have been completed and approved. All research staff are also required to attend research ethics, integrity and best clinical practice workshops.

Future strategic aims

Our primary aim for the next five years is to utilise our diverse expertise to develop a programme of world-leading interdisciplinary research across our areas of core research strength, including through collaboration with other university departments and external collaborators (both academic and non-academic) in order to address fundamental research questions relating to mental health and wellbeing. We will ensure that our research strategy is positioned to meet changing and evolving societal needs, and strategic funding priorities, by:

- Nurturing an interdisciplinary and cross-departmental research programme to address issues around mental health and wellbeing. A particular focus is to facilitate collaborations between staff researching human and animal behaviour/emotion.
- Further aligning our research with the strategic priorities of the external research environment, particularly around well-being and adolescent mental health in our local community, to support external investments in our research. For example, staff in the unit are currently developing an innovative collaboration with St George's NHS Trust and other local stakeholders to develop novel, user-led interventions to improve mental health and well-being. We have also begun a partnership with the National Society for the Prevention of Cruelty to Children (NSPCC).
- Ensuring the continued sustainability and viability of our impact strategy, by increasing the significance and reach of our research impact, engaging with a wider range of potential beneficiaries and creating links to a greater number and diversity of end users. We are currently building collaborations with commercial, charity, government and clinical organisations with a view to developing new impact pathways to ensure the future real-world benefits from our research.
- Developing inclusive research cultures, by actively supporting diversity in research careers, including interventions to support transitions from our UG and PGT community to PGR study, and also through supporting the transition from PGR to ECR for underrepresented groups in STEM.

Our future strategy for research, impact and knowledge exchange was designed and launched prior to the effects of the global pandemic. We remain committed to its delivery, however we will also take advantage of the opportunities afforded by new working practices, such as the virtual seminars we have rolled out with great success in 2020-21, which extend our intellectual reach.

2. People

Staff support and wellbeing

All staff returned to this unit are on permanent contracts. Currently, all research staff have 30-40% research time allocation (pro-rata), and are eligible for sabbatical (one term on a three year rotation). All research staff are assigned a research mentor and supported to develop a clear and achievable research plan (for the next 3-5 years). Staff appraisals are carried out annually, with research plans for the upcoming year and longer periods discussed and agreed. A key aim of this process is to identify training and other needs, in order to facilitate staff development. In addition, the specific criteria, milestones and benchmarks for promotion are identified and discussed, so that staff are clear how they can progress in their careers to become future research leaders. Staff wellbeing is delivered through our college system. All staff are affiliated to one of our four colleges, who provide research events, community building opportunities, and dedicated Wellbeing Officers for staff. All staff and PGRs have been offered mental health first aid training in 2020, whilst dedicated research staff and PGR wellbeing sessions have been delivered on mental health.

Staff recruitment strategy

Our recruitment strategy, underpinned by the core principles of equality, diversity and inclusion, aims to attract colleagues who show evidence of delivering - or the greatest potential to achieve - world-leading research, and whose work both complements our existing strengths and facilitates new intra- and interdisciplinary collaborations. In line with this, and our strategic objectives, we have invested in the recruitment of hi-calibre research staff, appointing 17 (16.6FTE) new research staff since 2014, with a strong focus on high achieving ECRs who can contribute to existing, and develop new, areas of research excellence (**Faulkner, Lucas, Jackowska, Hayes, Marshall, Perna, Sahai**). We have recruited and retained the most talented therapists, psychologists and neuroscientists, providing them with excellent facilities in a supportive, intellectually stimulating and vibrant environment to maximise their research development and to ensure the long-term sustainability of the unit. New staff are supported to generate external income appropriate to their career stage, and to establish collaborations within the unit and outside the University. Demonstrable experience of public engagement and knowledge exchange are also important criteria in new appointments. All new researchers take part in University induction and welcome

sessions and are given experienced research mentors to assist them in their planning of immediate projects and longer-term goals. In accordance with the unit's strategy, we have both enhanced our existing strengths and developed key areas. For example, in addition to the appointment of **Allen**, CCNNI research has been strengthened by the strategic appointment of staff with track records in cognitive neuroscience related to health/mental health, i.e. fMRI, EEG, tDCS (**Sandrini, Gilleen, Fuggetta, Faulkner**), three of whom have been awarded PhD student bursaries to further support our research in this area and to develop and expand supervisory experience for these staff. In addition to **Cooper**, appointments have also been made to strengthen therapies and counselling research (**Steffen, Hayes**).

Equality, diversity and inclusivity

Our research strategy embeds equality, diversity and inclusivity (EDI) in its staffing, research culture, and support mechanisms, implementing University policies and legislation relating to equality, diversity and anti-discrimination. We are committed to providing a culture and environment in which the principles of EDI are applied in all areas relating to the recruitment and support of our staff and research students. The Head of Department and the members of the unit's executive committee are all trained in EDI and implement the University's Equality, Diversity and Inclusion policy to ensure that recruitment, promotion, sabbatical, and funding decisions are made equitably. It is a requirement that new staff undertake a Diversity in the Workplace training course as part of their induction to the University, and existing staff are strongly encouraged to take the training, with completion rates being monitored carefully. We ensure that all members of long-listing, short-listing and interview panels have received unconscious bias and EDI training, and that such panels are gender balanced. The same considerations apply in promotion and bidding processes. Senior staff provide bespoke support, for example, in relation to the allocation of duties, timing of work, relieving pressures of internal deadlines and ensuring that workspaces are appropriate. The distribution of internal research support funds is always made with EDI in mind, to ensure that individuals' needs and circumstances are considered. Remote and flexible working are supported, with particular consideration and accommodation given to those with family or other caring commitments. The move from full-time to part-time and *vice versa* is supported wherever possible, as commitments or personal situations change. Periods of parental leave, caring duties, illness or other personal circumstances are taken into account when determining workload allocations for research staff, when considering applications for conference and research-related travel, and in evaluations of requests for training funds. Where feasible in these situations, teaching duties are shifted or some teaching/administrative duties are relieved, to free up more substantial blocks of time for research. Part-time and fixed-term staff are fully supported, with pro-rata expectations for progression. We also support progress to research posts via a Professional Development Scheme that provides 30% time in their workload to develop nascent research where it aligns with the unit's strategic objectives.

The unit is currently comprised of 35% female researchers (9.4 FTE female staff, 19 FTE male staff). Female staff returning from maternity leave (three since 2014) have been supported by a reduced teaching workload and accelerated sabbaticals to allow greater focus on their research responsibilities. Appropriate representation on committees is ensured so that gender balance on them reflects the gender balance in the unit. A member of our research staff (**Steffen**) has a role for monitoring and addressing issues relating to equality and diversity in the unit. In terms of ethnic diversity, the unit is currently comprised of only 7% BAME staff, although this figure rises to 25% for our professoriate. We recognise that our ethnicity profile highlights a lack of diversity. In order to address systemic inequalities in the discipline, future recruitment will use positive action to identify and actively encourage applications from BAME candidates. Our PGR cohort is more diverse, with 82% of our completed PhD and PsychD students being female. In addition, we are making steady progress in supporting inclusive practices to support a pipeline of diverse talent. 19% of our completed PGRs identified as BAME, and this figure rises to 27% among our current cohort. We are committed to further addressing the sector-wide structural issues around research career paths for underrepresented groups and are currently exploring mechanisms whereby we can support our PGRs who identify as BAME to make the transition to ECR.

Our selection of outputs process was accompanied by a robust equality and diversity analysis to ensure decisions had no adverse effect on staff with protected characteristics. We are submitting 66 outputs in total, of which 32% were produced by female staff, 11% by BAME colleagues and 6% by staff who identify as LGBTQ+. We have striven for an inclusive, balanced submission comprising the work of researchers at all career levels: 8% were produced by Lecturers, 41% by Senior Lecturers, 21% by Readers and 27% by Professors.

Mentoring, development and reward of research staff

A peer mentor scheme is in place for all research staff. Mentoring is conducted by senior researchers (**Allen, Semple, Cooper, Essau**) and is organised around disciplinary themes, e.g. **Allen** mentors research staff conducting cognitive neuroscience work, **Cooper** mentors staff working in the psychology therapies etc., or career priorities, for example the development of impact. Each mentor is assigned 6-7 mentees including ECRs. As part of the mentoring arrangement, staff complete individual research plans and meet with their mentor regularly (a minimum of three times per year) to discuss progress towards their research goals and the potential of their work for impact and ways in which that impact might be developed. Recognition of research and its strategic importance is supported through the distribution of staff development funding. Our reward for research performance is primarily delivered through promotion, which is benchmarked against clear expectations for academic roles. During the current REF cycle, 11 of our staff have been promoted, including two promotions to Reader in recognition of the quality of their research activities (**Aksentijevic, Berbesque**). Unit members are supported with one-semester sabbatical every third year, during which time they are relieved of teaching and administrative duties and allowed to fully focus on research and impact activities. 22 unit members have benefitted from at least one sabbatical since 2014. Sabbaticals are often used to prepare outputs for submission, external funding bids and/or to establish overseas collaborations and partnerships. We have incorporated impact as a key part of individual staff research plans. It is formally recognised in the criteria for appointments and promotions, and we hold regular workshops and seminars focusing explicitly on impact. We draw on our unit's unique expertise in psychotherapy by running activities where practitioners and research staff share and explore one another's work. We also hold a competitive annual small research grant (SRG) to support seed funding for new projects (24 x £3,000 awards since 2014). ECRs are particularly encouraged to apply for our SRG and are prioritised when it comes to distributing funds. Support is also available for attending conferences and the importance of this activity is recognised through an £800 allowance to any member of staff presenting (poster or oral presentation) at a national or international meeting.

We promote the exchange of staff between academia and appropriate professional contexts through the flexible use of sabbatical time, the ability to reduce FTE of individual posts, and the use of honorary fellowships. We also have mechanisms to support those entering higher education, through the provision of a year-long Professional Development Allowances, which can provide dedicated workload allocation of up to 30% to support the transition to a research career. Our seminar series and Graduate School training programmes also include practitioner or professional speakers to encourage mutually supportive networking. Research Impact Officers also support these relationships once established and prioritised by the executive committee and Head of Department.

Support for new staff and ECRs

All new staff are supported through their probationary period with clear objectives in relation to research, and additional workload allocations to support their integration in the unit. Meetings with research mentors and line managers support probation and annual appraisals, which offer structured opportunities to discuss career development and resources to support it. ECRs are assigned a mentor expert in their research field, with enhanced support through more regular meetings. In addition to research mentoring, mentors advise ECRs on career development, research supervision and training opportunities. To assist with the establishment of their research careers and their integration into our research culture, ECRs have reduced teaching and administrative loads during the first year of their appointment formalised through workload arrangements. ECRs are also incorporated in PhD supervisory teams as co-supervisors. New staff

have access to start-up funds for research and to all facilities, including MRI scans (if needed) for pilot studies. All ECRs are supported with access to accelerated research sabbaticals within their first three years of employment, subject to appropriate timing to best support their research.

Post-doctoral research workers and research assistants

Since 2014, the unit has hosted six Post-Doctoral Researchers and four Research Assistants supported by external grants and strategic investment. On appointment, all Postdoctoral Researchers/Research Assistants are assigned a mentor to provide advice on research and career development. New research staff attend workshops in the targeted Research Development series on topics designed to meet their needs. Post-docs in the unit have had successful career trajectories, and we actively support staff with clear progression routes and development opportunities. Post-docs Stafford and Orlov have subsequently been recruited as ECRs in our unit (Stafford, left 2020) and at other institutions (Orlov). Research assistants working in the department have embarked on clinical psychology training (Barker).

Research students

PGR recruitment is facilitated through open competition for all funded opportunities, and PGRs are able to approach the Graduate School to identify appropriate supervisory teams. All PGR applications are supported by the Research Degrees Convenor and the Head of Department. PGRs are only recruited where projects align to staff expertise and research strategy. We have a vibrant, diverse and international PGR student group comprising PhD and PsychD students that has grown since 2014. In the REF2014 cycle, the unit had 38 PGR completions. In the current REF cycle 142 PGRs have completed: 44 PhD and 39 PsychD students have been returned as part of our REF2021 submission. An institutional reporting error to HESA between 2013/14 and 2017/18 incorrectly categorised a further 59 PsychD completions (8 in 2013/14, 15 in 2014/15, 25 in 2016/17, and 11 in 2017/18), which were not returned as research degrees.

PhD students are supported through a competitive unit-level bursaries scheme and a Vice Chancellor's scholarship scheme that has provided £1,220,600 worth of funds in the current cycle. The unit has also secured individual bursaries from the BACP, The Leverhulme Trust and the Roehampton University Sacred Heart international PGR scheme. Careful attention is paid to ensuring that doctoral students are well integrated into the research environment. They are provided with research and travel budgets and are encouraged to develop work for publication; they are provided with dedicated computer-equipped desk space and full access to all our research facilities; and they are full members of our research clusters, participating in all activities and working collaboratively with research staff. PGRs who have completed since 2014 have taken up post-doctoral positions at King's College, London, Edinburgh Napier, Bangor, Sussex, and the École polytechnique fédérale de Lausanne.

PGRs have two or three supervisors. One of these is designated Director of Studies (to qualify for this role, at least one student must have been supervised to completion), and this individual is responsible, where needed, for mentoring less experienced supervisors. All supervisors undergo mandatory training, comprising a two-day programme *Supervising Postgraduate Research*. Overseas training placements have been established with funding support from the Experimental Psychology Society (i.e. University of Basel [computational modelling] and Utrecht Medical Centre [Clinical Trials]). Bursary students gain valuable experience as teaching assistants, demonstrating practical sessions, and marking first year research reports. Our PGRs benefit from being members of a cross-University community, through the training and events offered by the Graduate School. All PGRs are required to undertake the Graduate School's Research Student Development Programme which comprises a series of workshops providing methodological, academic writing, ethical and career development training. Funds are available for every PhD/MPhil student to attend one international conference and they are encouraged to attend and present at least one national or international meeting per year. PGRs are encouraged to acquire new research techniques and use our equipment, and colleagues organise workshops on methods/techniques (e.g. eye tracking, EEG, MRI, transcranial stimulation) that PGRs are encouraged to attend. Students using fMRI facilities for their PhD/MPhil projects have free scanning time. This arrangement has led to several peer-reviewed journal publications, e.g. *Neuroimage* (Horne et al.

2018), *Cortex* (Morgenroth et al. 2019). We create opportunities for research students to participate in the academic life of the unit. Research students feature prominently at our annual PG research event during which they are required to present their work (3-minute presentation) to other PGR students and colleagues. All PGRs present their work at research cluster seminars, and they are expected to provide a 3-minute 'thesis presentation'. We also have our own induction to welcome new students in September/October and January.

3. Income, infrastructure and facilities

Income

Research income has been a major strategic priority for the unit since 2014, and both bidding and bidding success have seen significant increases. In the current REF period grant capture has increased to £1,940,000, whilst research income stands at £1,905,431. This represents an approximately four-fold increase on the £431,643 research income reported to REF2014, and these external funds have supported a number of ground-breaking research projects across our multidisciplinary unit.

Our strategy has prioritised bidding for funds to support health and mental health related research and has been enabled by our effective and well-integrated research support structures, including mentoring and planning processes, in which individual staff are teamed with senior colleagues with track records of bidding success, a peer review and development process for bids at unit and university level, and a dedicated Research Development and Impact officer attached to the unit from the Research Office to assist in planning, timing and management of bids. Two areas of increased focus in the period have been the designing of bids to maximise the reach and significance of impact on non-academic audiences, publics and industry partners, and the development of Knowledge Exchange activities and links with external bodies in line with the University's Research Impact and Knowledge Exchange strategy (2020). This is already bearing fruit and will drive research bidding in the coming period. We have also sought to diversify our funding sources, particularly where our research enquiries have provided clear clinical or policy applications.

Since 2014, our research has been funded by the UKRI and UK Charities, including through the ESRC for 'Effectiveness and cost-effectiveness Trial of School-based Humanistic Counselling', £830,000 (**Cooper**) and 'A multi-perspective analysis of university students' personal mental health and well-being capital and its effect on their life outcomes', £217,581 (**Essau**); the Newton Foundation/Medical Research Council for an intervention to improve healthy energy balance-related behaviours in 4-6 year old children in rural and urban settings in Malaysia, £310,553 (**Gibson**); the British Academy/Leverhulme Trust and Rosetrees Trust for 'Attentional bias modification for trait anxiety using real-time fMRI neurofeedback', £61,100 (**Allen**); the BBSRC for 'LIVEQuest: A self-contained wearable Internet-of-Things System for Precision Livestock Agriculture', £20,752 (**McElligott**) and the Leverhulme Trust for 'Emotional awareness as a basis for social success in a non-human: the domestic horse' (**Semple**). Evidence of diversification of research income in applied settings can be seen in grants from Wandsworth Clinical Commissioning Group for 'Evaluation of Super Skills for Life intervention' (**Essau**), The Health Foundation for 'Helping Young People Thrive: implementing a person-centred model of care for Young People's Mental Health' (**Cooper**); the Experimental Psychology Society (**Brant, Allen**) and the BACP (**Cooper**).

Staff are also encouraged and supported to develop research with peers in other institutions and are Co-Is and/or seconded researchers on approximately £2m of funding awarded to other institutions for major research projects since 2014 (including MRC, Wellcome Trust [**Allen**], Marie-Sklodowska-Curie Fellowship [**Sandrini**], King's Health Partners [**Gilleen**]), which has led to cutting edge research, outputs and impacts. ESRC funding (**Cooper** and **Essau**) has enabled research that is impacting policy and practice around school counselling and the development and implementation of psycho educational programmes for adolescents. MRC/Newton Foundation funds have supported international research that aims to improve diet in pre-school children. BBSRC and Leverhulme Trust funding (**McElligott** and **Semple**) has informed models of animal

behaviour and emotion and British Academy/Rosetrees Trust funding has facilitated the development of innovative neuroscience (non-pharmacological) approaches to the treatment of anxiety. We will seek more diverse funding opportunities through collaboration, and actively seek the development of industry-partners and a concomitant portfolio of Knowledge Transfer Partnerships.

Facilities

The unit enjoys a wide range of facilities and research infrastructure. Our largest facility is the *Combined Universities Brain Imaging Centre* (CUBIC: <http://www.cubic.rhul.ac.uk/>). As members of the CUBIC regional HEI consortium (Roehampton, Royal Holloway, Brunel, Surrey), we own and run a 20% share in the research-dedicated Siemens TIM Trio MR scanner sited at Royal Holloway University of London. This represents a significant contribution to our physical infrastructure and has undergone a complete upgrade in 2014 (at an overall cost of £329,000), now providing cutting-edge capabilities across the full spectrum of MR imaging modalities (anatomical, BOLD fMRI, DTI and MR spectroscopy, real-time fMRI neurofeedback and tDCS compatible systems). The scanner is accessible to all unit staff and PGR students. CUBIC supports much of the cognitive neuroscience work that is taking place in CCNNI, including several projects examining neurobiological factors related to mental health and wellbeing. We also have access to research cubicles with dedicated computers and a large *Cognition Laboratory* (155 square metres) that houses two dedicated EEG suites, one dedicated rTMS suite, a dedicated Eye-tracking suite and two psycho-physiological suites (equipped for blood and saliva collection). Additionally, the laboratory has 12 Windows networked machines (for research only) and licences for a range of research software (e.g. E-Prime, Superlab, Brain Voyager, SPM and LCMoel [MRI analysis], Matlab, NeuroScan Package [EEG software tool], EEG Lab [EEG software tool]). Since 2014, we have invested £181,500 in new research equipment. CARACAW also conducts research in local schools (Wandsworth, London) and has access to millisecond software and video equipment for data collection. To facilitate the unit's counselling and therapeutic research the *CREST Clinic* is a fully functioning psychotherapy research clinic based within the unit. It has two large consulting rooms, each equipped with furnishing, whiteboards, and personal alarms as appropriate to a psychotherapy service. Data is stored and managed by the 'Pragmatic Tracker' data management system. One of the consulting rooms is equipped with four ceiling-mounted HD video cameras that are used for video capture of individual and group psychotherapy sessions. Annual funds are made available to research clusters for equipment, and time on the MRI scanner for pilot work is subsidised. We intend to continue our partnership and funding arrangement with CUBIC (approx. £45,000 per annum to cover staff, insurance and maintenance costs), and are currently seeking funding to upgrade the MRI scanner at CUBIC.

4. Collaboration and contribution to the research base, economy and society

Collaborations, advisory and consultancy roles

To advance our strategic aim of enhancing understanding of factors that influence health, mental health and wellbeing, we seek to ensure that the outcomes of our research benefit a wide body of users, including scholars, practitioners, patients, institutions, policymakers, publics and industry, both nationally and internationally. To this end, staff collaborate with a wide variety of peers, research users and organisations. They play a key role in a range of academic and non-academic projects, and undertake a variety of advisory and consultancy roles, to maintain and further the excellence of our research and to ensure the vitality of the field and to realise the public benefits of our findings.

Advisory and consultancy roles: To engage with and advise upon national and international policy, unit members act as expert advisors and consultants for several national and international organisations related to mental health and/or adolescent mental health and wellbeing. **Essau** is a member of the United Nations Office on Drugs and Crime (UNODC) advising on Family Therapy for Juveniles with Drug Use Disorders. **Gibson** advises Abbott Nutrition, the International Life Sciences Institute and the Natural Hydration Council, and **Cooper** is a National Advisor for Counselling for Children and Young People's Improving Access to Psychological Therapies (Department of Health/NHS England). The unit also has strong collaborative international ties with

policy makers and practitioners in the Malaysian Department of Education, where **Essau's** psychoeducational programme has been implemented in over 700 schools, and engages with commercial and charity partners to further our strategic aims and objectives, i.e., Thrive and the NSPCC's 'Sharing the Science' initiative (**Allen/Cooper/Essau**).

Academic Collaborations: Academic collaborations are also aligned with the unit's strategic aims and members play key roles in large-scale international, multidisciplinary projects, in particular through grants held by staff as Co-Is and seconded researchers which further embed our work within international collaborative frameworks. Notable collaborations include those with the University of Durham on 'Hearing the Voice' (Wellcome Trust, **Allen**), a major interdisciplinary and multicentre project that facilitates collaborations between researchers and people with lived experience of voices; and, with King's College London on 'Neurobiology Underlying the Onset of Psychosis' (Wellcome Trust and MRC, **Allen**), which has produced research leading to a better understanding of how psychosis develops in the brain. Collaborations also include investigating the pro-cognitive effects of a novel compound in schizophrenia (IRCCS Fatebenefratelli Brescia, Italy, **Gilleen**), memory enhancement induced by tDCS in aging (**Sandrini**) and the ETHOS study which has established a collaborative network for counselling and psychotherapy research with the Universities of Manchester, Sheffield, UCL and LSE (**Cooper**). **Berbesque** is a member of the 'Human Generosity Project' (NSF and Templeton Foundation), a large-scale multidisciplinary research programme that employs diverse methodological approaches to explore the nature and evolution of human generosity. **Lehmann** has worked with an international team (colleagues from Veracruz, Michigan, Texas, Smithsonian, Neuchatel, Swansea, St Andrews) to explore fission-fusion dynamics in animals (*Proc Roy Soc B* 285, 20180532), developing new theoretical approaches and validating these with data from long term studies of wild animals. **Semple** works with colleagues from Barcelona, St Andrews, Neuchatel and Michigan on a project exploring linguistic laws beyond human language; this work has led to the proposal that compression may be a unifying principle underpinning the communication systems of all species, including humans (*PNAS* 113, e2750-e2758; *Proc Roy Soc B* 286, 20182900). Other notable collaborations that have enhanced our research environment and support our research strategy include the Icahn Medical School, Mt Sinai, New York, USA (**Allen**), Imperial College London and Faculty of Health Sciences, Universiti Kebangsaan Malaysia (**Gibson**), Idaho State University, Marquette University and the University of Scranton, USA (**Cooper**), and the University of Bergen (**Allen**).

Engaging research users, beneficiaries and audiences

To enhance and promote our reputation as a centre of excellence for health-related research, staff regularly present at national and international meetings and conferences and deliver guest lectures at external institutions. Several unit members have delivered keynotes internationally:

- **Gibson** at the 10th *Nutrition & Health Conference*, (Latvia, 2018), and *Conference on Family Wellbeing* (India, 2018);
- **Essau** at the 48th *Annual Congress of the European Association for Behavioural and Cognitive Therapies*, (Bulgaria, 2018), and the 7th *International Conference on Health Psychology* (Cuba, 2014);
- **Allen** at the 5th *International Consortium of Hallucination Research*, Chicago, (USA, 2016);
- **Cooper** at the *British Psychological Society Division of Counselling Psychology* (UK, 2019), and *BACP Research Conference* (2016);
- **Semple** at the *Association for the Study of Animal Behaviour* (UK, 2020);
- **Davies** at the *Towards Openness and Democracy in Mental Health Services, Open Dialogue Conference* (2015).

Essau has also established and leads *The International Conference on Child and Adolescent Psychopathology* and *The International Conference on Child and Adolescent Psychopathology, Malaysia*. These international meetings have established the unit as a leading global centre of excellence for research in this area. **Allen** is an inaugural and current steering committee member of the *International Consortium of Hallucination Research* (now in its 10th year) and **Cooper** organised the 2nd *International Conference on Pluralistic Counselling and Psychotherapy 2019*, and the 2016 *Embodying Social Justice* conference. Our strategy to maximise the coverage of our

research in electronic and print media has also underpinned a range of activities that draw attention to research discoveries and impacts for non-academic audiences. These include staff appearances on: BBC TV and radio (**Allen** discussing schizophrenia and auditory hallucinations, BBC *Horizon* 'Why did I go Mad?', 2 May 2017) and other outlets; **Gilleen** has appeared in the media discussing MDMA (Ecstasy) and how this affects pro-social behaviours; **Gibson**, through a blog on Nutritional Health. Through the period we have strategised the identification of clear pathways and plans for impact in research projects from their start. A current example in the proof-of-concept stage is work by **Allen** using fMRI neurofeedback (MRC/Rosetrees Trust) which has exciting impact potential for people experiencing mental health issues and for commercial organisations. This work has already attracted international media coverage from NHS Choices, BBC TV/radio, Sky News, *The Daily Mail*, and *The Metro*.

Contribution to the research base

Our staff and their research have been recognised by a number of awards and honours. **Essau** was awarded the British Medical Association Medical Book Prize and is a Fellow of the British Psychological Society, and **Cooper** has gained an Academy of Social Science Academician and Carmi Harari Mid-Career Award (American Psychological Association). Staff are active society members across a wide range of organisations engaged with health, mental health and wellbeing including: the British Association for Cognitive Neuroscience, Council for Allied Health Professions Research, Experimental Psychology Society, International Early Psychosis Association, British Psychological Society Developmental Section and the British Association of Counselling and Psychotherapy. In addition, unit members hold a number of prestigious visiting positions, including: Visiting Professor at the Icahn Medical School, Mt Sinai Hospital, New York, USA, and King's College London (**Allen**); Visiting Professor/Scientific advisor, Riga Stradins University, Latvia (**Gibson**); Visiting Professor, University of Adelaide, Australia, and Distinguished Visiting Professor, De La Salle University, Philippines (**Essau**).

All unit members are involved in *ad hoc* reviewing activity for international peer-reviewed psychology, neuroscience and psychiatry journals, specifically those publishing work aligned with health and mental health. These include *The Lancet*, *PNAS*, *JAMA Psychiatry*, *Psychological Science*, *Current Biology* and *Journal of Neuroscience*. Several unit members act as journal editors, e.g., **Essau** for *European Psychologist*, **Gibson** for *Frontiers in Nutrition*, **Cooper** for *Counselling Psychology Review*, **Allen** for *Frontiers in Human Neuroscience*. Unit members sit on national and international grant funding panels, e.g., **Allen** for the Irish Research Council and Institut Universitaire de France, Senior Fellowships Panel, **Brandt** for the Experimental Psychology Society, and **Essau** for the German Federal Ministry of Education and European Consortia for Horizon 2020. Members also conduct *ad hoc* reviewing for a range of funding bodies including the ESRC, Medical Research Council, Biotechnology and Biological Sciences Research Council, Netherlands Organisation of Scientific Research, National Institute of Health Research, British Council (Newton Programme), European Commission, European Research Council, British Academy, Swiss National Science Foundation, European Research Council, National Science Foundation (US), European Union (Marie Curie COFUND), AHRC, Primate Society of Great Britain, LSB Leakey Foundation, Social Science and Humanities Research Council (Canada), and the National Science Research Centre (Poland).