

**Institution: University of Portsmouth (UoP)**

**Unit of Assessment: 4 – Psychology, Psychiatry and Neuroscience**

## **1 Unit context and structure, research and impact strategy**

### **1.1 Unit context**

The submission comprises 47 colleagues (45.4 FTE, 30F:17M), of which 45 (43.6 FTE) are members of the Department of Psychology and 2 are affiliated to the Unit through active Research Centre membership. The Unit has established research strengths with international standing in forensic, comparative, evolutionary, developmental and ecological psychology. This is our sixth submission to UoA4. In REF2014 we were commended for our '*well-developed research strategy in terms of supporting current areas of excellence... gaining further external support for research [and] delivering future impacts of very considerable reach and significance*'. Through strategic recruitment of research-active staff (20 (13F:7M) since 2014) and enhanced support for existing staff [see section 2.2], we have been able to grow our submission by 25.5 FTE (128%). This increase in research activity has enabled the Unit to broaden its research focus, diversify funding sources, increase research income by 96%, extend the societal benefit of our research, and grow our postgraduate research student (PGRS) provision and completions by 292%.

### **1.2 Unit structure**

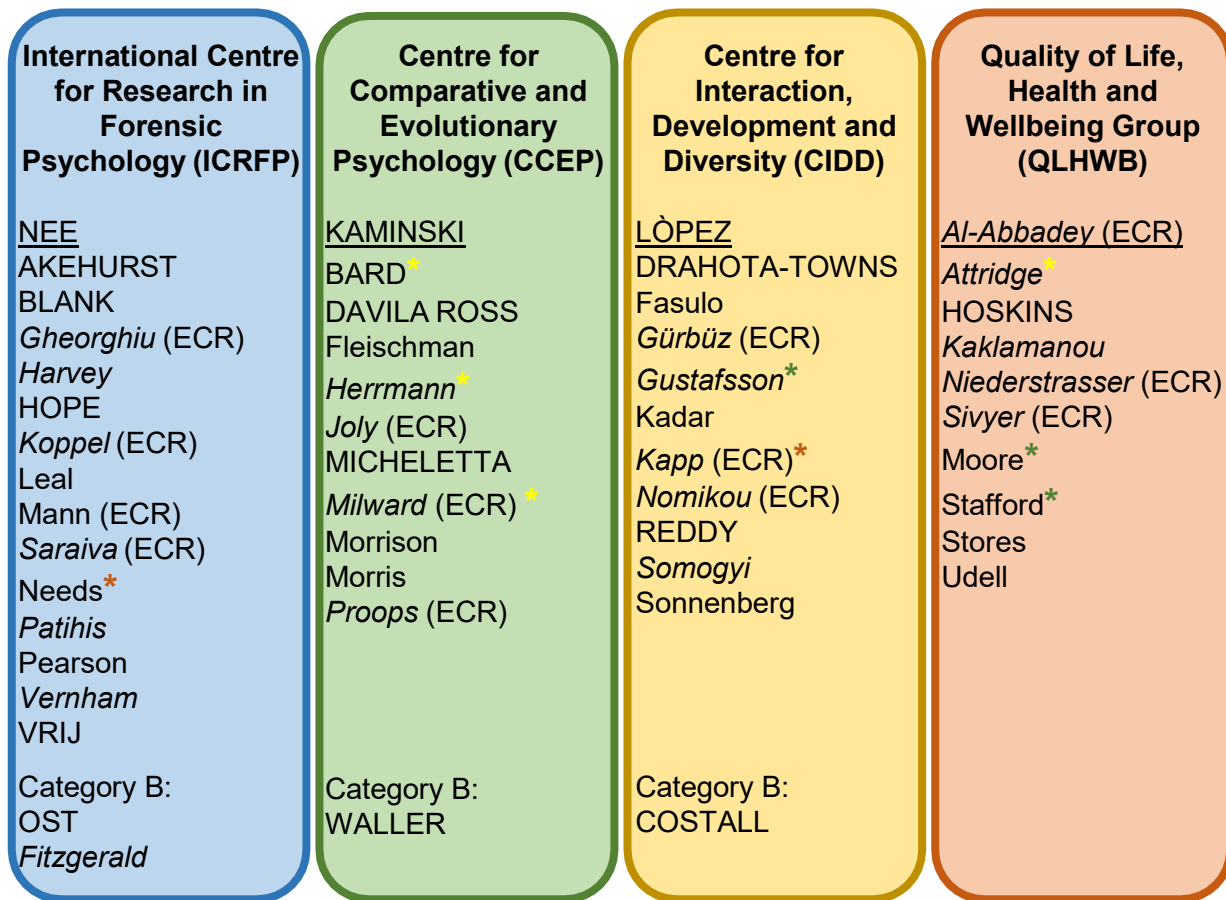
Our research strengths form the basis of the research centres/groups that play important roles in catalysing research by providing support, creating a stimulating research culture, sharing resources, and focussing expertise and reputation (Figure 1). These groupings reflect established expertise as well as areas of targeted investment where we have grown our capabilities, in consultation with staff, over the census period. All staff belong to at least one group. Three groups are formal University Research Centres, of only 18 across the University (REF5a1.0).

- The **International Centre for Research in Forensic Psychology (ICRFP)**, founded in 1997, constitutes the largest investigative/forensic psychology group in the UK. Research focuses on the intersection between psychology and the law, specifically offenders (interventions, offender decision-making), investigative interviewing (including deception detection), memory in forensic contexts (eyewitnesses, false memories) and person perception. The ICRFP's long history of interdisciplinarity, relevance to societal challenges, and inter-sectorial engagement underpinned the creation of the University's Security and Risk Theme (REF5a, para. 9). Notable publications have revealed the changes to eyewitness accuracy across the lifespan (*Fitzgerald, Psychological Bulletin*), determined conditions under which victims are likely to be derogated (*Gheorghiu, Personality & Social Psychology Review*) and demonstrated that nonverbal behaviour is an unreliable cue to deception (*Vrij, Annual Review of Psychology*). With significant funding from the FBI (£1.5M) and other security organisations including UK police agencies, the ICRFP also plays a

leading role in the UK Centre for Research and Evidence on Security Threats ([CREST](#)) research consortium, funded by the ESRC since 2015.

- The **Centre for Comparative and Evolutionary Psychology** ([CCEP](#)), founded in 2010, explores the evolutionary origins of mind and behaviour. One of two main comparative psychology groups in the UK, CCEP specialises in social and spatial cognition, emotion, communication and facial expression. Recent research includes studies of the neurological effects of atypical rearing in chimpanzees (*Bard, Psychological Science*), affective cognition in horses (*Proops, Current Biology*) and trust in chimpanzee friendships (*Herrmann, Current Biology*). Development of applied research in animal conservation closely aligns with the University's Sustainability and the Environment Theme and has led to the discovery of a critically endangered new species of orangutan (*Davila Ross, Current Biology*). Recent funding from sources including the European Research Council (ERC), The Leverhulme Trust and The Royal Society, has supported projects that have, for example, elucidated the evolutionary links between primate social structure and cognitive ability (*Joly, Proc. Roy. Soc. B*) and vocal communication (*Micheletta, Proc. Roy. Soc. B*).
- The **Centre for Interaction, Development and Diversity** ([CIDD](#)), founded in 1995, champions a characteristic second-person approach by studying psychological phenomena within the interpersonal contexts in which they emerge. Since 2014, CIDD has undergone realignment to reflect strategic growth of research into early development, alongside established research foci in autism, dementia, disability, communication and identity. With close links to the University's Democratic Citizenship and Health and Wellbeing Themes, the Centre embraces a community/participatory approach, and hosts the Autism Centre for Research on Employment ([ACRE](#)) led by *López*. Significant publications over the census period include cross-cultural research discovering that children can delay gratification for cooperative ends (*Herrmann, Psychological Science*) and the development of guidelines for the co-production of research with autistic adults (*Kapp, Autism*). The Department of Health, Templeton Foundation, NIHR and the British Academy have all supported projects, including an analysis of play in typically developing and neurodiverse children (*Reddy, Ecological Psychology*).
- The **Quality of Life, Health and Wellbeing group** ([QLHWB](#)), identified as a strategic growth area in 2011, is now recognised as a strength within the Unit that links to the University's Health and Wellbeing Theme and our institutional partner, Portsmouth Hospitals University NHS Trust (PHUT) (REF5a, para. 16). The QLHWB group investigate biological, psychological and social mechanisms of health and wellbeing. Specific areas of expertise include health behaviours, mental health, management of chronic conditions, evaluation of treatments and interventions, and quality of life in educational and work environments. Recent studies have also explored emotional contagion (*Niederstrasser, Current Biology*) and cognitive intrusion of pain (*Attridge, Pain*). Recent funding (e.g. from Office for Students (OfS), Alzheimer's Society, and Interreg Europe) has supported projects including a multi-institutional, interdisciplinary project designing new materials for managing chronic skin diseases ([DERMA: Al-Abbaday](#)). QLHWB research addresses key societal issues and is responding to the challenges of Covid-19 with ongoing funded projects evaluating university staff and student wellbeing (*Kaklamanou*) and alcohol consumption in Canada and the UK

(*Stafford*), and a commentary on alcohol use during the pandemic published in the *Lancet* (PGRS co-author).



**Figure 1.** Research Centre/Group membership of staff submitted to UoA4 (Centre/Group Lead; PROFESSOR/READER; ECR: Early Career Researcher; *new appointments*; \*cross-membership - colour denotes second affiliation).

**Supporting interdisciplinary research (IDR).** Multidisciplinary research spans the Unit’s research strengths from collaborations of CCEP members with anatomists exploring the evolution of facial expressions (e.g. REF2/11213615), to CIDD members and geneticists studying causal mechanisms in autism (REF2/11696954) and ICRFP members, health economists and statisticians evaluating interventions to reduce prisoner reoffending rates (e.g. REF2/11328410). Research Centres play a key role in the development of multidisciplinary teams by including members from other Departments, HEIs, and non-academic partners with backgrounds in anthropology, biology, linguistics, mathematics, physics, law and health. Seedcorn funding facilitates promising new interdisciplinary projects, such as *Stores’* study of the educational impact of mental health issues on UK University students and *Kaklamanou’s* smoking cessation program for NHS staff. Investment in infrastructure dedicated to interdisciplinary work [3.2] includes a new motion capture laboratory enabling research of gait biomechanics in collaboration with the School of Sport, Health and Exercise Science (*Morris*) and our virtual reality (VR) suite that underpins collaborative work with the Faculty of Creative and Cultural Industries who develop virtual environments to explore burglars’ behaviour (*Nee*, *Criminology*, REF2/11506265) and new spatial navigation research (*Joly*), aligned to the University’s Future and Emerging Technologies Theme.

### 1.3 Achievement of strategic aims for research and impact

Throughout the REF period, we have formally evaluated and updated our strategic aims, notably in a Departmental Vision Statement in 2017 and an evaluation of our Shape, Strengths and Strategy in 2020. The achievement of these aims is summarised below:

- Broadening the scope of research and funding in established and emerging areas of strength.** As a result of strategic recruitment to research strengths (Figure 1) and the support given to extant staff, we have significantly increased the number of staff in the submitted Unit (from 19.9 to 45.4 FTE). New staff bring ongoing academic collaborations (e.g. *Herrmann* with the Max Plank Institute for Evolutionary Anthropology) and collaborative projects (e.g. *Sivyer's* two NIHR funded projects, Antibiotic Review Kit ([ARK](#)) and Eczema Care Online ([ECO](#)) with Southampton, Oxford and Nottingham Universities). *Kapp* and *Gürbüz* have strengthened our focus on autism and neurodiversity research, enabling us to better address societal challenges around diversity and inclusivity, and bringing closer ties with the University's Democratic Citizenship Theme. Targeted recruitment of five new members (with research and practitioner experience) to our QLHWB group has ensured positive growth and critical mass aligned to national, and international research priorities relating to mental health (*Sivyer*), health behaviours (*Kaklamanou*), chronic conditions (*Al-Abbaday*), and pain management and ageing (*Niederstrasser*, *Attridge*), that are already yielding benefits in terms of research output, non-academic collaborations and income generation [2.1, 3.1].

This growth across the Unit has positively affected research vitality, evidenced by a 142% increase in the number of peer-reviewed outputs since REF2014 (from 297 to 719). Utilising research inductions, training and an incentive scheme for high-quality papers [2.2], we have ensured this increase in activity was achieved without compromising quality, as indicated by (albeit crude) metric analysis that confirmed that the majority of articles continued to be published in top quartile (Q1) journals (from 79% to 76% by SJR (SciVal)) and demonstrated an increase in the Unit h-index from 76 to 84 (SciVal). Through a range of staff support and pump-priming mechanisms [2.2, 3.1] we have also increased the number of staff contributing to external income generation by 108% (from 13 to 27) since REF2014, and diversified our funding sources by 85% (from 20 to 37), spanning traditional organisations (e.g. ESRC, The Royal Society), national government bodies (e.g. Ministry of Defence, Department of Health) and industry and third sector sources (e.g. IBM, Alzheimer's Society). Projects span smaller-scale individual projects, fellowships (e.g. Marie-Curie; *Joly*), collaborative projects (e.g. Leverhulme; *Micheletta & Waller*), and participation in complex, consortium-based research programmes (e.g. TESIS Marie-Curie Innovative Training Network; *Reddy*), supporting the future sustainability of the Unit, and increasing our Unit income by 96% (from 2.45M to £4.80M).

- Extending the impact and societal benefit of our research.** A key element of our strategy has been to promote and support research co-produced with stakeholders in a position to: (i) understand societal demands; (ii) implement policy and practice changes; (iii) assist in the recruitment of end-users to inform research and dissemination strategies; and (iv) fund activities with strategic relevance for their organisations. This was achieved by firmly embedding impact in our Unit culture and work structures, including our induction programme, mentoring system, appraisal system and internal grant peer-review systems.

We also implemented mechanisms to facilitate a vibrant impact culture including: (i) a dedicated Impact Lead (0.1 FTE) to provide one-to-one guidance, support non-academic collaboration and raise awareness of the knowledge exchange agenda; (ii) a monitoring system to identify potential impact, relevant stakeholders and oversee progress on KPIs for ongoing projects; (iii) specific workload allocations for impact activities, and flexible working arrangements to allow staff to maintain practitioner status and non-academic links; and (iv) rapid-response impact funding schemes available to all staff that have helped create a vibrant, community-oriented impact culture with regular public and stakeholder engagement events [4.3].

These support mechanisms have enabled the rapid translation of research into societal impacts that underpin our four impact case studies and wider impact across the Unit [4.4]. These benefits include changes in policy and practice in investigative settings in the UK, US, Europe and Asia (as detailed in our accompanying ICSs: *UoP04Credibility*, *UoP04Interviewing*) and new research that has supported animal conservation (e.g. *UoP04Orangutans*) and improved employment prospects for people with autism in the UK and Spain (*UoP04Autism*). Workload allocation, flexible working arrangements and seedcorn funding for priority research areas are facilitating new collaborative projects by QLHWB members with the British Infection Society, British Society for Antimicrobial Chemotherapy and Psychosocial Oncology Portsmouth that will improve quality of life for those living with cancer and chronic pain. Unit mechanisms, including organisational visits, are also supporting research projects developed with organisations including Age UK, National Crime Agency, Education Endowment Foundation and Chimfunshi Wildlife Orphanage in Zambia that are helping to make homes safer for elderly people, reducing reoffender rates, improving educational outcomes for disadvantaged children, and reducing the impact of tourism on African wildlife, respectively.

- **Increasing the vitality and sustainability of our postgraduate provision.** We have significantly increased the range of PGRS funding sources, enhancing the sustainability of our provision. These now include the ESRC South Coast Doctoral Training Partnership ([SCDTP](#)) with Southampton and Brighton Universities (18 bursaries since 2017), the Erasmus Mundus *House of Legal Psychology* doctoral programme with the Universities of Maastricht and Gothenburg (19 bursaries), the CREST research consortium (2 bursaries), alongside Faculty bursaries (12), self-funding students and our Professional Doctorate in Forensic Psychology (12 students). These students have contributed to research programmes and 25 submitted outputs across all four of our Research Centres/Groups. This expansion of our provision has increased the vitality of our PGRS community, providing students with the opportunity to engage with a wide range of training, networking and placement opportunities [2.3]. As a result, PGRS completions have increased by 292% (from 12 to 47). Our PGRS support mechanisms are sector leading, with top quartile scores in every element of the PRES (2019), an overall satisfaction rate of 97%, and progression rates well above average (88%).
- **Fostering a collegial environment and positive research culture.** The Unit's strategic aims are achieved in an inclusive way, empowering all staff to engage with our Research and Impact (R&I) agenda within a collegiate environment that values research integrity (Departmental Vision Statement, 2017). We have created a dynamic R&I culture through a set of support mechanisms [2.2], including: (i) provision of a 'research culture' fund to

support cross-centre collaboration and individual staff budgets that can be used flexibly for R&I activities; (ii) explicit workload allowances for scholarly and research activities that are individually tailored; (iii) a comprehensive and thriving seminar culture that includes focussed discussion groups with international researchers; and (iv) a range of training and culture-fostering events including away-days, writing retreats and research methods workshops. Staff viewed their work environment as the most positive element of their job (Staff Survey, 2017) and this collegial focus results in a highly collaborative research environment, as demonstrated by the involvement of eleven colleagues in our four impact case studies.

#### 1.4 Supporting research integrity, reproducibility and Open Science initiatives

From recruitment of academics and PGRS (where our commitment to open science is outlined in job adverts and explicitly discussed with candidates at interview) to our mentoring, support systems and initiatives, colleagues are encouraged to engage with open science practices. In 2019, we hosted Leverhulme Visiting Professor Steve Lindsay, Chief Editor (at the time) of *Psychological Science* and a key driver of the replicability and open science agenda. He gave a series of lectures and workshops co-organised with the Portsmouth Open Science Network (led by an external member of CCEP). Following this, our Unit developed a Portsmouth group within the [ReproducibiliTea initiative](#) that is primarily organised by Psychology PGRS and includes seminars on open science and research integrity, and a collaborative replication project. Additional replication efforts include participation in the Many Legal Labs Replication Project (*Hope*) and PGRS contribution to one of the first large-scale replication projects: [Alogna et al., 2014](#). 99.5% of Departmental papers published since April 2016 and all of our submitted outputs are open access compliant, 33% of submitted outputs are gold open access. Datasets are deposited in University and national open-source repositories (e.g. Figshare, Dryad, UK Data Service) and 55% of the Unit's outputs are compliant with the University's Research Data Management Policy (REF5a, para. 24).

We actively support a culture of research integrity, with colleagues and PGRS preregistering hypotheses, and involved in Registered Reports (e.g. PROPSERO: *Kaklamanou, Drahotá-Towns*). We operate according to best practice guidelines including the Concordat to Support Research Integrity, the BPS Code of Human Research Ethics, NIHR Good Clinical Practice and the Association for the Study of Animal Behaviour Guidelines for the Use of Animals. In addition to hosting our own ethics committee (Chair: *Milward*) and subcommittee of the UoP Animal Welfare Ethical Review Body (Members: *Kaminski & Micheletta*), we have a tradition of contributing to Faculty- and University-wide ethics committees. *Morris*, as the Head of the Faculty of Science and Health Ethics Committee, led on the development of open science principles across the Faculty (e.g. changing existing procedures to facilitate anonymous data sharing).

#### 1.5 Future strategic aims for research and impact

Our future strategic aims, aligned to the University's new Vision 2030 and Strategy 2025 (REF5a2.0), will be achieved whilst maintaining a collegiate environment that places a supportive research culture at its heart. Specifically, we will:

- **Nurture collaborative, multidisciplinary research across our research strengths.** In light of the changing funding landscape, we will increase our leadership and engagement in

large, multi-institution interdisciplinary projects, providing the combined levels of excellence and expertise necessary to produce world-leading science. Specifically, international collaborations around the theme of human and animal diversity, and industry partnerships around technological advances in security systems are being explored. *Target:* Increase external funding and contribute to at least two new, large scale, multi-disciplinary research collaborations.

- **Support research aligned to national and international priorities.** We will continue to focus upon research that addresses societal challenges across our key fields of expertise, including those relating to equality and diversity, policing and counter-terrorism, as well as emerging research strands addressing challenges to health and wellbeing, conservation and animal welfare. *Target:* Deliver a strong portfolio of societal impacts across all Research Centres.
- **Continue to support the development of health and wellbeing research.** QLHWB aims to become an internationally recognised Research Centre, focusing on mental health, health behaviours and chronic condition management. Targeted seedcorn funding will support external income generation, and societal impact will be realised through closer collaborations with PHUT and networks of key stakeholders. To drive our vision forward, we will recruit a senior leader (Reader/Professor). *Target:* Within QLHWB, support at least 2 colleagues to become PIs for the first time; 2 colleagues to become research leaders (through recruitment and promotion).
- **Grow our provision for future researchers.** Alongside our ESRC SCDTP, we will diversify our funding sources to ensure resilience following the end of the Erasmus programme by developing new national and/or international “Doctoral Training Partnerships” aligned to our research strengths. We currently have postgraduate taught programmes aligned to three of our four Research Centres, enabling us to attract and retain promising researchers/students. *Target:* Develop postgraduate taught provision related to CCEP; develop one new source of PGRS funding.
- **Ensure the values of research integrity, equality and diversity continue to be embedded in our R&I culture.** We will continue to lead the open science agenda at our institution. Our ongoing commitment to EDI will be reflected in our Unit practices promoting an inclusive culture and continued research foci recognising the importance of individual differences and diverse study populations. *Target:* increase preregistration, replication studies and open data by 50%; attain Departmental Athena Swan Silver award.

## 2 People

### 2.1 Staffing strategy

Our Unit has undergone significant expansion and now includes 47 (30F:17M) academic colleagues, an increase of 27 staff since 2014. Our staffing profile balances senior researchers (13 Professors and Readers) with ECRs (13) (Figure 1), ensuring we have experienced staff, with established reputations, who reliably attract research funding and provide mentorship, as

well as ECRs and mid-career researchers who provide a pipeline of talent for future sustainability.

Our overarching staffing strategy has been to recruit for research excellence in areas of strength, while supporting strategic growth areas, evidenced by the submission of 20 new staff (15 from existing Research Centres, 5 in our growing area of strength: health and wellbeing). To achieve this, we have recruited research-active ECRs who make strong contributions to the dynamic research atmosphere of the Unit, contributing 33% of articles submitted, including outputs in *PNAS*, *Personality & Social Psychology Review*, *Psychological Bulletin*, and *Current Biology*. To ensure the sustainability and growth of impactful research, we also recruited staff with a strong track record of delivering research impact aligned to our established research strengths (e.g. false memory: *Patihis*; eyewitnesses: *Saraiva*) and our emergent strengths (e.g. pain management research: *Niederstrasser*). These appointments bring new non-academic funders (e.g. The Donkey Sanctuary: *Proops*) and extend the scope of our impacts, for example, by expanding impact relating to educational attainment to mathematics through *Attridge's* partnership with the UK charity Mathematics in Education and in Industry. New staff with academic and practitioner experience also bring links with non-academic collaborators (e.g. Health Psychologist *Al-Abbadey* with the NHS).

Moving forward, we will continue to recruit to our strengths, while exploring complementary areas of focus that enable us to fulfil our strategic aims. Through new appointments and the development of extant staff expertise, we will develop senior research leadership in our emerging QLHWB group. Our visiting senior scientist appointments [4.1] will continue to contribute external expertise and perspective, supporting a vital research environment.

## 2.2 Staff development and support

**Research culture activities.** Creating a vibrant, inclusive and supportive research environment underpins our staff development activities. This emphasis is evidenced by the wide range of activities available, and is supported by the Unit's flexible Research Culture Fund (approx. £4,000 per year) that enables individuals to organise events that benefit colleagues across the Unit. Each Centre also operates a distinct programme of activities, supported by a small Centre fund. Examples include: meetings that provide opportunities to invite external speakers, to discuss advances in their field and gain peer feedback on new research/grant ideas. There are also annual one-day conferences (ICRFP and CCEP), away days (CIDD) and a bi-weekly journal club to discuss new articles in the discipline (CCEP). The Unit also hosts several specialist seminar groups bringing together researchers from across universities. For example, the Talking About Research in Memory And Cognition (TARMAc) group holds 2-3 meetings per year for staff, PGRS and colleagues from UK universities including Birmingham, Southampton, Warwick and Winchester to discuss their work and establish collaborations (e.g. *Ost, Memory*, REF2/9002794). Similarly, Conversation Analysis Data Sessions South (CADDs) is a monthly discussion group between CIDD, Language and Area Studies at UoP, and the Faculty of Medicine at the University of Southampton. The Unit also hosted the BPS Seminar series 'Psychosensory basis of obesity' (2019-21).

In addition to large-scale conferences [4.3], smaller in-house workshops and retreats provide focussed intellectual stimulation and training. Recent workshops include sessions on meta-analysis, experimental software and multilevel modelling. Regular 'Away Days' for our ECRs



encourage collaborations, discussion of funding plans and ideas for support. Annual R&I 'Away Days' for all staff promote collaborations, discussion of national/international R&I agendas and Unit objectives. Writing retreats, including residential breaks (organised by CIDD), dedicated days, or weekly half-day sessions (i.e. our staff-initiated "Shut Up and Write" group) facilitate paper/grant writing. Lab visits by researchers at all career stages are supported by the Research Centres (financially and by providing office space, facilities and travel advice). For example, Visiting Professor Tony Ward collaborated with *Nee* to develop the theory of Dysfunctional Expertise in offending behaviour and provided teaching events for students and academics, a public lecture, and practitioner workshop in clinical and forensic psychology. Activities are open to all and organised with consideration of EDI issues e.g. seminars are held within core hours; away days are scheduled within school terms, but after our teaching ends, to facilitate attendance by colleagues with children.

**Staff development schemes** that supplement Unit activities include the University Research and Innovation Services Development Programme (RISDP) for all staff (REF5a, para. 33-35). During the current REF period, 30 colleagues attended ~100 workshops on grant writing, KTPs, UKRI impact and media training. Eleven colleagues attended workshops on promotion to reader/professor and six have been promoted. One colleague attended our Navigator programme for men and seven colleagues attended the "Leader and Manager as Coach" programme. Seven colleagues attended Aurora and Springboard Programmes promoting female leadership, supporting Departmental, Research Centre and Equality & Diversity leadership roles.

**Individual support mechanisms.** Our R&I culture activities are complemented by a high degree of individual support. All staff have an annual Performance and Development Review that ensures linkage of individual and Unit-wide research objectives and identification of development needs (REF5a, para. 2). Additional Unit provision includes:

- **Mentoring.** All staff have a dedicated Mentor, typically drawn from our Professors or Readers, and including external Mentors where appropriate (e.g. for senior staff). Mentors provide advice on R&I plans, teaching, career prospects, and often give feedback on funding applications and journal manuscripts. Workload allocation is provided for this purpose (10 hours per year per mentee). A Mentor Coordinator (*Hope*) organises twice-yearly meetings for Mentors to share best practice, identify systematic issues and increase consistency of support. This mechanism is seen as beneficial by 95% of our staff (Mentoring Survey, 2020), and has supported *Joly's* career path from Marie Curie Research Fellow to Senior Lecturer and PGRS supervisor, and *Fitzgerald's* path from ESRC New Investigator to Associate Head for Research (2017-2019).
- **ECR and new staff support.** New staff have a 0.2 FTE teaching workload reduction in their first year and 0.1 FTE in their second year. The Unit provides start-up funds (up to £5,000) to facilitate the establishment of their research programmes (e.g. *Harvey's* research investigating the effects of alcohol on attention (REF2/11237587)). Priority is given to ECRs (supported by experienced colleagues) when allocating internally funded PhD bursaries (e.g. *Proops'* research on working equid welfare). ECRs are also supported to produce joint funding bids with senior colleagues as PI/CI teams (e.g. British Academy Grants awarded to *Gürbüz* for research with autistic students in HE and to *Milward* for research into the effects of stress on children supported by *López* and *Waller*, respectively). Beyond the Unit,

*Gheorghiu* is Deputy Convenor of the University-wide Researchers' Network which provides workshops, networking and training opportunities, primarily for ECRs and mid-career staff, including support around wellbeing and, most recently, work-life balance during the Covid-19 pandemic (REF5a, para. 41). Our recruitment policy and positive environment ensures a healthy pipeline of research leaders for the future, with 11 Unit colleagues promoted from Lecturer to Senior Lecturer during the census period.

- **Postdoctoral research staff support.** Research fellows make important contributions to our research activity, co-authoring 12% of our submitted outputs. In line with the Concordat to Support the Career Development of Researchers, our Research Fellows have the same support and development mechanisms available as other academic staff, including individually tailored mentoring and career advice (REF5a, para. 41-42). As a result, all of the 11 Research Fellows employed during the census period have progressed to permanent lectureship positions (6), further Postdoctoral Research Fellow positions (4) or non-academic research posts (1). *Leal* and *Mann*, now promoted to Senior Research Fellows, are submitted to REF, reflecting progression to research independence through the generation of external funding to support their own research programmes. Research Fellow *Mielke*, previously working on a Leverhulme grant, developed an independent project, securing a prestigious British Academy Newton International Fellowship at Oxford University. Research staff are represented at Department and Faculty R&I Committees (e.g. *Mann* served as Faculty representative (2018-2020)) and through the University-wide Research Staff Forum, promoting engagement with wider research agendas and ensuring that the unique set of challenges faced by research staff are addressed.
- Our **transparent workload model** provides explicit allowances for scholarly, research and impact activities. Research-active staff (those regularly publishing research articles) are allocated a minimum of 0.2 FTE for research activity, with additional time allocated for specific activities e.g. 100 hours when applying for a large grant, with a sliding scale for smaller grants or Co-I contributions. Specific allowances are also assigned for outreach or impact-related activities including partnership development, networking, advocacy, and community engagement. All colleagues can apply to University sabbatical schemes (REF5a, para. 36) allowing them to concentrate on strategic research or impact activities, for example, a sabbatical helped *Nee* submit a grant proposal and write a career-defining paper (*Criminology*, REF2/11506265).
- **Financial support** includes individual allowances (typically £2,000 annually per staff member) that can cover a wide range of activities, including conference attendance, impact/outreach activities (e.g. *Pearson's* stakeholder event disseminating his research on prisoner self-service technology that led to further stakeholder-funded events), visiting scholar activities, and external training (e.g. *Somogyi* and *Fasulo* completed external mindfulness in school training (MiSP), gaining new skills to that enabled them to support a successful SCDTP bursary application on this topic). This fund also supported small-scale/pilot research that led to outputs in high impact journals (e.g. *Kaminski & Waller*, *PNAS*, REF2/16024928). A competitive impact fund (typically £4,000 annually), supports engagement of staff with stakeholders. Examples include: holding focus groups to support the employment of autistic adults (*UoP04Autism*) and training of non-academic partners in

methods to improve the release success of rehabilitant orangutans in Malaysia (*UoP04Orangutans*).

Staff are **recognised and rewarded** through workload allocation for the production of high-quality research or impact activities. Staff receive a small financial incentive for high-quality outputs, to be used flexibly for R&I activities and OA publishing. Colleagues can also receive a Vice Chancellor's Award for outstanding performance (e.g. *Kaminski* for research excellence and media engagement and *López* for work supporting the employment of people with autism (REF5a, para. 55)). These support mechanisms help colleagues develop as leaders of research groups and intellectual leaders in their field and facilitate career progression. In the current REF period, 53% of Unit members were promoted including ten colleagues to Reader or Professor (8F:2M).

### 2.3 Research student support and development

Our increased portfolio of funding mechanisms [1.3], supported a consistent growth in PGRS completions (292% increase since REF2014) and will ensure the future sustainability of our provision, with 58 PGRS (39FT; 19PT) currently registered compared to 26 in 2014 (Table 1).

**Table 1.** Annual PGRS completions

Year	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Completions	2	6	3	9	5	9	13

**Selection, supervision and monitoring.** Selection procedures differ according to funding stream but all members of interview panels complete the UoP “Best practice in the Selection & Admissions of PGRS” training. Supervisory teams comprise three supervisors, with a combination of expertise and experience. External supervisors from other academic or clinical institutions, or the sponsor organisation, join teams as appropriate. The agenda, minutes and outcomes of regular meetings with the primary supervisor and full team are recorded on an online platform (Skillsforge) and progress is monitored by independent assessors in annual reviews. PGRS are supported by a Departmental Research Degrees Coordinator (*Fasulo*) and have representation in Departmental and Faculty decision-making committees and our Athena Swan Working party. The SCDTP is organised into 5 Thematic Cluster Pathways and our students are supported by *Bard* and *Stafford* who co-ordinate the “Learning, Knowledge and Behaviour” and “Population Change, Health and Wellbeing” pathways, respectively. Our support and supervision is highly effective, evidenced by our 97% satisfaction score in PRES 2019 for questions relating to supervision. Coupled with a vibrant and inclusive research culture, this support results in sector-leading progression rates (i.e. top quartile, 88%).

**Networking, placements and impact.** All PGRS are financially supported for international conference attendance, participant payments and equipment purchases. PGRS are encouraged to secure competitive external research or conference travel grants (e.g. the UKRI Globalink Exchange Scheme enabling visits to the Canadian Institute for Substance Use Research to develop skills in demographic analysis and to Simon Fraser University to work with a unique longitudinal dataset and learn new data collection techniques). All bursary funders provide valuable opportunities for academic research placements or internships with non-academic organisations, including a mandatory 6-month laboratory visit for Erasmus students.

Recent placements include a research visit to McGill University, Canada, resulting in a collaborative paper; institutional placements with the ONS to gain additional 'big data' statistical skills; and the Home Office, providing insights in to evidence-based policy making. PGRS are also encouraged to consider the potential impact of their research, and, where appropriate engage with stakeholders. The Unit Impact Lead delivers targeted workshops and supports students in developing a detailed impact strategy. Our PGRS community contributes to the organisation and delivery of public engagement events (e.g. Pint of Science). A high proportion of PGRS engage with non-academic partners to produce research relevant to key societal challenges, including joint doctoral research projects with the NHS Solent Trust on autism diagnosis practice and The Donkey Sanctuary on global working equid welfare.

**Training and culture.** We foster PGRS engagement across the wider Unit (e.g. through inclusion in Centre meetings and Unit social events), while also providing opportunities for students to develop their own community. PGRS can access Unit research culture funds to support meetings and workshops, e.g. the monthly student-led "Pretty heavy Discussions" (PhD) group to discuss their work with their peers. They engage in a range of seminars, workshops and training events related to our funding streams, including ESRC SCSTP conferences and 'Away Days', ERASMUS House of Legal Psychology Summer/Winter Schools and CREST training opportunities. The Unit hosts biannual PGRS Research Days, featuring talks and poster presentations, and PGRS participate in the University annual Festival of Doctoral Research. In line with Vitae requirements, students attend a minimum of 10 days training/professional development per year. A bespoke Unit programme, devised in consultation with PGRS reps, includes subject-specific training in statistics, impact, paper/grant writing and career advice, and is supplemented by the extensive University Graduate School Development Programme (REF5a, para. 38) and further supervisor-led training, as required. All students undertaking teaching responsibilities are enrolled in our University-wide GPROF training programme, enabling them to work towards Associate Fellowship with Advance HE. The success of our inclusive programme of events is evidenced by top quartile satisfaction for research culture in PRES 2019. The training opportunities we provide ensure that our students develop their skills in research methodologies, tools and techniques during their study, as evidenced by a 100% satisfaction score for research skill development (PRES, 2019).

**Indices of success.** Notable student awards include the Kuwait National Youth's Excellence and Creativity Award and research awards from the Society for Applied Research in Memory and Cognition, European Association for Psychology and Law and International Investigative Interviewing Research Group. The Psychology Department pioneered the "compilation style" thesis at UoP, where chapters of the thesis are research papers. This supports employability by ensuring students have a track record of publications upon completion of their PhD and has resulted in 34% of papers submitted by established staff (i.e. employed before 2018) being co-authored with our PGRS. Our destination data are positive. The majority of PGRS want a career in academia (67%, HEPI, 2020), and more of our PGRS (47%) were able to achieve this than the sector average (30%), with a further 28% either in research posts outside academia or practitioners in health, forensic and educational fields (19% unknown). Evidence of the excellent support and development mechanisms we have in place is best demonstrated by our latest PRES survey results where we were placed in the top quartile compared to the sector average across all subscales. Overall, satisfaction was 97% and supervisors received 100% satisfaction scores for their subject knowledge, contact time and feedback.

## 2.4 Equality, diversity and inclusion

**Table 2.** Profile of our Unit

Indicator	Proportion of Cat A staff		Doctoral degrees	Outputs submitted
	Sector	Submitted staff		
Gender (Female)	62% <sup>1</sup>	64%	74%	62%
Ethnicity (BAME <sup>2</sup> )	7% <sup>1</sup>	10%	24%	9%
Declared disability	6% <sup>1</sup>	7%	11%	8%
Age (36-55)	51% <sup>1</sup>	60%	n/a	59%

*1-Psychology, Psychiatry and Neuroscience, [Advance HE, 2020](#); 2-Reported as Black, Asian and Minority Ethnic*

**Composition of the Unit.** The profile of our Unit closely aligns with the sector average (Table 2) and we have returned 88% of our academic staff, exceeding the estimated national average of 73% (Research England REF communications, 2020). We have a proud history of female leadership, including Heads of the Department of Psychology, *Reddy* 2005-2010, *Hoskins* (now Dean of the Faculty of Science and Health) 2010-2017 and *Akehurst* since 2019. The gender balance of the Unit leadership team (67%) reflects the wider Unit and is well above sector averages (40%). More of our Professors (83%) are female than the sector average (23%), 67% of our ECRs are female. Our gender pay-gap data indicate parity, with a mean difference of 4% in favour of female staff. Unfortunately, data regarding other protected characteristics are not available at the Unit level. The Unit is also able to attract global talent and has a long tradition of internationality (45% international staff from 14 different countries). The diversity of our staff is testament to our understanding of the benefits that diversity brings to research and teaching activities.

**Policy and practice to support E&D.** The University supports the Race Equality Charter, is a Stonewall Diversity Champion, Disability Confident employer, and holds an Institutional Athena Swan Bronze Award (REF5a, para. 43-45). The Department of Psychology holds an Athena Swan Bronze Award (since 2014) and we are aiming for Silver in 2023. Our Departmental Athena Swan self-evaluation team is in the process of transitioning to an EDI Team, broadening their scope to all protected characteristics. Our decision-making groups are representative of the Unit and, since 2014, we have formalised key processes into policy (e.g. our enhanced parental leave policy), reduced core hours (10am-4pm), improved record keeping and have held workshops to identify barriers to career progression, acting on the results (e.g. ensuring equality of experience by providing guidance to line managers, promoting consistency among Mentors, and communicating our commitment to EDI to new staff). All colleagues are required to complete 'Unconscious Bias', 'Equality and Diversity', and 'Bullying and Harassment' training (REF5a, para. 47). In our latest recruitment round, we explicitly sought expertise in EDI research, or practice, in our candidates. Our Unit supports a healthy work/life balance to promote staff wellbeing; staff are encouraged to utilise their annual leave allocations and are only expected to respond to emails during their working hours.

We support colleagues with special/health needs and/or caring responsibilities to fully participate in all activities. Flexible working arrangements are offered on an annual basis, with

32% of the Unit benefiting from individually tailored working arrangements over this assessment period, including temporary reduction in working hours, condensed working hours or constraints on teaching timetables (REF5a, para. 46). On the census date, 5 staff were on part-time contracts to either assist transition to retirement or to enable them to keep their practitioner work external to the University. Our policies facilitate conference attendance by staff with caring responsibilities (e.g. by providing financial support for childcare). Parental leave arrangements, taken by 8 (5F:3M) staff, involve regular “keeping in touch” days (if desired) and teaching workload adjustments to allow returning members of staff to focus on their research. We make individually-tailored adjustments for staff with special/health needs, for example, by hiring a support person or reducing/adapting workload.

**Research supporting the EDI agenda.** The Unit has a strong tradition of teaching and research concerned with equality and diversity, including by staff *Kapp*, *López*, *Hoskins*, and *Gürbüz*. For example, research programmes to help close the attainment/awarding gap of disadvantaged students (*Hoskins*), research by *Kapp*, who self-identifies as autistic, supporting neurodiversity, and *López*'s award-winning Autism Centre for Research on Employment, which has recruited several autistic individuals as research assistants and research students over the census period. This research translates into a deeper understanding of the benefits that staff diversity brings and positively impacts our engagement with diversity in our research environment. Moreover, the international diversity of our staff provides an excellent environment for cross-cultural research.

**Policy and practice for our REF submission.** Equality and diversity was considered throughout our submission and in accordance with the University's Code of Practice (REF5a, para. 50). The Unit REF team (4F:2M; 5 nationalities; representatives of each research group) attended an 'Equality and Diversity in the REF' workshop (Advance HE, October 2019) in addition to mandatory training. Outputs were reviewed by at least three independent internal raters plus further external review as necessary (134 external reviews, 4 (3F:1M) reviewers). ECRs were not under-represented (average of 2.5 papers per person), nor our senior researchers over-represented (average of 2.2 papers per Reader/Professor). Our output profile closely matches our staff profile for the characteristics reported (Table 2). Overall, we are confident that outputs were selected fairly and without regard for any characteristic other than the quality of the work itself.

### 3 Income, infrastructure and facilities

#### 3.1 Income

Our income strategy has focussed on diversifying our sources of income and ensuring that our funding supports the rapid translation of research into impact. We have achieved this through: (i) developing collaborative networks with academic partners; (ii) promoting increased engagement with key stakeholder groups; and (iii) supporting more of our staff to become research leaders. Through the support mechanisms outlined below we have delivered this strategy. Since REF2014, we have increased the number of colleagues contributing to income generation by 108% (from 13 to 27), increased the number of successful bids by 147% (from 38 to 94), and diversified our funding sources by 85% (from 20 to 37), which includes funding from NIHR, reflecting the increased health-related focus of our research. Together, this has

supported a 96% increase in research income (from £2.45M to £4.80M), with income from UK Research Councils and Royal Societies increasing by 133% (from £529k to £1.2M). Our impact strategy, which sees non-academic partners as co-producers and funders of research, has further contributed to our income diversification, increasing income from UK charities by 138% (from £377k to £897k) and non-EU government sources by 108% (from £921k to £1.9M).

The Unit encourages and supports funding bids through our mentoring and appraisal systems. This is complemented by University-level mechanisms including funding schemes to pump-prime strategic research (REF5a, para. 12) that have supported five Unit colleagues. This has been particularly valuable for our developing QLHWB research, supporting ongoing projects including research into adherence to national Covid-19 guidelines (*Al-Abbaday*). Grant peer-review systems at Department (small grants) and University level (larger grants, REF5a, para. 56) improve the quality of applications through expert feedback. Staff also share their research ideas with Mentors and research centre members at the earliest opportunity, gaining advice from experienced colleagues at the point where feedback is most effective in shaping ideas. We also have a dedicated Unit Grant Officer (*Vrij*), a highly successful colleague with extensive experience of successful income generation (£4.8M from 2006-2020 at UoP) who provides subject-specific support for grant applications, for example, supporting *Mann* to secure her first grant as PI from the Defence Science and Technology Laboratory. In addition, we support grant writing through workload allowance, grant writing workshops and retreats. These mechanisms have facilitated the achievement of our strategic aims for income:

- **Support collaboration networks with academic partners.** Our strategic focus on forging academic interdisciplinary partnerships with global reach, enabled by mechanisms including individual budgets to facilitate institutional lab visits [2.2, 4.1], facilitated some notable successes including: (i) £1.5M ESRC funding (*Vrij, Hope*) as part of the CREST consortium to lead collaborative projects relating to investigative interviewing with Lancaster University and, in the current round, University of Bath, University College London, University of Central Lancashire and University of Stirling; (ii) £1.6M European Research Council funding (*Waller*) for collaborative research with the University of Liverpool and the Medical Research Council (MRC) Centre for Macaques investigating the social function, anatomy and evolutionary origins of individual facial expressivity; (iii) £127k from NIHR (*Drahota-Towns*) for joint projects with the Universities of Southampton and Cardiff investigating flooring effectiveness in care homes for older adults; and (iv) £208k to develop a Marie-Curie ITN (*Reddy*) to investigate human intersubjectivity in collaboration with 12 other European research centres.
- **Promote engagement with key stakeholder groups.** Through our support of impact and engagement activities and one-to-one mentorship by our Impact Lead, staff are encouraged to view stakeholders not just as recipients of our research, but active agents in informing and funding it. As a result, income from non-academic organisations has increased by 145%. Examples include 13 projects from the FBI's High-value detainee Interrogation Group on forensic interviewing and lie detection, totalling £2.5M since 2014 (*Vrij; UoP04Credibility*), new partnerships (e.g. with the Education Endowment Foundation) supporting research evaluating Changing Mindsets training in schools (*Hoskins*, £289k), business partnerships (e.g. with Unilink Software and Psychology International Ltd.) supporting development of self-service technology in prisons (*Pearson*, £40k) and the development of the Autism Centre for Research on Employment (ACRE), in partnership with local councils and Autism

Hampshire, funded by Autism Innovation Fund, Department of Health, Research Autism, IBM, Southampton and Portsmouth City Councils and Solent Local Enterprise Partnership (*López*, £135k).

- **Develop our staff to broaden our funding base.** To promote the sustainability of our research, we encourage and support grant submissions by new PIs and ECRs, including *Fitzgerald* who secured an ESRC Young Investigator Award (£190k). We also attract promising ECRs to join the Unit on externally-funded Fellowships, with experienced colleagues acting as hosts and Mentors (e.g. *Joly* hosted by *Waller*, Marie Curie Research Fellowship, £230k). ECRs are supported to collaborate in grant bids with experienced colleagues, often targeting seedcorn funding for pilot research to underpin larger grant applications (e.g. *Vernham & Nee*, British Academy, £10k). *Micheletta*, a junior colleague at the time, was supported in securing a large grant from The Leverhulme Trust by collaborating with *Waller* (£305k) and has recently been promoted to Reader (2020).

### 3.2 Infrastructure

The Head of Department (*Akehurst*) works with the Associate Head for Research and Innovation (AHRI: *Proops*, 0.5 FTE), REF Coordinator (*Blank*, 0.2 FTE), and the Impact Lead (*López*, 0.1 FTE) to develop and deliver our R&I strategy. Our Centre Directors provide operational leadership and strategic input, working with the Departmental leadership team to ensure the R&I objectives for each group are aligned with, and supported by, the wider Unit vision. The Department's Research and Innovation Committee (DRIC), chaired by the AHRI, is inclusive in terms of gender and career stage and comprises Professors and Readers, Research Centre and PGRS representatives and our Lead Technician. The DRIC develops the Departmental R&I strategy, agrees the distribution of funds (e.g. through individual budgets, output incentives, equipment purchases, culture and impact funds), considers equality and diversity issues, manages research integrity and monitors delivery against KPIs and the Research Concordat.

### 3.3 Facilities

The Unit endorses an equal access policy whereby equipment/physical resources are available to all (staff, PGRS, and for teaching) and ensures laboratory spaces are accessible to colleagues with a physical disability. Unit research is supported by a team of five technicians (3F:2M) trained in the use of specialist equipment and software.

**Unit facilities.** Serving our strategic research priorities and growing research remit, we have a range of specialist facilities that aid the work of our Research Centres. Supporting CCEP colleagues, our Dog Cognition Centre, unique in the UK, provides room and facilities for running controlled experiments with dogs, supporting the work of 2 funded PGRS and enabling research into the evolution of social cognition and communication in dogs that has resulted in the production of 6 outputs in Q1 journals since 2014 (e.g. *Kaminski & Waller*, *PNAS*, REF2/16024928). Investment in thermal imaging technology enabled the development of ground-breaking methods to monitor physiological activity based on facial temperature distributions in humans and other primates (e.g. *Davila Ross*, *Frontiers in Behavioral Neuroscience*). The Toddler Lab, mimicking a domestic environment, and the Infant Lab, equipped with purpose-built 'double-recording' equipment to examine social interactions,



supports developmental psychologists in CIDD. A new Psychophysiology Lab (NeuroScan EEG system £70k, two BioPac physiological systems £20k) supports neurological research into decision-making and anxiety in QLHWB (e.g. *Moore*, REF2/15982504), and our Forensic Interviewing Suite enables the work of ICRFP members and has been instrumental in *Vrij's* investigative interviewing research that has attracted £3M since 2014 and underpins *UoP04Credibility*.

Many of our specialist facilities are co-utilised by colleagues across the Unit, fostering collaborative projects and interdisciplinary research [1.2]. Since 2014, we have invested in a state-of-the-art Motion Capture Lab (65 m<sup>2</sup>, £100k) for biomechanical analyses of human movement, supporting CCEP and ICRFP colleagues who previously depended on external facilities to study non-verbal cues to aggression and physical attractiveness (e.g. *Morris*, *Journal of Nonverbal Behavior*). Five eye-tracking systems (2 lab-based and 3 mobile) and 2 VR systems with eye-trackers support interdisciplinary collaborative research within the Future and Emerging Technologies Theme including projects on burglars' behaviour (e.g. *Nee*, REF2/11506340, ICRFP) and spatial cognition (*Joly*, CCEP). Our Biomarkers, Olfactory and Gustatory Lab supports research from all our groups, including new programmes exploring the relationship between olfaction, over-eating and emotion (e.g. *Stafford*, QLHWB), hormonal influences and sexual behaviour (e.g. *Fleischman*, CCEP) and alcohol and cognition (e.g. *Harvey*, REF2/11237587, ICRFP).

As part of our IT infrastructure, the Psychology of Applied Cognition Lab includes 10 computer workspaces separated by screens for multiple participant testing, two smaller labs with multiple computers, plus 14 individual cubicles for one-to-one testing. An Observation Suite is used for unobtrusively observing social interactions, with extensive equipment (e.g. cameras, recording devices, tablets) supporting laboratory and field observational research (e.g. animal behaviour, children-mother interactions, forensic interviewing). In addition to supporting open source options, we have software licences/accounts for questionnaire-based research (e.g. Qualtrics), experimental research (e.g. E-Prime), observational research (e.g. Observer), transcription and coding software (e.g. Interact), and programming and analysis software (e.g. MatLab). The Unit recently invested in a Gorilla licence (£24k) to assist staff and PGRS creating online experiments and supports the use of online participant recruitment platforms (e.g. Prolific) to facilitate data collection.

We have created distinctive participant databases aligned to our research strengths and supporting research sustainability. These include a unique database of autistic jobseekers, resulting from collaborations with the DWP, autism charities (e.g. Spanish Autistic Society), and local councils (e.g. Portsmouth City Council) which underpinned the development of the ACRE Profiling Assessment tools to support autistic adults into employment. A distinctive dog owners database of ~800 dogs/owners provides participants for research at the Dog Cognition Centre. We have also established a general community database of adult participants, a parent and infants database of families and have access to the University of Portsmouth Ageing Network database.

**Access to external facilities.** Our staff also have access to UoP facilities outside of the Unit, including a Forensic Investigation/Crime Scene house available for ICRFP research, and access to biochemical testing facilities in the School of Pharmacy and Biomedical Sciences for interdisciplinary research by CCEP members including *Milward* (funded by the British

Academy). Access to infrastructure through national or international collaborations also enhances our research, for example, *Nee's* research on virtual burglary uses a VR lab at the Free University of Amsterdam, *Hope's* research benefits from collaboration with a commercial 'Escape Room', and *Proops's* research utilises the extensive equine facilities located at our educational partner, Sparsholt College. An extensive network of field sites, often with long-term demographic data of populations, support CCEP's work in animal behaviour and conservation, across a wide range of taxa. Examples include Chimfunsi Wildlife Orphanage, Zambia (*Davila Ross*, REF2/11695801), The Caribbean Primate Research Centre (*Micheletta*, REF2/11213358) and the Bornean Sun Bear Conservation Centre (*Davila Ross*, REF2/16024872). In addition, research sites in Kenya, Indonesia, and Mexico support research and community programs with human participants, enabling impact related to conservation and animal welfare (e.g. *Proops*, *Equine Veterinary Journal*), and facilitating CIDD's emerging strength in multicultural research (e.g. *Herrmann*, REF2/25065808).

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

##### 4.1 Research collaboration

Our strategic focus on supporting collaborations to enhance the quality of our research and income generation is evidenced by 72% of our submitted outputs published with international or national co-authors and 51% of our external income from non-UK funding sources including the FBI, John Templeton and The Leakey Foundations. Our participation in international research consortia promotes reproducibility, generalisability and open science, while producing rigorous research outputs e.g. the ManyPrimates project (*Joly & Herrmann*, REF2/10377717), Dognition project (*Kaminski*, REF2/11695920), Many Legal Labs Project (*Hope*) and Manybabies project (*Herrmann*). The Unit encourages international researcher visits (e.g. by providing office and research facilities). Since 2014, we have hosted 11 international visiting Professors who contributed to our research through collaboration, mentoring, seminars, workshops and joint publications. For example, Professor Amy Leach (University of Ontario, 2013-2014) developed collaborations that led to the publication of two articles on deception detection with *Akehurst*, *Vrij* and *Vernham*. We hosted 2 visiting researchers, including Chantelle Lachance (Canadian Agency for Drugs and Technologies in Health, 2019-21), who is collaborating on NIHR funded research with *Drahota-Towns*. We also welcomed ~20 international PGRS on research internships (including from Brazil, Czech Republic, Colombia, Germany, Italy, Netherlands, Poland, Spain), some contributing to research publications (e.g. *Blank & Launay*, 2014). The Unit also enables staff to visit other institutions by providing financial support and adjusting workloads accordingly. During the census period, several colleagues were/are visiting professors in the UK or overseas, including *Hope* (Harvard University, USA, 2015-19; Leuven University, Belgium, 2019-); *Nee* (Max Planck Institute for the Study of Crime Security and Law, Germany, 2019-); *Blank* (University of Mannheim, Germany, 2018); and *Reddy* (University of Copenhagen, Denmark, 2014).

##### 4.2 Contribution to, and recognition by, the research base

Contributions to the wider scientific community are recognised in workload allocations and are an important vehicle for extending intellectual leadership and ensuring the sustainability of our discipline. Ten colleagues serve(d) as Editor-in Chief or Associate Editor of academic journals

including *Animal Cognition* and *Emotion Review* (Bard), *Frontiers in Psychology* (Nomikou), *Legal and Criminological Psychology* (Hope) and *Psychology, Crime & Law* (Nee). Other colleagues have edited special issues for journals including *Memory* (Blank, Patihis), *Patient Education and Counselling* (Fasulo) and *Chemical Senses* (Stafford), and Somogyi served as a topic editor for *Frontiers in Neurorobotics*. Fourteen colleagues serve(d) on editorial boards of 23 different journals, including *Psychological Science* (Blank), *Clinical Psychological Science* (Patihis), *Journal of Applied Research on Memory and Cognition* (Hope and Vrij), and *Journal of Experimental Psychology* (Hope). Unit staff have also served on committees of diverse funding bodies including ESRC peer review college (Blank), ESRC DTP peer review college (Hope), Irish Research Council: Government of Ireland Postgraduate Scholarship Programme (Hope), NIHR: Health Services and Delivery Research Programme (Drahota-Towns), UKRI: call delivered by ESRC, MRC and National Sciences Foundation China (Drahota-Towns).

All colleagues in the Unit are expected to participate in peer reviewing of manuscripts for journals and grant applications for national (e.g. BBSRC, ESRC, MRC, NIHR, Leverhulme) and international (e.g. NIH (US), ANR (France), DFG (Germany)) funding agencies. Unit members organised three international conferences over the REF period (e.g. Bard: Ernst Strüngmann Forum on attachment, Frankfurt, 2016). Bard, Blank, and Proops were on the programme committees of major international Primatology, Applied Memory and Cognition, and Equitation Science conferences, respectively. Bard, Fasulo, Hope, Patihis, Proops, Reddy, Vrij and Waller delivered keynote lectures (~50 in total) at international academic conferences.

Our contributions to the research base have been recognised through academic prizes/awards and elections to learned societies. Needs received the BPS (Division of Forensic Psychology) Lifetime Achievement Award (2020), Vrij received the IIRG (International Investigative Interviewing Research Group) Tom Williamson Lifetime Achievement Award (2016), and Fitzgerald was elected an American Psychological Society (APS) Rising Star (2019). In recognition of their contributions to research, Blank (2015) and Hope (2020) have been elected APS and Psychonomic Society Fellows respectively and Hope received the 2019 IIRG Academic Excellence Award. Prizes/awards for individual papers or books include the American Psychological Association Ursula Gielen Global Psychology Book Award (2018) to Bard. López won the National Autistic Society Award for Outstanding Adult Services and the Mexican National Council for Science and Technology, Priego-Hernandez Award (2016). In addition, staff take on key roles in scientific organisations including Kapp who is a founding member of the International Society for Autism Research's Autistic Researchers' Committee and Reddy who was Chair of the BPS Developmental Psychology Section (2015-17).

#### 4.3 Dissemination and engagement with diverse communities and publics

Our research has wide-ranging societal relevance (e.g. security and law, health and wellbeing, diversity, education and animal conservation), and clear pathways to impact (e.g. Participatory Action Research) that are enabled by an impact strategy supporting collaborations and engagement with the community and key stakeholders. Our dissemination and impact activities include:

- **Publication of guidelines, newsletters and books based on research expertise.** These are for practitioners, end-users and/or researchers interested in engaging with beneficiaries. For example, Kapp co-wrote the AASPIRE guidelines for inclusion of autistic adults as co-

researchers and guidelines for avoiding ableist language in autism contexts. *Proops'* research underpins equine management guidelines of several equine welfare charities including World Horse Welfare and The Donkey Sanctuary, *Stores* published a booklet with the national Down's Syndrome Association for parents and practitioners on 'Managing sleep problems in children with Down's Syndrome' (downloaded over 5,000 times). *Hope* and *Vrij* have written several Practitioner Briefings and Guides on memory, deception and investigative interviewing. We also produce research newsletters for parents, autistic and Down's Syndrome communities around requested topics that are distributed at public events, on internal or external websites (e.g. Down's Syndrome Association) or through our public email list. For lay readership, *Gustafsson* wrote a book about parenting, and *Kaminski* on dog behaviour and cognition.

- **Contributions to national and international media.** Since 2018, our Press Office has tracked 1209 local, national and international news articles and broadcast clips related to our Unit, demonstrating the global reach of our research. Prominent examples include: facial mimicry in sun bears reported in *The Independent*, *The Daily Telegraph*, *Daily Mail*, *New Scientist*, *National Geographic*, *Newsweek* and the *New York Times* (*Davila Ross*); domestic dog facial expressions reported across *BBC Radio and TV*, *Sky News*, *The Guardian*, *The Times*, *New York Times*, *TIME magazine* and *New Scientist* (*Kaminski*); burglary research reported in the *NY Times*, *The Times* and *BBC World Service* (*Nee*); flower scent discussed on BBC TV's *Countryfile* (*Stafford*) and human biases discussed on BBC Radio 4 (*Blank* and *Gheorghiu*). Documentary coverage includes *Kaminski* and *Proops* on BBC 2 documentary series *Animal Einsteins*; *Proops'* research in award winning three-part documentary *Equus: Story of the Horse* (aired in 6 countries to date) and *Reddy* interviewed for *Babies* documentary series by Netflix. We also make regular contributions to social media through Research Centre and Departmental accounts. Three of our submitted papers feature in the Top 100 Altmetric lists for online presence: REF2/16024928 ranked 27<sup>th</sup> in 2019, REF2/2340701 ranked 35<sup>th</sup> in 2020 and REF2/11695802 ranked 72<sup>nd</sup> in 2017, with a combined Altmetric score of 8888.
- **Public and stakeholder events and training.** These are firmly embedded in our Unit culture. We regularly organise events to disseminate our research in the local community by participating in national schemes (such as Pint of Science, Café Scientifique, the University of the Third Age), local schemes (e.g. Portsmouth Sceptics), and our own targeted events for the general public (e.g. 'Super Saturday' Psychology Day, where we open the Psychology Department to members of the public to showcase our R&I activities). We have delivered talks (e.g. contributions to Macaque Awareness Week, Winchester Science Festival, talks in schools), organised stakeholder conferences (e.g. University of Portsmouth Ageing Network Conference) and are members of community fora aligned to our research expertise (e.g. Portsmouth Autism Community Forum, Autism Hampshire Experts by Experience). Events targeted to specific stakeholders include the ICRFP 20<sup>th</sup> anniversary event showcasing research to key stakeholders and practitioners. Our practitioner training events include courses on judging credibility in the courtroom, specialist interviewing and statement validity assessment for UK police forces and the International Criminal Court (e.g. *Akehurst*, *Hope*). *Vrij* and *Leal* provide annual deception detection training to intelligence and police officers in Europe, America and Asia (*UoP04Credibility*). *Hope* held a series of

stakeholder events in the UK and Norway for over 200 attendees on eliciting information (*UoP04Interviewing*).

#### 4.4 Benefits to society

Our research expertise, coupled with our outreach and engagement activities, delivers a range of societal benefits that are responsive to national and international priorities, including:

- **Improved security and law enforcement.** ICRFP members have increased understanding and countering of security threats in the UK and internationally. Notably, the Cognitive Credibility Assessment information-gathering procedure, developed by *Vrij* and team, and included in UK, FBI and Singapore interrogation policy, increases lie detection rates from 56% to 71%, and has been taught to 18,000+ security officers (*UoP04Credibility*). *Hope* developed the Self-Administered Interview and Timeline Technique to elicit comprehensive memory accounts from witnesses, adopted into policy in the UK, US and Europe (*UoP04Interviewing*). In addition, *Pearson's* research on the use of digital technologies has reduced prisoners' reoffending rates and informed prison infrastructure developments in the UK and overseas, whilst *Nee* and *Vernham's* research on burglars' decision-making processes (with the insurance company Direct Line and Neighbourhood Watch) has led to improved home security. *Ost's* expertise in false and recovered memories of abuse led to consultancy roles for the Society of Law, the British False Memory Society, and Courts of Justice trials. *Hope* is working with the International Criminal Court to enhance the prosecution of war crimes, human trafficking, terrorism and organised crime.
- **Animal conservation and welfare.** CCEP members have extensive collaborations with relevant stakeholders that facilitate impact from their research on primates (e.g. Macaca Nigra project in Indonesia, Monkey Haven, Isle of Wight), equids (e.g. The Donkey Sanctuary), and dogs (e.g. Pet Professional Guild UK). Such collaborations led to the discovery of a critically endangered orangutan species (*UoP04Orangutans*) and have informed educational conservation programmes in Indonesia (*Micheletta*), Department for Environment, Food & Rural Affairs and European policy guidelines on equid welfare (*Proops*) and policy on dog training in Spain, Germany and Switzerland (*Kaminski*). A new collaboration with Chimfunshi Wildlife Orphanage in Zambia is reducing the impacts of tourism on elephants (*Davila Ross*), whilst *Herrmann's* appointment brings connections with education networks in Kenya (e.g. Ol Pejeta Conservancy, Sweetwaters Chimpanzee Sanctuary) that are promoting the sustainable conservation of African wildlife.
- **Improved wellbeing and employment opportunities for diverse and vulnerable populations.** The ACRE profiling assessment tools developed by *López* have enabled employers to make tailored adjustments for their autistic employees, leading to higher employment and wellbeing in autistic adults and the adoption of these tools by the Department for Work and Pensions, UK and Spanish autism professionals (*UoP04Autism*). In addition, work by *Kapp*, a researcher at the forefront of the neurodiversity movement, combined with research on the mental health of university autistic students by *Gürbüz*, will significantly enhance university and public provision of services over the coming years.
- **Improved educational practice.** The Growing Learners programme, based on mindset research (*Hoskins, QLHWB*), has been used to train teachers in 250 schools and to develop

parent-administered mindset storybooks to improve metacognitive skills and pupil engagement. *Hoskins'* research collaborations with the OfS and Education Endowment Foundation have also informed the design of programmes aimed at closing the attainment gap for disadvantaged students and led to new learning gain measures. CIDD members have introduced mindfulness interventions to local schools and the Growing Places nursery network to improve staff wellbeing and prosocial behaviour in children (*Somogyi, Fasulo, Nomikou*).

Our final example of contribution to, and recognition by, the research base and wider society is the invitation of *Reddy* (2015) to discuss her research on early development of self-consciousness as part of the prestigious [Dialogues with the Dalai Lama](#) series. This high-profile, week-long event brought together scientists, philosophers and spiritual leaders in discussion with His Holiness the Dalai Lama, and was live-streamed to audiences across the world.