

Institution: University of Bath

Unit of assessment: Psychology, Psychiatry, and Neuroscience (UoA4)

Section 1. Unit context and structure, research and impact strategy

Unit context

UoA4 comprises the Department of Psychology and staff from the Department for Health and School of Management with complementary research expertise in cognitive, health and clinical psychology.

Reflecting the interdisciplinary nature of our work, in REF2014 staff from UoA4 were submitted across four Units of Assessment: Allied Health Professions, Computer Science and Informatics, Social Work and Social Policy, and Business and Management Studies. Considerable strategic growth and consolidation in the Unit has led to more than double the number of Category A staff since 2013 (30 to 66) through the addition of early to mid-career academics. This growth has been the result of a concerted, collaborative, and ambitious effort from staff coupled with significant support, commitment, and investment from the University. This commitment included a £30 million investment in a bespoke new building (since 2016) to extend provision of UoA4 research and postgraduate training by the University. The building's new 1067m² space provides two floors of state-of-the art laboratories to support research across a broad spectrum of UoA4 topics.

This growth has allowed us to build a critical mass of world-leading researchers across strategic areas to, for the first time, make a cohesive and robust submission to UoA4. Although the unit context has changed considerably since REF2014, what has not changed is our commitment to a thriving shared research culture built on diversity and inclusivity, enabling staff and students to conduct cutting-edge, interdisciplinary, and theoretically innovative research with societal benefit.

Research structure

Our strategy during the assessment period was to (a) support international excellence in unique areas of critical research mass and strength, and (b) promote and facilitate high-quality research and impact across our research areas.

Achieving our strategic aims required reconsideration of our research structure. We needed to form broad clusters of research strength to attract and retain high-calibre scientists, sustain and develop international leadership, boost competitiveness for research funding, continue to produce quality outputs and impacts, and better embed our postgraduates in our research activity. At the same time, these aims benefit from supporting research groups and centres that cut across clusters. With these objectives in mind, we consolidated our research and teaching culture within five major clusters:

- Clinical Psychology
- Cognitive Science
- Development and Psychopathology
- Health Psychology
- Social and Environmental Psychology

These clusters enabled a more coordinated approach to our research activities, giving us flexibility to coherently tackle societal challenges and complex research questions that are of local, national and global significance, while more closely aligning our research to external

priorities identified by UKRI (e.g., mental health, climate change, and 21st century products) and collaboratively optimising our ability to address and shape international and interdisciplinary research agendas.

Mapping directly onto our clusters are research groups, labs, and centres of strategic research activity that have achieved sustained growth, been well-funded, and produced high quality outputs and impacts within the assessment period. Like our research clusters, these groupings pull together a critical mass of disciplinary and interdisciplinary knowledge and skills, while providing a greater level of focus through regularly timetabled meetings, PhD and research staff training, and grant development.

All staff returned to UoA4 contribute to research in one or more of these clusters. Each cluster has a coordinator whose role is to be alert to new funding opportunities, facilitate research activities within the cluster, including co-working between groups, labs, and centres. The coordinator also facilitates activities designed to encourage interdisciplinary working across clusters, including sandpits and research-led teaching initiatives (e.g., dissertation group work).

Below we summarise how our clusters and groupings relate to the achievement of strategic aims for research income, outputs, and impact during the assessment period. [Underlined staff were appointed within the assessment period, and academic rank is shown as: RF = Research Fellow, L = Lecturer, SL = Senior Lecturer, R = Reader, and P = Professor]

Clinical Psychology [14.35 FTE: Allen (R), Atkinson (L), Butler (SL), Button (SL), Chadwick (P), Daniels (SL), Davis (L), Gregory (L), Griffith (L), Hamilton-Giachritsis (P), Jacobsen (L), Loades (SL), Marks (L), Millar (L), Randle-Phillips (L), Taylor (L), Walton (L)]

Including clinical and non-clinical academics, researchers working within our Clinical Psychology cluster examine the cognitive, emotional, behavioural and physiological processes that link to psychological problems. Specific areas of strength include: child and adult emotional and behavioural disorders; mindfulness; anxiety in complex medical conditions; development of psychological therapies for psychosis; developing treatments for children with chronic illnesses; tinnitus; addiction; and the link between DNA methylation and mental health.

Within the assessment period, staff within the Clinical Psychology cluster have produced high quality research outputs in internationally significant academic outlets (e.g., *American Psychologist*, *BMJ*, *Lancet Psychiatry*, *JAMA Psychiatry*, *Journal of Child Psychology and Psychiatry*, *Nature*), received funding from a variety of sources (e.g., Cancer Research UK, NIHR, NHS Trusts, NSPCC) and routinely generate impact from their research: For example, **Marks's** Impact Case Study details how her research on mindfulness-based therapies has informed the NICE Tinnitus Guidelines.

Within this cluster sits the **Bath Centre for Mindfulness and Compassion (BCMC)**, which is a unique partnership between academic researchers across our clusters (Ainsworth, Atkinson, Chadwick, Jacobson, Marks) and University of Bath Student Services, working closely with the Student's Union, local NHS and community leaders.

Cognitive Science [13 FTE: Bultitude (SL), Hinvest (L), Hoffman (L), Johnson (L), Joiner (P), Lancaster (SL), Little (R), Petrini (SL), Proulx (R), Shah (SL), Stanton Fraser (P), Stothart (L), Voinescu (RF)]

Our interdisciplinary team working within this cluster examines both the behavioural and computational aspects of cognitive science with a blend of expertise in human computer interaction, multi-sensory integration, perception, cognitive neuroscience and neuropsychology, and judgement and decision making.

Within the assessment period, staff working within Cognitive Science have produced outputs in diverse international journals (e.g., *Brain*, *Cerebral Cortex*, *Cognitive Psychology*, *Lancet Psychiatry*, *JEP: General*, *Psychological Science*, *Science*). One key strength of this cluster is its interdisciplinary work which has (a) enabled us to attract funding from research councils (AHRC, EPSRC), charities (e.g., Leverhulme Trust) and industry partners (e.g., Atkins Global, BBC, Microsoft); and (b) generated significant impact. As further detailed in Section 4, for example, **Proulx's** research is informing architectural design and **Stanton Fraser** has developed strategic relationships with creative industry partners to inform the design and evaluation of products and services.

Research groupings within this cluster include:

- **The CREATE Laboratory** (Stanton Fraser, Proulx, Voinescu, and staff from Computer Science at Bath). Research in the CREATE lab is in human computer interaction and focuses on the design and evaluation of mobile, virtual and ubiquitous technologies.
- **Crossmodal Cognition Laboratory** (Proulx, Petrini, Bultitude, and staff from Computer Science and Health at Bath). Their research focuses on multisensory perception and cognition, with applications for pain treatment and assistive technology for visual impairments.
- **Neurostim** (Ashwin, Bultitude, Button, Fairchild, Freeman, Hinvest, Hoffman, Lancaster, Petrini, Proulx, Shah, Stothart, Walton). This cross-cluster group is actively engaged in cognitive neuroscience, brain imaging and brain stimulation methods.

Development and Psychopathology [10.9 FTE: Ashwin (L), Bedford (SL), Brosnan (P), Fairchild (R), Gjersoe (SL), Halligan (P), Hiller (L), Lavi (L), Maras (SL), Russell (R), St Clair (SL), Stallard (P)]

This cluster includes internationally recognised expertise in child trauma, autism, the development of antisocial behaviour and aggression, cognitive and language development, and the use of technology to deliver therapeutic interventions to children.

Within the assessment period, staff within this cluster have attracted research funding from numerous sources (e.g., ESRC, European Commission, Leverhulme Trust, MRC, NIHR) and regularly published their work in outlets with international reach (e.g., *Child Development*, *Clinical Psychology Review*, *JAMA Pediatrics*, *Journal of the American Academy of Child and Adolescent Psychiatry*, *Journal of Child Psychology and Psychiatry*, *Lancet Psychiatry*, *PNAS*). Two of our submitted Impact Case Studies resulted from research within this cluster: **Maras's** research has resulted in changes to training and practice among police officers working with autistic individuals. **Stallard's** research created the first effective smartphone application for use as an intervention with young people who self-harm.

Research groupings within Development and Psychopathology include:

- **Centre for Applied Autism Research** (Ashwin, Bedford, Brosnan, Maras, Russell). Research within CAAR seeks to understand and address challenges faced by autistic people using education, employment, mental health and criminal justice services.
- **Child Mental Health and Development** (Allen, Fairchild, Halligan, Hiller, Hamilton-Giachritsis, Jordan, Loades, Shah, Stallard, St Clair, Walton). This group examines key questions relating to mental health, wellbeing and development in children and young people, including a focus on intervention research. Group members draw from diverse disciplines, including forensic, health, developmental and clinical psychology, and neuroscience and genetics.

Health Psychology [12 FTE: Adams (L), Ainsworth (L), Barnett (P), Dack (L), Eccleston (P), Fisher (RF), Freeman (SL), Jordan (SL), Keogh (P), P. Smith (SL), Tabor (L), Weyman (R)]

Staff working within our Health Psychology cluster focus on developing innovation and impact in understanding the antecedents and consequences of health issues. Research strengths within the cluster include stress and well-being, psychosocial management of long-term conditions, addiction and mental health, pain and pain-related behaviours, child and adolescent health, and risk communication and risk management.

Staff working within this cluster have produced high-quality publications in journals with international and interdisciplinary reach (e.g., *Addiction*, *Lancet Psychiatry*, *New Media & Society*, *Pain*, *Psychological Medicine*), and they have attracted considerable research funding from diverse national and international sources (e.g., AHRC, Arthritis Research Campaign, BBSRC, ERC, EPSRC, European Commission, NIHR, MRC). The Impact Case Study from **Eccleston, Fisher, Jordan, and Keogh**, in the **Centre for Pain Research** highlights how their research has led to the creation of assessment tools that enable clinicians to optimally diagnose and treat children suffering with chronic pain.

Research groupings within Health Psychology include:

- **Centre for Pain Research** (Bultitude, Eccleston, Daniels, Fisher, Jordan, Keogh, Tabor). Researchers in this world-leading centre are exploring the best ways of helping people learn how to manage pain. They conduct research on cognitive processes and social factors involved in pain, children and adolescents with chronic pain and their family structures, virtual reality solutions for chronic and acute pain, evidence-based pain management, and supportive care.
- **Addiction and Mental Health** (Adams, Freeman, Griffith, Halligan, Jacobsen, Taylor, Walton and colleagues from Pharmacy at Bath). Researchers in this interdisciplinary group aim to reduce the impact of addiction and mental ill-health on individuals and communities. They use state-of-the-art experimental, epidemiological and clinical methods to produce evidence that is both robust and relevant for people and society.

Social and Environmental Psychology [11.2 FTE: Bain (R), Blackwood (L), Callan (P), Gavin (SL), Gocłowska (L), Hahn (SL), Kurz (SL), Maio (P), L. Smith (SL), Verplanken (P), Walker (SL), Whitmarsh (P)]

Researchers within the Social and Environment Psychology cluster have made significant theoretical and empirical contributions in furthering our understanding of values, morality and justice, creativity, attitudes and implicit social cognition, environmental beliefs and behaviours, and identity and discourse in online and offline social contexts.

During the assessment period, staff within this cluster have published their research in rigorous, high quality journals in general psychology (*Annual Review of Psychology*, *PNAS*, *Psychological Bulletin*, *Psychological Science*), social psychology (*Advances in Experimental Social Psychology*, *Journal of Personality and Social Psychology*, *Personality and Social Psychology Review*), and environment studies (*Global Environmental Change*, *Nature Climate Change*, *Nature Sustainability*). Their research has been funded by varied national and international sources, including the AHRC, Australian Research Council, British Academy, ESRC, EPSRC, ERC, European Commission, John Templeton Foundation, and Leverhulme Trust. Researchers within the cluster generate international impact from their research. For example, **Walker's** impact case study details how his research on cycling safety has informed legal changes in Australia.

Research groupings within Social and Environmental Psychology include:

- **Social and Cultural Cognition** (Bain, Callan, Gocłowska, Hahn, Hoffman, Johnson, Kurz, Maio, Shah, L. Smith, Verplanken). This cross-clustered group explores individual cognition and behaviour within broader social and cultural contexts.
- **Environmental Psychology** (Bain, Kurz, Maio, Verplanken, Walker, Whitmarsh). This group investigates values, attitudes, and behaviours in relation to climate change, energy and transport. Within this group, Whitmarsh is the Director of the **ESRC Centre for Climate Change and Social Transformations**, a collaboration across UK university and charitable partners who research and develop the social transformations needed to produce a low-carbon and sustainable society.
- **Critical Research in Social Psychology** (Barnett, Blackwood, Butler, Gavin, Kurz). This group includes academic staff and PG students from across our clusters and the University. Their interests lie in the study of identity and discourse in different social contexts, especially online.

Future Strategic Aims and Objectives for Research

Consolidating our research activities across overarching clusters of research excellence and critical mass has allowed for greater focus on further developing funding, impact, and international recognition aims over the next five years, including these objectives:

- **Further enhance the quality of our research outputs.** Our UoA4 researchers have produced an impressive volume of research outputs within the assessment period. Against this backdrop of research intensity, we have recently increased our efforts to further enhance the quality and international reach of our research outputs, with the aim of increasing the proportion of staff producing outputs that are world-leading. To achieve this objective, we revitalised our internal staff development processes by formalising a Staff Development team with co-directors from different clusters of research. This team has oversight of development and performance reviews and mentoring, with the aim of making our performance reviews supportive of staff's ability to meet our shared research aims. These aims support long-term, creative thinking in promoting innovation, impact, integrity, and inclusivity in world-leading research. Going forward, these initiatives will allow us to continue to realise the societal impact of our research whilst maintaining the high quality of scientific inquiry that underpins it.
- **Further enhance our portfolio of funded research.** The applied nature of our research has opened opportunities for interdisciplinary collaborations across the Humanities, Sciences, and Engineering, and with industry and policy partners. We have seen evidence of a shift towards a funding landscape which includes longer, larger collaborative grants that address key societal problems (e.g., ESRC priorities on mental health, climate change, productivity and ways of being digital, EPSRC Healthy nation, secure nation, productive nation, connected nation). We are well-placed to build on our research strengths by increasing the range of staff applying for large grants and fellowships through such initiatives, setting clear expectations for staff during annual performance reviews, our robust peer review and pitching panel system, and seeding funds to support larger grant development.
- **Strategically develop and retain excellent research-active staff** through the vitality and sustainability of our inclusive research culture. To meet this aim, our staff have led the development of a set of values (innovation, impact, inclusivity, and integrity) that are intrinsically satisfying and motivating for our collective aims. Our staff development and retention plans promote these values by financially underwriting training, supporting an adventurous, inclusive, and visionary research culture through increased sabbaticals and programmatic objective setting, and rationalising workloads in a way that creates time through efficiency savings (e.g., by reducing the range of tasks undertaken). This strategy has therefore been underpinned by the Unit's dedication to diversity and inclusivity and supporting staff development and wellbeing.

Future Strategic Aims and Objectives for Impact

The research we conduct has implications that extend well beyond academia. As highlighted in Section 4, we conduct research that improves the social, psychological, economic, health and commercial circumstances of those whose lives and livelihoods are touched by our research.

Our future strategic aim for impact is to continue this tradition of conducting world-leading research that produces impact with wide reach and significance by (1) identifying the potential for impact from research projects at the earliest possible stage, (2) scanning the horizon for situations where research results may have greatest effect, and (3) targeting potential sponsors of future work. We will thus integrate impact into the entire research cycle.

Mechanisms for this integration include biannual meetings with our External Advisory Board (see Section 2), and management of the aims through our Director of Research, Director of Impact and Director of Engagement administrative roles, sitting within our Research Committee. This group will signpost and utilise the available support and resources for developing impact provided departmentally and centrally by the University. Through these efforts, we have already identified, and are beginning to nurture, many new lines of impact arising from our research.

Approach to Supporting Interdisciplinary Research

Many of the research problems we address require interdisciplinary working. We have established mechanisms for supporting interdisciplinary work. **Stanton Fraser** (as Associate Dean Research until 2014) initiated University sandpits to enhance cross-disciplinary working. The aim of these sandpits was to build collaborations, develop research ideas and to seed funding proposals particularly for large interdisciplinary grants. These sandpits continue with many staff attending University sandpits (**Brosnan, L. Smith, Hinvest**) and UKRI sandpits (**Barnett, Stanton Fraser**) and receiving funding based on sandpit participation (**Barnett, Brosnan, L. Smith, Hinvest, Stanton Fraser**). Members of the UoA engage in hackathons, secondments and host workshops with other disciplines, industry and the public sector which have led to larger interdisciplinary initiatives such as the Centre of Excellence on Human-Computer Interaction in User Experience with the BBC and 5 other UK Universities (**Stanton Fraser**); the AHRC/EPSRC Centre for the Analysis of Motion and Entertainment Research (CAMERA) which is a cross disciplinary initiative involving **Proulx** and has recently received a second round of funding; and the EPSRC GCRF RENEW project on developing resilient nations, which involves ten academics across Psychology, Engineering, Chemistry and Biology and international partners in South Africa and Lagos through a new follow up, EPSRC Edge, just funded. We collaborate closely with all the cross-disciplinary initiatives internally. These include secondments (**Button, St Clair**) in the Institute for Mathematical Innovation (IMI) and the Institute for Policy Research (IPR), for which **Barnett** is on the management board and where many other staff engage in policy briefings (**Blackwood, Maras, Stanton Fraser**). Researchers in Health and Clinical Psychology (**Eccleston, Keogh, Jordan**) collaborate closely with the Royal United Hospital in Bath.

Approach to Open Science and Research Integrity

Open and reproducible science. The Unit has made significant strides in encouraging a culture that values open and reproducible science conducted with integrity and high ethical standards. This has been aided by our appointment since REF 2014 of academic leaders who promote these practices through their scholarly and advocacy work (e.g., Button, Hahn). We further detail these initiatives, activities, and achievements in Section 4 (under Section 4, supplementary criteria for Panel A). In addition to these activities, the University's library

supports staff to ensure that their research outputs are made available via open access, supporting the process from training to grant applications and through to publishing.

Research integrity and ethics. We embrace the principles outlined in The Concordat to Support Research Integrity. Within the unit, research integrity and ethics is monitored by the Departmental Directors of Research as Chairs of the respective Department Research Committees (DRC). Reporting to the DRC, the Department of Psychology operates a Psychology Research Ethics Committee (PREC; a subcommittee of the University Ethics Committee), which includes a Chair, several academic members within Psychology, and at least one lay member. All research conducted in the Department of Psychology is subject to ethical review by the PREC, to ensure that it meets broad ethical standards and guidelines (e.g., those set out by the British Psychological Society). Research involving clinical participants is subject to NHS ethical committee review.

Section 2. People

This submission includes 66 Category A researchers (59% female) from the Department of Psychology (n=61), the Department for Health (n=4), and the School of Management (n=1), including: 14 Professors, 7 Readers, 21 Senior Lecturers, 22 Lecturers, and 2 Research Fellows (61.45 FTE in total).

Staffing strategy and staff development

Staff development strategy. Our strategy enables early career staff to develop into effective, independent researchers and established staff to continue to thrive as leaders in their respective fields. Mechanisms to achieve this include:

- **Development opportunities for research staff.** UoA4 research staff are represented on the Departmental Research Committee, Equality and Diversity Committee, Ethics Committee, Executive Committee, and Staff Meetings and they are eligible to apply for conference funds to present their research and develop their research networks. Embracing the Concordat to Support the Career Development of Researchers, the University's Academic Staff Development Unit offers all research staff workshops and events, an Academic Career Academy Programme, a Careers Beyond Academia Programme, and researcher development courses.
- **Workload reductions and start-up funds.** ECR/Probationary staff are given teaching and administration reductions in their workload allocation during their first three years of employment. This workload reduction tapers down from 400 hours per FTE to 200 hours per FTE and allows ECRs to focus on initiating and developing their programmes of research. New staff are also provided with start-up funds, and returnees from maternity or shared parental leave are allocated twice the usual annual funding for their research in the year after they return.
- **Staff Development and Performance Review (SDPR).** All post-probation staff complete annual SDPRs, which enable them to receive feedback on their performance, discuss and set objectives for the coming year with a senior member of staff, and explore and support their learning needs and career aspirations. SDPR reviewers are provided with training on how to deliver an effective review, and a departmental Staff Development Committee oversees the SDPR process. A member of the SDPR team also liaises with the Department of Psychology's Equality and Diversity Committee to report, monitor, and encourage equal opportunities in progression.
- **Mentoring.** Academic staff, research staff and doctoral students are all assigned a mentor. Mentors provide informal support, guidance, and advice on matters related to career progression, preparing grant applications and publications, supervising doctoral students, and research direction.

- **Career Development Advisory Group (CDAG).** The CDAG comprises all Professors in the Department of Psychology (5 female, 5 male) from across our research clusters, who review and feedback on applications prior to submission into the University promotion scheme. This group exists to provide supportive feedback and guidance prior to University review.
- **Leadership Courses.** We encourage staff to attend courses to develop their Leadership skills. During this assessment period, 12 staff have attended the Aurora programme (directed to early career female staff) or an Advanced Leadership Skills programme by Berkshire Consultancy, with upcoming attendance in the GW4 Elevate programme (directed to BAME staff).

Staffing and recruitment strategy. The UoA's staffing strategy embraces diversity of all backgrounds as a valuable cornerstone of successful research. We aim to be an inclusive Unit, where difference is celebrated, respected, and encouraged. We truly believe that diversity of experience, perspectives, and backgrounds leads to a better environment for our staff and students, creating a research environment and organisational culture that enhances health and wellbeing across our community.

Our recruitment strategy has been to further strengthen our research activities across our research clusters. New posts to cover UG and PG student expansion along with replacement posts from staff retirements and departures have provided us the opportunity to strategically appoint early career and mid-career researchers to ensure a critical mass of exceptional scientists across these priority areas.

We have appointed 39 new Category A staff since 2014. Research excellence, occasionally with a clinically focused element, has been an essential criterion for these appointments. In terms of promotions within the assessment period, 11 staff have been promoted to Senior Lecturer (9 female, 2 male), 3 to Reader (1 female, 2 male), and 5 to Professor (2 female, 3 male).

Early career support and integration into the research culture. We take seriously the need to integrate and develop the next generation of research leaders. Early career staff have a representative on both the Department of Psychology Executive Committee and the Department of Psychology Research Committee; each of these committees has a standing agenda item for the discussion of early career matters. In 2016, we started an Early Career Researcher Forum with monthly catered lunch meetings where staff are given professional, peer, and senior staff mentoring and support on diverse topics (e.g., effective PhD supervision, how to realise and generate impact from research, promotional routes, and maintaining a sustainable work-life balance).

Policy for sabbatical leave. Academic members of staff on permanent contracts who have been in post for three years or more are eligible to apply for paid sabbatical leave. Staff who have been allocated a period of sabbatical leave are relieved of teaching and other administrative duties during their (6- or 12-month) sabbatical. During the assessment period, 4 women and 3 men within the unit of assessment have been granted sabbatical leave to enhance the unit's research income and output profile and/or develop and achieve impact from their research (Halligan, Hamilton-Giachritsis, Keogh, Russell (postponed due to COVID-19), Stanton Fraser, Verplanken, and Weyman).

Procedures to stimulate and facilitate exchanges between academia and other bodies. The Unit fosters knowledge exchange through several initiatives, including the Royal Society Pairing Scheme (**Hiller**) and secondments to and from the department (e.g., staff from Rusty Squid came on secondment to collaborate on social robotics, and staff and PhD students have been seconded to BBC R&D). Through initiatives such as the AHRC REACT Hub and the

AHRC Bristol and Bath Creative Cluster, we pair academics with industry partners, run joint workshops and have established a Third Thursday drinks meeting for the creative sector across academia and industry. We have staff working with artists in residence (**Atkinson**) and the We the Curious science centre (**Gjersoe**) to foster public engagement with our research.

To further stimulate and facilitate exchanges between academia and other bodies, we have assembled an External Advisory Board that meets biannually (since 2019). This Board includes over 30 institutions and organisations with which we work and where policy and practice are made. These are the users, beneficiaries and audiences of our research. They include government institutions, health and social care services, charities, industry partners, and news media, all at the local, national and international levels. They also include the wider public, in the UK and beyond.

Supporting and enabling impact from research. The Department of Psychology has invested heavily in supporting the development of research impact, following the creation of a Director of Impact role four years ago. In 2016, the Director of Impact (**Kurz**) met with all members of staff identified in a 'self-audit' process conducted in late 2015 as having research that had either created impact or had the potential to do so. These individual face-to-face meetings allowed for the creation of a snapshot of the range of impactful work across the unit and formed the basis of an initial long list of potential impact case studies for REF2021. Similar one-to-one 'impact surgeries' were provided to new members of staff on an ad hoc and ongoing basis. The purpose of this activity has been to ensure an awareness of the impact that has already been achieved by members of staff so that it can be appropriately evidenced, and also to identify fledgling impactful work (especially by ECRs) that can be helped to flourish through the provision of appropriate departmental mentorship and resource. The latter is underpinned by a section of the department's annual research budget to support the development of impact (e.g., meetings with stakeholders, workshops, community engagement resources etc). Impact development is workload modelled and supported through internal and University funding.

The Director of Impact also runs regular workshops on developing and enhancing impact within the Department of Psychology (e.g., in the ECR Forum, Research Away Days) and an impact half-day event for the Departments of Psychology and Health, at which researchers from across the two departments who had led highly impactful research projects gave a series of presentations about their work.

Research Students

Psychology currently has 69 registered PhD and 55 Doctorate in Clinical Psychology students. Currently registered PhD students are broadly distributed across our research clusters, and there is co-supervision of PhD and Clinical doctorate researchers by staff across our research priorities.

In August 2017, the University created the Doctoral College (DC), which is responsible for the recruitment and administrative support to all doctoral students across the University. The DC provides institution-wide support, training, development and administration for our diverse doctoral population.

Studentships. In addition to funds that the University makes available for studentships, within the assessment period, the UoA has successfully secured studentship funding from major funding bodies, including the ESRC (through the Southwest Doctoral Training Centre), MRC (GW4 BioMed Doctoral Training Partnership), EPSRC, and Innovate UK. In 2020, 20 PhD researchers within the Department of Psychology were awarded studentships, including 3 of the 18 MRC GW4 BioMed DTP studentships available across *all* biomedical departments at the Universities of Bath, Bristol, Cardiff and Exeter. Likewise, in 2020, Psychology secured 7 of

the 45 ESRC SWDTP studentships available across 5 institutions and 30+ departments. This success in securing UKRI funded studentships is a testament to the high quality of PhD researchers attracted to Psychology at Bath.

Collaborations with the public sector and industry have also resulted in studentship funding from the Food Standards Agency, Pain Relief Foundation, Whorrod Scholarships, Wiltshire County Council, Reckitt Benckiser Group plc, Asthma, Allergy and Inflammation Research Charity, Police Foundation, and Escaping Victimhood Charity.

Approach to recruitment of doctoral research students. Working closely with a recruitment committee in Psychology (including ECR representation) and Review Panels for the Faculty and DTPs, the DC Recruitment team is responsible for ensuring that recruitment and selection processes for funded and unfunded students are fair and transparent. All applicants, regardless of background or characteristics, are assessed on their academic achievement, understanding of the research, self-motivation, and fit to the proposal and team. All short-listed candidates are interviewed, and an Interview Decision Record must be completed in each case. Staff involved in the recruitment of doctoral students are required to complete online Unconscious Bias and Diversity in the Workplace training. To ensure a strong pool of potential PhD applicants, the Department offers opportunities for staff to advertise PhD projects on jobs.ac.uk or FindAPhD, with priority given to ECRs and to staff who are not currently lead supervisors of students.

Monitoring and support mechanisms. All doctoral student supervisors complete progress reports every six months. These reports include contributions from the student and either their departmental Director of Studies for Postgraduate Research or the Head of Department. All students complete a PhD Confirmation review process after their first year. During Confirmation, students are assessed by two internal Examiners to determine whether they have reached an appropriate level of understanding in their area of research, are capable of carrying out their research at doctoral level and are capable of completing on time. The process enables students to receive constructive feedback from academic staff internal to the University, but independent from their supervision team.

The University's Student Services works with students, departments, and the DC to ensure support through a number of teams dedicated to doctoral students:

- Doctoral students with disabilities speak to an advisor who can help them to undertake a bespoke Disability Action Plan.
- Doctoral students struggling with mental health can meet with a dedicated Wellbeing Team, and the DC hosts a number of events to encourage positive mental health and wellbeing.
- International doctoral students can contact the International Experience Coordinator in Student Services, who offers bespoke advice, and their integration into study and life in the UK is aided by supportive induction sessions.
- The Department of Psychology provides support from a dedicated team of academic doctoral mentors outside of the supervision team.

Skills development and careers preparation. Our training and development of PhD students is overseen by a Director and Deputy Director of Studies for PGR Training. They lead a specific induction programme for new PhD students. In 2017 the unit of assessment created a PhD Forum, which involves monthly catered breakfast meetings where PhD students are provided with professional, peer, and near-peer mentoring and support. Recent topics include open science, research budget management, confirmation and candidature preparation, how to publish and derive impact from research, new career transitions (e.g., applying for postdoctoral positions, transitioning to an independent researcher), and working effectively with supervisors.

Doctoral students are active participants in our research group meetings, often leading and coordinating group meetings and using them to practice conference talks, and receive and provide input into new projects. They organise an annual Departmental PhD Student Conference and Clinical Doctorate Conference to gain further experience delivering research presentations and gaining valuable feedback from staff and students. This sets the foundation for constructively utilising feedback from peer-reviewed journals. Within the assessment period, our PhD and Clinical Doctorate students have authored over 260 peer-reviewed journal articles in diverse international outlets (e.g., *Addiction*, *Emotion*, *Pain*, *PNAS*, *Psychological Medicine*, and *Journal of Child Psychology and Psychiatry*).

The Doctoral College provides a skills development programme for doctoral students delivered by internal and external training providers aligned to the Researcher Development Framework. Current activities include the online platform LinkedIn Learning. Students summarise their engagement with these diverse opportunities in their 6-month reports, completing several supplementary training opportunities per year.

The University has dedicated careers support for doctoral students. Examples include extensive web resources for researchers, regular blog articles tailored to the career development needs of doctoral students, frequent emails on career opportunities inside and outside of academia, career panel events with doctoral alumni (sourcing alumni case studies), career management training sessions in online and in-person formats, and professional network engagement inside and outside of research. Dedicated doctoral Skills and Careers teams work together to improve guidance for students from the start of their studies in how to build a comprehensive/meaningful suite of skills by the end of their studies, to facilitate the next stage of their careers.

Equality and Diversity

We are committed to providing a supportive and inclusive environment for all staff and students. The recruitment of new staff and students and opportunities for support, progression, and internal funding (e.g., promotion and reward processes, recruitment for leadership roles, sabbatical leaves, submission of funding applications, conference funding, rolling research funds) are based on equality and merit rather than one's background, identity, beliefs, or individual characteristics or circumstances.

We have specific policies and codes of practice on Childcare, Dignity and Respect, Flexible Working, Maternity and Paternity, Occupational Health, Recruitment and Selection, and Trans Equality, which are published and regularly reviewed. The University's Dignity & Respect policies apply to all staff (including casual workers), honorary and visiting staff and students and third parties.

We encourage staff to engage in equality and diversity training, and we promote equality, diversity, and inclusivity through several processes and structures:

Commitment to Athena Swan Charter. Principles of equality and diversity have been systematically integrated into the fabric of the UoA, most prominently in the context of gaining an Athena Swan Bronze Award in 2018, recognising our good practices towards the advancement of gender equality. In line with these practices, genders are well-balanced within this submission, and female staff currently occupy several prominent leadership roles within the department and faculty, including Director of Research (Stanton Fraser), Director of Clinical Research (Allen), Clinical Director (Butler), DClin Academic Director (Daniels), both Deputy Heads of Department (L. Smith and Butler), Faculty Associate Dean for Research (Barnett), and Faculty Associate Dean for Learning and Teaching (Gjersoe).

Departmental Equality and Diversity Committee. The Athena Swan application included the development of an action plan, which included the Department establishing an Equality and Diversity Committee (EDC). The Chair of the Committee is a member of, and reports to, the Department's Executive Committee and Staff Meetings. The EDC monitors data on recruitment and promotions and conducts yearly or half-yearly surveys of staff and students which are used to monitor equality and diversity issues, including awareness and attitudes.

Flexible working. Our work allocation includes a commitment to flexible working hours, benefitting our members of staff with young families and caring demands, and departments have committed to holding meetings within core working hours (10:00 to 16:00) and not during local school term breaks or holidays. We also allocate the same internal research funding to part-time staff as for full-time staff and have introduced staff and student Reading Weeks with the intention of aligning these with half-term school holidays.

Staff returning from periods of leave. We routinely support applications to adjust working hours after a period of leave for caring or health reasons to ensure a smooth and gradual transition back to work, while also covering the duties of staff taking maternity, adoption, or shared parental leave through temporary staff, and we invite staff to take part in this recruitment to ensure comfort in the continuity of the provision. During leave, staff can use up to 10 paid "Keeping in Touch" days to maintain links to their work, colleagues and job-specific activities. The Department of Psychology also doubles the annual internal research funding for staff returning from maternity or extended shared parental leave. Staff who have required extended leave due to other circumstances (e.g., ill health, bereavement) are supported through Occupational Health Counselling and phased return to work plans, with workload adjustments to facilitate research progression.

Staff with protected characteristics. These needs are diverse and are met on a case-by-case basis. This support includes workplace assessments, training for staff working with others who require more support (e.g., neuro-atypical staff and students), training for staff with a disability where indicated by an Access to Work assessment, Personal Emergency Evacuation Planning, and reasonable adjustments developed on the basis of Access to Work assessments and on a case-by-case basis through discussion with the affected staff. Examples of reasonable adjustments include adjustments in type of workload (e.g., to account for autism, dyslexia), tailored equipment (e.g., noise cancelling headphones) and software (e.g., for dictation).

Widening participation and mentoring. Within the assessment period, we appointed our own Widening Participation officer, tasked with leading a range of endeavours to increase the diversity of our student recruitment, with an emphasis on the diversity of research leaders and research foci in psychology during our outreach and in our research-led teaching. In addition, our Clinical Director (Butler) has established a mentoring programme for BAME students which encompasses research careers and training, including clinical and nonclinical academic staff and external clinical psychologists in the southwest region.

Output selection. Consistent with the University of Bath's REF 2021 Code of Practice, the procedures used to select outputs for submission were consistent, transparent, accountable, and conducted in an inclusive manner and in accordance with our institutional values and existing policies, including Equality and Diversity policies. In line with these practices, output selection was well-balanced by gender (52% of all outputs were attributed to female staff).

Integration of clinical academics and NHS-employed active researchers

Beyond co-location within our new building, the clinical team is well-integrated in the Department of Psychology and wider University. Our Clinical Director is a Deputy Head of Department, and the Programme Director is Director of the Centre for Mindfulness and

Compassion, which is a joint initiative with University Student Services, and also sits on the University's Health and Well-being Steering Committee. Clinical academics have leadership positions on the Psychology Research Ethics Committee (PREC), ESRC SWDTP Committee and in departmental research clusters. Clinical and nonclinical academic staff co-supervise postdoctoral, doctoral and MSc students, collaborating on more than 20 research projects. Clinical academics teach on the undergraduate Psychology and MSc programmes, nonclinical academics teach on the DClinPsy programme, and all staff present at the departmental seminar series and research group seminar series. The DClinPsy team hosts a monthly seminar on clinical research skills that is open to all staff and PGR students in the department, and our DClinPsy Research Director co-leads a mentoring scheme for PhD students in the department. Final year DClinPsy students organise an annual conference to disseminate their research, attended by a range of academic staff and PGR students.

Research career development of clinical researchers

Development opportunities available to all staff and postgraduate research students are also available to clinical trainees and researchers. Trainees from our DClinPsy programme have successfully obtained appointments in academic roles, including doctoral and postdoctoral clinical fellowships (NIHR, Wellcome Trust) within the Department and other institutions (Oxford Centre for Anxiety Disorders and Trauma). Clinical academic staff provide an annual information evening on clinical research fellowships. Our Academic Director of the DClinPsy programme (Daniels) is on the steering committee for the British Association for Behavioural & Cognitive Psychotherapies (BABCP) which held its annual research conference at the University in 2018. Our DClinPsy students receive financial support to disseminate their research at conferences.

Section 3. Income, infrastructure and facilities

Research funding

We have a diverse portfolio of competitively funded research including from national and international research councils or commissions (Australian Research Council, AHRC, BBSRC, British Academy, ESRC, EPSRC, ERC, EU Commission, Innovate UK, MRC, NERC, and Netherlands Organisation for Scientific Research), national and international charities (e.g., Academy of Medical Sciences, Alcohol Research UK, Alzheimer's Research UK, Arthritis Research Campaign, Baily Thomas Charitable Fund, Cancer Research UK, John Templeton Foundation, and Leverhulme Trust), health trusts (e.g., NIHR), central government and local councils (e.g., Home Office, Food Standards Agency), and industry (e.g., Open Bionics, Wessex Water, Western Power Distribution).

We focus on securing funding that will produce high quality research outputs and impact. The funded activities are numerous, but some examples help to illustrate. For example, Halligan's ESRC-funded project on parental responses to child trauma produced several excellent publications in outlets with international reach (e.g., Hiller et al., 2018, *Journal of Child Psychology and Psychiatry*). Based on Maras's research funded by the ESRC and British Academy, police policy and practice have changed to accommodate the needs of autistic people during contact with the criminal justice system. Whitmarsh's ERC Fellowship and ESRC Centre are yielding international reach in both outputs and impact regarding key interdisciplinary issues in addressing climate change.

Strategies for generating income

Generating research income is supported and incentivised via several institutional and departmental mechanisms:

Institutional strategies and support. The University's Research and Innovation Services (RIS) provides advice on grant preparation and submission procedures, project costing and financial management. RIS also provides specific research development training, such as workshops on funding proposals, "Application Surgeries" and "Shut Up and Write" sessions. Research Development Managers, who organise and facilitate these initiatives, have extensive experience preparing successful funding applications. The University helps researchers identify sources of research funding through Research Professional, the University's database for research funding opportunities. These updates are communicated to staff regularly through "Funding@Bath" communications and they highlight funding opportunities for part-time staff and staff returning after career breaks.

Departmental strategies and support. Adopting a creative think-tank approach, our lab group or centre meetings perform informal peer review (e.g., by discussing grant proposals in development), and a Deputy Research Director leads formal peer review, including a regular Peer Review Pitching Panel. Through the panel, staff receive supportive and constructive feedback on their research project ideas from key staff in RIS and from diverse colleagues with experience on grant assessment panels (e.g., Callan, Maio, Stanton Fraser) or a track record of achieving external grant funding through competition (e.g., Barnett, Freeman, Halligan). The panels facilitate growth in general ideas and draft proposals, while signposting opportunities for international and interdisciplinary working. Our internal funding allocation mechanisms ensure diversity of assessment panels, to ensure a broad range of voices and perspectives in the decision-making and feedback processes.

Infrastructure and facilities supporting research

The unit's research infrastructure transformed dramatically within the assessment period following the opening of the £30 million 10 West building in 2016, reflecting a major investment in UoA4 research by the University. Along with significant investments in state-of-the-art research facilities and equipment, the opening of 10 West resulted in a four-fold increase in total research space available to research staff and students (from 260m² in 6 West to 1067m² in 10 West). This transformative expansion has enabled UoA4 staff and students across our research clusters to explore new lines of research that were not previously possible, including research on cross-modal integration, human-computer interaction, real-time social interaction, inter-brain synchrony, judgment and decision making in virtual environments, and child development.

Reflecting our strong culture of inclusivity, collaboration, and maximising benefit for PhD researchers, all research space and equipment is freely bookable (using a centralised online booking system) for all staff and students.

10 West features a suite of purpose-built, specialised laboratories alongside general research and teaching accommodation. The world-class, cutting-edge facilities comprise:

- ***Virtual Reality Suite.*** The VR Suite is a blacked-out 25m² space with motion sensor cameras, networked computing and software (e.g., Unity), and Oculus Rifts.
- ***Pain Labs.*** These labs comprise Electrical, Pathway and Cold Pressor rooms, with a networked PC and experimental software in each room.
- ***Centre for Applied Autism Research (CAAR) Lab.*** The CAAR lab has two research rooms with a networked PC in each.
- ***Eye Tracker Lab.*** This lab uses a stationary Tobii Eye Tracker to run experiments with Tobii Studio or E-Prime, and an additional networked PC.
- ***PsychoBiology Suite.*** This suite includes a research kitchen (for preparing experimental substances), waiting area, a testing area with a two-way mirror and a bio-storage area.

- **CrossModal Perception Lab.** This lab includes a sound proofed testing area and separate small and large testing spaces.
- **EEG Faraday Cages.** One large Faraday Cage is used for interactive and social EEG experiments. Two smaller Faraday cages enable single EEG recording. The two smaller cages include Geodesic EEG System 400.
- **Flexible Lab.** The flexible lab contains the Research BioPac system. There are 19 PCs in this room for use with the BioPacs and 10 Tobii mobile eye trackers.
- **Baby Lab and Developmental Observation Suite.** Alongside a baby-friendly waiting room, this suite features a two-way mirror and several integral recording cameras. A networked PC in the suite is equipped with Observer XT software for conducting video and audio analysis.
- **Social Observation Suite.** This suite features a two-way mirror and several integral recording cameras. A moveable wall allows for two smaller rooms or one large interaction space.
- **CREATE - Human Computer Interaction Lab.** This 49m² space includes networked PCs using a range of equipment, including a Nao robot, Cozmo robots and VR equipment such as Oculus Rifts and Oculus Go's.

The University provides fully-funded and licenced specialist experiment generation (e.g., PsychoPy, E-Prime, Inquisit/Inquisit Web, Qualtrics) and data analysis (e.g., MPlus, Covidence, Atlas, Express Scribe, NVivo, Matlab) software. Staff and student researchers have access to large participant pools, including a robust undergraduate Research Participation Scheme and a Research Community Participation Panel. Clinical researchers draw on links with local NHS Service-User groups and those developed in partnership with local and national charities (e.g., OCD-UK, Hoarding UK). We also have a committee for People with Personal Experience (PPE) who advise staff and clinical doctorate students on individual research projects at all stages. In 2019, the Department invested in a Prolific.co Fund to enhance the quality of our research outputs through professional, highly-powered online survey and experimental research.

Research management and technical support. Our research is supported by a Research Hub Team, which includes two academics, an Experimental Officer and a Research Technician. The technical team has specialist expertise in the available software, equipment and facilities (e.g., BioPacs), and they provide continual support and training to research staff and students (e.g., one-to-one support, workshops). They are also part of the Departmental Research Committee with a standing agenda item.

Maintaining and upgrading infrastructure and facilities supporting research.

Within the assessment period, the Faculty of Humanities and Social Sciences annual research infrastructure budget has supported ongoing software and equipment upgrades (e.g., license renewals, EEG consumables). This budget and external grant funding have also stimulated expansions and upgrades, including specialised programmes and software packages (e.g., SPM12, FSL, FreeSurfer) and high specification equipment capable of complex mobile recording and analysis involving research with infants (e.g., Eye Link 1000 eye tracker, lab furnishing for infants and their carers). These investments have led to a step-change in the NeuroStim group's capacity to analyse data collected in Bath and at other imaging facilities (e.g., the FMRI centre in Oxford, the Centre of Neuroimaging Sciences at IoPPN in London, MRC CBU in Cambridge), and increased the range of research options for studies of infant development.

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

Arrangements for effective collaborations, networks, and partnerships

Effective local, national, and international research collaborations are achieved by a variety of mechanisms. Within the University, the Research Development team in RIS host workshops and sandpits to help develop interdisciplinary collaborations across the University.

Collaborations within and across our UoA4 research groupings and centres are developed through, for example, cross-grouping supervision of PhD students and collaboration and team building sessions during Departmental Research Away Days. The Department of Psychology's Conference Support Fund supports bids to attend international meetings that provide opportunities for international networking and collaboration. These collaborations are also aided by a Psychology Seminar Series featuring national and international experts and pre- and post-interaction with speakers, now jointly led with the University of Bristol.

Regionally, the University's key involvement with the GW4 Alliance (Bath, Bristol, Cardiff and Exeter) and the GW4's Building Communities Generator Fund supports the creation of new GW4 communities and the development of ideas emerging from our existing communities. Within the assessment period, UoA4 researchers have received GW4 alliance funding to collaboratively investigate trauma and posttraumatic stress disorder in young people (**Halligan**), suicide, self-harm, and homicide in parent carers (**Maras**), and self-harm and suicide in children (**Stallard**).

National and International Collaborations, Networks and Partnerships

National collaborations. Noteworthy funded research collaborations within the UK include: University of Southampton and several other partners (NIHR FeNO project; Ainsworth), University of Northumbria (ESRC CuRATOR project, also with Newcastle University and University of Nottingham; Barnett), Loughborough University (cross-council funded LIDA project, also with University of Exeter and Northumbria University, Barnett), Imperial College London (cross-council and government funded project on understanding public risks, Barnett), University of Edinburgh and 6 other UK partners (Arthritis Research UK PACFiND project; Eccleston), University College London (MRC CANN-TEEN project; Freeman), University of Reading and several other UK university partners (ESRC Emerging Minds project, Halligan), University of Edinburgh and other UK university partners (NIHR project on addressing trauma-related distress of young people in care; Hiller and Halligan), Cardiff University and other UK Partners (ESRC Mental Representations of Children and Templeton Foundation Intellectual Humility, Maio), The AHRC Bristol and Bath Creative Industries Cluster (AHRC; Stanton Fraser), Bristol University and UWE (EPSRC Virtual Realities), Cardiff University and other UK partners (ESRC Centre for Climate Change & Social Transformations; Whitmarsh), and University of Exeter and other UK partners (NERC project on the dynamics of community responses to shale gas; Whitmarsh).

International collaborations. Our team is engaged with partners in over 40 nations, including many less developed nations. Noteworthy funded international collaborations include: Taisho University, Tokyo (The John and Lorna Wing Foundation; Ashwin and Brosnan), Victoria University Wellington and University of Queensland (Australia Research Council; Bain), The EU Horizon 2020 Stance4Health project (consisting of 19 partners from 8 European countries; Barnett), Stellenbosch University EPSRC ReNEW; Barnett and Stanton Fraser) Karnataka University, India, and Universidade Federal do Mato Grosso do Sul (UFMS) in Brazil (Research England GCRF; Maio, Smith), McGill University and other global partners (Family Navigator Project, Canadian Institutes of Health Research, Bedford), Western University, Canada (Leverhulme Trust; Callan), EU-funded FemNAT-CD Consortium (including 17

partners; Fairchild), University of Cologne (German Research Foundation, Hahn), University of Cape Town (MRC project on psychological and physical health impacts of childhood trauma; Halligan and Fairchild), Stellenbosch University (Research England GCRF, Hiller, Halligan, M. Loades, P. Smith), University of Connecticut (Templeton Foundation changing attitudes in public discourse project; Maio), the ENIGMA consortium (worldwide, over 1400 scientists across 43 countries; Walton), EU Horizon 2020 Foresee Project (collaboration involving 18 partners; Walker), EU Horizon 2020 EarlyCause Project (collaboration between 13 European research institutions; Walton), EU Horizon 2020 CHEETAH project (Energy Research Centre of the Netherlands and several EU and UK university partners; Whitmarsh).

Collaboration with commercial, charitable, and governmental bodies. Our researchers have collaborated extensively with and/or received research funds from numerous commercial, charitable, and governmental bodies. Examples include: Coca-Cola Enterprises (Barnett), Department for Environment, Food and Rural Affairs (Barnett, Whitmarsh), Food Standards Agency (Barnett, Whitmarsh), Cabinet Office (Barnett), Bath & N E Somerset Council (Barnett, Kurz, Shah), Wessex Water Enterprises Ltd (Barnett), National Childcare Trust (Bedford), Early Years Alliance (Bedford), JP Morgan Chase (Brosnan), National Autistic Society (CAAR, Shah), Dartmouth-Hitchcock Foundation (Bultitude), MayDay Foundation (Eccleston), Pain Relief Foundation (Jordan), NSPCC (Hamilton-Giachristis), Home Office (Hamilton-Giachristis), College of Policing (Hamilton-Giachristis), Addaction (Joiner), RB UK Commercial Limited (Keogh, Eccleston), Haruv Institute (Lavi), Common Cause Foundation, Common Vision, and More in Common (Maio), Avon & Somerset Police (Maras), Manchester Police (Maras), Advocacy Training (Maras), Adlens Limited (Proulx), Cauldron Science Limited (Shah), Foreign and Commonwealth Office (L. Smith), Sleepio (Stallard), the BBC (Stanton Fraser), Aardman Animation (Stanton Fraser), Sciencscope (Stanton Fraser), Friends Provident (Walker), and Western Power Distribution (Walker), Citizens Advice (Whitmarsh), Department for Business, Energy & Industrial Strategy (Whitmarsh), and the Welsh Government (Whitmarsh).

Co-operation and collaborative arrangements for PGR training. The UOA's key role in the ESRC South West Doctoral Training Partnership has allowed for meaningful collaboration for PGR training within the South West of England. The SWDTP offers PhD students funding (and a stipend) to study in one of 17 subject pathways as well as offering further funding for additional projects. At its heart, the SWDTP focuses on collaboration between the universities, which includes sharing best practice, resources and academic knowledge. The UoA also plays a key role in doctoral training partnerships supported by the MRC (Freeman as Deputy Director) and EPSRC, and interinstitutional supervisory collaborations supported by NIHR.

Integration with health and social services. Several UoA4 staff are integrated and/or have collaborated with a number of health services, including Surrey & Borders Partnership NHS Trust (Chadwick), North Bristol NHS Trust (Daniels), Royal United Hospital NHS Trust (Daniels), Avon & Wiltshire NHS Trust (Maras), University College London Hospitals (Marks), Royal Brisbane & Women's Hospital, Australia (L. Smith), Avon & Wiltshire Mental Health Partnership NHS Trust (Randle-Phillips, Stallard), Oxford Health NHS Foundation Trust (Stallard), Bristol Brain Centre, Southmead Hospital (Stothart).

Staff in this UoA include fully integrated clinical academics and NHS staff on honorary contracts. Our clinical academics are representatives on NHS committees and employed in NHS services, including veterans' services, hospitals, adult mental health services and child and adolescent mental health services (CAMHS). Others have clinical fellowships and are employed part-time in NHS services. Clinical academics conduct randomized controlled trials (RCTs) in collaboration with NHS researchers in IAPT and in general and dental hospitals based in the southwest region, Oxford and London. Clinical and non-clinical academics collaborate with NHS staff in the joint supervision of trainee research portfolios in the mental health of children, adolescents, adults, older adults, and people with intellectual disabilities, as

well as numerous specialist services and in general and dental hospitals. First-year clinical trainees attend an annual research fair where regional NHS supervisors present proposals for service evaluation projects, co-supervised with clinical academic staff. Within the assessment period, clinical academics in the UoA provided treatment for anxiety disorders in children and adults in a specialist clinical research lab on University premises, funded by the Avon and Wiltshire Mental Health Partnership NHS Trust, facilitating the dissemination of empirically-supported treatments to the community and the research of academics, doctoral and MSc students in the unit.

Wider contributions to the economy and society and public engagement

The majority of our UoA4 researchers have engaged in wider public engagement and impact activities not captured in our submitted impact case studies. Other examples of impact and engagement with diverse communities and publics include:

- **Ainsworth's** research on Germ Defence, a website that uses behaviour change techniques and provides simple advice to help people reduce the spread of COVID-19 at home, is leading to the development of an NHSX app and has informed multiple UK SAGE reports and government recommendations during the COVID-19 pandemic.
- **Barnett's** research on the eating out experience of those with food allergies and/or intolerances, funded by the Food Standards Agency, is guiding national policy decisions and practitioners who have the role of implementing food safety standards.
- **Bedford** and the Toddler Attentional Behaviours and LEarning with Touchscreens (TABLET) project team are informing guidelines and recommendations on screen time for 0- to 5-year-olds, through a range of public engagement activities (e.g., co-creation workshops with parents and children).
- Research by the **Centre for Applied Autism Research (CAAR)** has led to changes to training, policy, and practice, including widening participation activities to support autistic people in inclusive compulsory education and improving their access to higher education and employment. CAAR (i) created the first ever empirically-based transition to university programme; (ii) developed Massive Open Online Courses which have been taken by over 10,000 community members across 100 countries in multiple languages, resulting in greater understanding of autism and the capacity to support autistic people; and (iii) championed the University of Bath achieving Leader status from the UK government's Disability Confident employer scheme.
- **Hamilton-Giachritsis's** research with the NSPCC has led to a step-change in awareness of the severity of technology assisted child sexual abuse, changes to UK legal precedent, and to the development of training and resources for practitioners distributed in the UK and other nations (e.g., Australia, Norway).
- **Kurz** and **Shah** have been researching how the implementation of a Clean Air Zone in the City of Bath will influence the behaviour of car drivers, working with funding from the Bath and North East Somerset Council.
- **Proulx's** research using Virtual Reality with an industrial partner (Atkins Global) is informing a range of guidelines for the incorporation of psychological factors into building design, creating commercial impact through reports for the industrial partner and best practice guidelines for the architecture industry.
- **Stanton Fraser** and the CREATE Lab have co-designed human-computer interaction projects with industry partners and charities including the BBC, the Watershed (Bristol), Sciencscope, Microsoft and Aardman. This work has embedded academics in industry, included industry secondments to the university, leading to the development of products and services and changes in industry practice.
- **Weyman's** research contributed to the Department for Work and Pension's strategy in its 'Extending Working Lives Sector Initiative', which is designed to help employers

manage the abolition of the default retirement age, and is continuing in an ESRC-funded project on implications of Covid-19 for NHS staff retention.

Engagement with diverse communities and the public

The University's Public Engagement Unit (PEU) supports researchers to develop and advance their public engagement practice through training and professional development (e.g., running training courses), reward and recognition (e.g., raising the profile of scientists doing excellent public engagement), and leadership (e.g., liaising with key sector influencers and funders).

Within the UoA, a dedicated Engagement Team is led by a Director of Engagement (**Bultitude**) and Media Press Team Liaison (**Shah**). The team works with the central PEU and apprise staff of ongoing opportunities for outreach and public engagement. Consequently, staff have taken part in numerous TV (e.g., BBC 1), radio (e.g., Radio 4), newspaper (e.g., Guardian), online (e.g., social media, blog posts) and live public engagements (e.g., Pint of Science, I'm a Scientist Get me out of here, Science Festivals) in each year during the assessment period.

The COVID-19 pandemic and associated national lockdowns led staff to take on additional public engagement activities. **Daniels** provided clinical expertise on the management of mental health during lockdown (adults, children, frontline workers), which resulted in over 1,000 media articles, over 30 media interviews, an Instagram takeover, podcasts, and dissemination through charities. Likewise, **Loades** provided public engagement around the impact of lockdown on young people's mental health (>600 media articles, >10 media interviews, podcasts, public lectures, and implementation by the Department for Education), and **Whitmarsh** lent her expertise to Welsh, Scottish, and UK governments and their agencies (e.g., DEGRA, BEIS) on the impact of lockdown on low carbon behaviours.

Approach to encouraging and developing best practice in undertaking reproducible research

A survey completed by all UoA4 staff highlighted the increased adoption of open science and reproducibility practices within the assessment period. Over 70% of staff reported adopting open science practices of some kind (e.g., open data, open access, open code and materials, pre-registration, registered reports). Highlights include several publications with pre-registered studies or systematic review protocols from staff across our research clusters (e.g., Bultitude and Proulx, <https://osf.io/8fduw>; Callan, <https://aspredicted.org/xb3rr.pdf>; Eccleston and Keogh, <https://aspredicted.org/4qs2f.pdf>; Hiller and Halligan, PROSPERO protocol 42014014544; Jacobsen and Chadwick, PROSPERO protocol 42015025623). Many staff and their students routinely deposit their data and/or analysis code in repositories such as the Open Science Framework, Github, or institutional repositories. Additionally, Hahn has been involved in international collaborative projects aiming to improve the reproducibility of scientific research (e.g., Landy et al., 2020, *Psychological Bulletin*).

Much of this adoption of open science practices within the unit during the assessment period has stemmed from Button's internationally leading advocacy and scholarly work around open and reproducible science. Her high-profile scholarly contributions on open science and research integrity (e.g., Button et al., 2013, *Nature Reviews Neuroscience*) have had broad impact on journal and funder policies and researcher behaviour both internationally and within the Unit. Highlights of the approaches the unit has taken to encouraging and developing best practices in undertaking reproducible research include:

- Working collaboratively with their supervisors, MSc Applied Clinical Psychology students preregister their dissertation projects where appropriate.

- A practical workshop at Bath on open and reproducible science targeted at PhD students across the GW4 Alliance (with the keynote address open to all staff). The workshop included sessions on preregistration, registered reports, open data and resources, and reproducible workflows.
- A (virtual, due to COVID-19) workshop on reproducibility and research integrity aimed at academic staff within the unit.

Indicators of wider Influence, contributions to and recognition by the research base

Prizes and awards. Early career and senior members of staff have won prestigious national or international awards for their research excellence during the assessment period. Highlights include:

- American Psychological Society Rising Star Award: Bedford
- British Association for Psychopharmacology Award: Freeman
- British Tinnitus Association Marie & Jack Shapiro Prize: Marks
- European Association of Social Psychology Kurt Lewin Medal: Maio
- European Pain Federation Pain Champion Award: Eccleston
- European Psychiatric Association Early Career Researcher Prize: Lancaster
- International Association for the Study of Pain Ronald Melzack Lecture Award: Eccleston
- International College of Neuropsychopharmacology Rafaelsen Young Investigator Award: Freeman
- International Society for Justice Research Early Career Contribution Award: Callan
- Society for the Study of Addiction Fred Yates Prize: Taylor
- UK Society for Behavioural Medicine Early Career Award: Taylor

Fellowships. Research fellowships awarded to staff within the assessment period include: ESRC Future Leader Fellowships (Hiller, Maras), British Academy Mid-Career Fellowship (L. Smith), NIHR Doctoral Fellowship (Loades), NIHR Clinical Trials Fellowship (Jacobsen), Arthritis Research UK Fellowship (Fisher), Ser Cymru II Research Fellowship (Lancaster), European Regional Development Funds (EDRF) Wellcome Trust ISSF Fellowship (Lancaster), Sir Henry Wellcome Fellowship (Bedford).

Participation in national and international funding bodies. UoA4 staff have served on key national and international grants committees, including NIHR Health Technology Assessment Commissioning Committee (Ainsworth), ESRC Grant Assessment Panel A (Callan, Maio), Arthritis Research UK Health Grant Sub-committee (Eccleston), Marie Curie Strategic Research Committee (Eccleston), Norwegian Research Council Grant Panel (Halligan, as panel chair in 2018), ESRC Commissioning Panel for Understanding, Countering and Mitigating Security Threats (Maio, as panel chair), ESRC Open Research Area Panel (Maio), ESRC Commissioning Panel for New Forms of Data Centre for Doctoral Training (Stanton Fraser), Interview panel for UKRI Innovation Fellowships (Stanton Fraser), EPSRC ICT Prioritisation Panel (Stanton Fraser), EPSRC ICT Programme Grants Panel (Stanton Fraser, as panel chair in 2019), EPSRC PETRAS Panel (Stanton Fraser), and EPSRC Fellowships interview panel (Stanton Fraser), EPSRC International Centre to Centre panel (Stanton Fraser), ESRC COVID-19 Emergency Funding (Whitmarsh) EPSRC Decarbonising Heating & Cooling (Whitmarsh), and EPSRC Energy Revolutions (Whitmarsh).

Staff have also reviewed grant proposals for the EPSRC (Stanton Fraser), ESRC (Callan, Maio, Maras, Proulx, Stanton Fraser, Walker, and Weyman are members of the Peer Review College), European Research Council (Barnett), Foundation for Polish Science (Gocłowska), Hong Kong Institute of Education (Maio), Israel Science Foundation (Gocłowska), the Leverhulme Trust (Maio), Marsden Fund (New Zealand; Maio) MRC (Stallard), National Science Foundation (St Clair), NIHR (Daniels, Russell), Social Sciences and Humanities

Research Council of Canada (Callan), UKRI Future Leader Fellowships (Whitmarsh), United States and Israel Binational Science Foundation (Maio), and Volkswagen Foundation (Barnett).

Committee, board, and council membership. Committees, boards, and councils on which staff have served within the assessment period include: Society for Research on Nicotine and Tobacco Europe (Adams, Secretary), NICE Adoption and Impact Reference Panel (Allen), Executive Committee and Regional Representative for International Association of Cross-Cultural Psychology (Bain), Advisory Committee for Social Science for the Food Standards Agency (Barnett), Poland National Science Centre IdeaLab Expert Panel (Barnett), Autistica Scientific Board (Brosnan), Berlin Institute of Health QUEST Scientific Advisory Panel (Button), NICE ME/Chronic Fatigue Clinical Guidelines Development Committee (Daniels), Research Strategic Advisory Committee for Marie Curie Cancer Care UK (Eccleston), Pain Research Strategy Group for Arthritis Research UK (Eccleston), NICE Expert Witness for Cannabis-Based Medicinal Products Advisory Committee (Freeman), UK Trauma Research Council (Halligan), Police Academic Advisory Board (Hamilton-Giachritsis), UKRI Emerging Minds Mental Health Network Advisory Board (Hiller), BPS Division of Health Psychology (Jordan, Secretary), NIHR Research Design Service (P. Smith), EPSRC Digital Economy Programme Strategic Advisory Board (Stanton Fraser), EPSRC ICT Strategic Advisory Team (Stanton Fraser), NICE Public Health Advisory Committee (Weyman).

Journal editorship and refereeing. UoA4 staff serve/have served as Action Editors for diverse international and prestigious academic journals. During this assessment period, journals include *Addiction* (Freeman), *Asian Journal of Social Psychology* (Bain), *Behavioural and Cognitive Psychotherapy* (Daniels, Gregory, Hiller, Russell, Stallard), *British Journal of Social Psychology* (Callan, Kurz, L. Smith as Editor-in-Chief), *Child Abuse Review* (Hamilton-Giachritsis), *Clinical Child Psychology and Psychiatry* (Loades), *Energy Research & Social Sciences* (Whitmarsh), *European Child & Adolescent Psychiatry* (Fairchild), *Frontiers in Personality and Social Psychology* (Maio), *International Journal of Workplace Health Management* (Weyman), *Journal of Applied Social Psychology* (Gocłowska), *Journal of Contextual Behavioral Science* (Dack), *Molecular Autism* (Ashwin), *Pain* (Eccleston), *PLoS ONE* (Proulx), *Psychology & Health* (Keogh), *Psychology & Psychotherapy: Theory, Research & Practice* (Jacobsen), *Psychology Learning & Teaching* (Joiner), *Restorative Neurology & Neuroscience* (Proulx), *Social Justice Research* (Callan), *WIREs Climate Change* (Whitmarsh).

Keynote addresses and conference organisation. Notable keynote or plenary addresses at international conferences include Button's keynote on teaching reproducible science at the Psychological Society of Ireland's Annual Conference, Callan's Early Career Award address at the 2016 International Society for Justice Research conference, Halligan's keynote on children's posttraumatic distress at the 2018 Annual Congress of the European Association for Behavioural and Cognitive Psychotherapies, and Whitmarsh's 2020 Independent Transport Commission Annual Lecture and address at the 2019 Beyond Oil Conference.

Bath UoA4 researchers have served on the scientific or organising committees for national and international conferences, including Association for Contextual Behavioral Science World Conference (2019, Dack), British Association of Behavioural and Psychotherapies Conference (2019, Daniels), British Pain Society's Annual Scientific Meeting (multiple years, Keogh), Congress of the European Association of Forensic Child and Adolescent Psychiatry (Fairchild, 2016), European Association for Social Psychology General Meeting (2020, Callan), International Cycling Safety Conference (multiple years, Walker), International Psychological Applications Conference and Trends (Hamilton-Giachritsis, 2014), International Society for Justice Research Biennial Meeting (2016, Callan), International Society for Traumatic Stress Studies Annual Meeting (2019, Hiller as co-Chair), and Society for the Study of Addiction Annual Conference (2019, Freeman).