

Institution: Edge Hill University
Unit of Assessment: 4 Psychology
<p>Section 1. Unit context and structure, research and impact strategy</p> <p>Edge Hill was granted university status in 2006 and Psychology was established as an independent department in 2011. In REF2014 we submitted 12 staff and since 2014, the UOA has doubled in size to 24 staff. This substantial growth has been accompanied by parallel investment in research infrastructure, including a move to a purpose-designed psychology building in 2019. Dedicated research space has expanded more than three-fold and our inventory of specialised research technologies is significantly enhanced. Research income over the REF period has also grown threefold, and PhD completions have increased very significantly thereby establishing a community of research students who actively contribute to, and are supported by, a vibrant and inclusive research environment.</p> <p>We developed a two-phase approach to building research capability, reputation and impact. The focus of the first phase, corresponding to the current REF period, was in terms of developing critical mass in all of the core areas - personnel, facilities, research tools, expertise, teams, contacts, and reputation – all of which are needed to underpin competitive large-scale proposals whilst still enabling a range of smaller projects. The second phase, outlined under strategic aims below, will consolidate and build on this platform.</p> <p>The research areas we have selected derive from the view that for research of vitality it is important to focus on the fundamental issues that confront any society, including psychological barriers to mitigating the climate crisis, substance use, and communication in our digital world. We strive to create and use the latest available techniques, and to undertake a 360-degree, multidisciplinary approach, working in partnership with researchers from other disciplines and from other establishments, national and international, to undertake interdisciplinary research.</p> <p>Our overarching goal has been to develop a vibrant and engaged department with good synergy between research and teaching, and with the pursuit of research excellence and impact embedded sustainably throughout the department at all levels – from undergraduate students to professors. In our first REF submission in 2014, we wrote that societal impact and relevance driven by good theory ‘would be our own litmus test of good research in this department’. This commitment has continued and has informed our strategy throughout the current REF cycle.</p> <p>Research strategy</p> <p>Our development is informed by a three-pronged research strategy with sustainability, excellence and inclusivity at its core. Sustainability: the strategy must be highly resilient, fully accounted, predictable, and empowering. In addition, however, it is critical to have the tools and facilities needed for cost-effective, innovative research. Excellence involves not just research of the highest technical quality, but research with major relevance to society. It involves both theoretical innovation and impact, attacking global challenges, regional challenges, and theoretical challenges. It aims to be distinctive, interdisciplinary and of significance for future developments and, most important of all, research that makes a difference, both now and in the longer term, in academic circles and/or in wider society. Inclusivity is also a key strategic aim. We do not have (and do not wish to have) a ‘research elite’ with special privileges, perhaps ‘bought out’ of teaching. Our department wishes to involve, empower and include all researchers in our research and impact agenda, in the same way that we include all in our teaching. Departmental research groups are designed to capture the coming theoretical ideas of this century and are inclusive rather than exclusive, moving forward together as a team. Furthermore, inclusivity goes beyond our doors. We wish to involve, and contribute to, interdisciplinary research within our own University, involving the three cross-disciplinary research institutes, namely the Health Research Institute, the Institute for Creative Enterprise and the Institute for Social Responsibility, together with external partners.</p> <p>Research Groups</p> <p>In REF2014 our research was based around two relatively broad research groupings (the</p>

Cognitive Science Research Group and the Health and Social Issues Research Group). Subsequently, our expansion was developed systematically to consolidate and refine the focus of these foundational research groups, resulting in four groups, identified below, which form the bedrock of our research structures.

Each group has regular activities designed to foster a strongly collaborative research culture both within and, capitalising on synergies, across the different research groups. These range from minimally structured blue-sky discussions to peer reviews of bids and articles. Activities such as research group meetings, seminar series, equipment/software training and journal clubs are promoted to all staff to enhance collegiality and help ensure that staff are actively engaged in at least one departmental collaborative research programme. Groups have a remit to consider explicitly the implications of their research for society (including the global community). Our choice of research foci has been guided by strategic feasibility considerations (section 3) and reflects decisions and underlying values about how Psychology at EHU can best contribute psychological knowledge for societal benefit, rather than being solely or principally dictated by funding priorities. This is mirrored in the research themes and activities of the research groups, as follows:

Cognition, Emotion & Behaviour (CEB) (coordinators: **Balani** and **Powell**; members: **Beattie, Burns, Litchfield, Makris, Murphy, Qureshi, Reeder, Tham, Wolohan**). This group encompasses both theoretical and applied research with an explicit focus on the cognitive and perceptual processes that shape human actions and behaviour in a variety of important real-world contexts. These include clinical research on the effects of brain injury on cognition/behaviour, how to facilitate cognitive rehabilitation, investigations of the neural underpinning of human actions, cognitions and emotions, including theory of mind, attention and decision-making in various applied contexts.

Expertise, Development & Neural Plasticity (EDN) (coordinators: **Karaminis** and **Makris**; members: **Atherton, Litchfield, Makris, McPhillips, Nicolson, Reeder, Tham, Van Rijsbergen**). This group has both a theoretical and applied focus on developmental issues across the age-span, from infants to adults, and in both neuro-typical and atypical populations, with particular emphasis on dyslexia and autism. It also focuses on expertise-development and training in the context of models of human learning.

Health, Lifestyles & Wellbeing (HLW) (coordinator: **Monk**; members: **Balani, Heim, Kaye, Larkin, Levy, Murphy, Qureshi**). With links to the institutional Health Research Institute (with **Levy** as deputy Director), this group investigates a range of psychological and social influences on health, particularly substance use and cardiac rehabilitation. The group is developing theoretical models of how people perceive, regulate, and change health-relevant behaviours in different contexts. The aim is to harness psychosocial forces to promote wellbeing and tackle health-related inequalities.

Multi-modal Communication (MMC) (coordinator: **Beattie**; members: **Atherton, Balani, Burns, Cross, Humphries, Kaye, Karaminis, Makris, Nicolson, Qureshi, Van Rijsbergen, Wall**). This group has an explicit remit to focus on interdisciplinary research. It comprises researchers investigating multimodal communication in real-world and applied contexts, which include both face-to-face and online communication, communication in learning, sporting, employment and forensic contexts, communication in autism, as well as the neuroscientific basis of processing multimodal messages.

Over the REF period, our redesigned research groups cultivated new collaborations within the department, across the institution, and both nationally and internationally to address our research priorities (section 4). We now have a track record of linking researchers with significant histories of theoretical and methodological research (but with little previous focus on impact) to important applied themes of significance (e.g., theoretical work on explicit categorisation in stimulus-response psychology, now applied to implicit racism; research on corpus linguistics, now applied to understanding media representations of autism).

A further means of achieving our aims has been to sustain research vitality by mitigating threats to productivity. During this period, this has meant that a priority was to ensure that staff are able to engage in programmes of international-level research in the absence of sizeable external

funding (section 3). Obtaining internal funding has thus been crucial in order to develop our research profile. To this end, the department Research Management Group (RMG; see below) has expanded its role in guiding the development and selection of projects for our institution's internal research support schemes. All applications for University funding are now discussed with a relevant member of the RMG and the Research Director (**Heim**) prior to submission; applications need to make explicit the strategic fit with research group aims, which is affirmed in the departmental support statement. This has helped ensure that over the current REF cycle Psychology was a major beneficiary of University research support (section 2).

We have also improved research management and monitoring/reporting of progress towards realising our aims. A substantially revamped RMG (section 2) now includes research group coordinators, to ensure that groups retain a focus on our strategic aims. At our bimonthly RMG meetings, a standing agenda item now requires coordinators to provide structured updates on activities. In this way, they report progress regarding (i) theoretical and applied questions being addressed and whether/how these align with funding priorities and our outreach and impact agendas, (ii) the wider significance of any new proposed collaborations, (iii) progress towards internationalisation (including, going forward, ideas for honorary appointments and ODA-oriented research developments – see below). The distribution of 'good news' summaries of achievements (e.g., accepted manuscripts, grant awards, impact success, notable media coverage) in advance of every staff meeting serves to provide positive reinforcement of success.

Ethics and integrity

Fully committed to the Concordat to Support Research Integrity and in support of institutional policies and procedures, we aim to ensure research integrity through solid governance. All our research is carried out with due regard for participants' dignity and welfare and we seek to minimise risks to participants, our students and staff, and the department/institution. All staff and PGR projects are subject to mandatory peer review to ensure they meet local criteria and those of (inter)national bodies such as the BPS and APA. The University has recently invested in an online ethics monitor system which has improved both efficiency and monitoring. Human tissue data collection is undertaken in accordance with the Human Tissue Act (2004) and coordinated by the Edge Hill University Human Tissue Management Sub-committee on which **Murphy** serves. All research integrity information (including ethics policy, codes of practice and reports on the Concordat) and ethics guidelines are online in our centrally maintained 'research wiki', ensuring that they are current. We have approved procedural protocols for specialist types of research (e.g., alcohol administration, eye-tracking, EEG, TMS) to avoid redundant duplication in ethical scrutiny. In this efficiency-improving vein, staff are encouraged to seek ethical clearance for research programmes rather than individual small-scale studies. Well-established low-risk data collection protocols are fast-tracked, whilst research with clinical populations is approved by relevant external bodies.

Our approach to integrity includes having respect for our sources and subjects and through our commitment to responsible metrics: we do make benign use of metrics, recognising that quantitative evaluation should support but not supplant qualitative, expert assessment. Adhering to DORA, we exercise nuanced judgement of all available evidence in relation to recruitment, promotion and the allocation of resources. Following the University's statement on metrics, we do not use simple metrics alone to inform any of our decisions regarding promotions or access to resources. We work with our colleagues to ensure that they are aware of the limitations of metrics when describing their own work.

Open Science

Complementing our commitment to psychological science integrity, and in tandem with the institution, we have made considerable progress in building a research environment that is rooted in open science principles. 80% of staff now use repositories (e.g., Figshare, OSF, Zenodo) and a growing number of outputs were pre-registered over the REF period. All publications are deposited in the institutional repository, which is registered with Unpaywall and Jisc CORE to facilitate global full-text access. In line with our commitment to open access, we are beginning to promote pre-publication via relevant repositories such as PsyArXiv; open data practices are also improving through more consistent repository use. We are also moving

towards adopting open-source software (e.g., R, JASP) and we support and encourage staff and PGRs to attend relevant training (see section 2). We encourage staff to publish gold OA in journals with which the University has agreements, to maximize reach and accessibility. Our staff also promote open science in the wider institution and beyond: for example, **Kaye** delivers development sessions on the benefits of open research to events organised by Edge Hill, Liverpool University and Liverpool John Moores University as part of Open Research Week. We will continue investing time and effort into establishing open science practices to benefit our research beyond REF2021, and it bodes well for the future that our ECRs are leading the way by championing open science practices to promote greater research integrity, transparency and reproducibility.

Impact strategy

Embedding impact considerations into all stages of the research process is central to realising our strategic aim of using our psychological knowledge in the socially-engaged promotion of fairness and well-being. Our impact strategy is designed to help us identify and meet the needs of research users as we grow our reputation for beneficial research.

The new research groups were designed to ensure capacity for impactful research and to function as the engine that drives advancement of our impact agendas. Potential for research to benefit users has been a key criterion for recruitment decisions over the REF cycle (see section 2). Central to our impact strategy is equipping researchers with a nuanced understanding of impact, which we achieve by drawing on both departmental and institutional expertise.

To improve impact promotion and support, we created the new role of Director of External Impact (**Beattie**), recognised in workload allocation, to work with both research groups and staff individually. Our approach entails: (i) assessments of our current and emerging expertise, (ii) identification of end-users and key actors locally, nationally and internationally and promotion of collaboration with these (see section 4), (iii) needs assessment of both research users and staff to identify symbiotic opportunities, (iv) assessment of the funding landscape in relation to these considerations and identification of possible (non-) academic partners/collaborators, (v) ensuring impact-capture, (vi) increasing engagement activities through (social and traditional) media to enhance profile with key stakeholders and the public (see section 4).

Regular support provided by the institutional Research Impact Manager augments departmental efforts and we have improved impact oversight via a standing agenda item on both research group and research management group meetings. Internal research funding applications require an impact plan and details of planned dissemination activities to help ensure that impact considerations are integral to research planning (see section 3).

Impact Case Studies

The impact case studies illustrate the synergy between our fundamental research and our translational research together with sustained relationships with end users, to embed their needs at the centre of the research process. Furthermore, they exemplify how our research is shaping the practices of national and international organisational actors across a variety of sectors for societal benefit:

1. Research on the role of implicit communication and cognition in decision-making has informed international policy and practice on the psychology of sustainability, racial inequality and communication. Highlighting the growing reach of our impact activities, ICS1 demonstrates how we work with key actors to imbue their activities with insights from our research findings and our responsiveness to research user priorities/needs.
2. Research by our substance use and misuse lab has benefitted interventions reducing alcohol-related harms and shaped public debate in relation to substance use. ICS2 exemplifies our collegial approach to fostering impact and illustrates how we have been building long-term relationships with end users to benefit their activities and for their needs to inform our research.
3. Research into understanding various challenges in online communication and behaviour has informed and widened public debate, leading to changed

organisational understanding regarding online behaviours that include emojis and social media use. Showcasing engagement activities with key stakeholders and the public, ICS3 illustrates how the systematic assessment of research user needs enables us identify opportunities for joint working for societal benefit.

Strategic aims 2021-2028

In support of the University Research Strategy 2021-2025, we will continue to build towards our aim of becoming a department that is recognised internationally for high-quality psychological research that is theoretically and methodologically useful beyond disciplinary boundaries and improves people's lives. We have put many processes in place to assist our development as a significant research-based department, and our strategy is to build on these over the next seven years to:

1. Enhance vitality by:

- Adopting a positive psychology approach – staff work to their motives, strengths and passions. We appoint good researchers and provide them with an environment where they can thrive, and via our group structures we ensure that they become embedded within a productive research culture. Our forward-looking emphasis, and our focus on global challenges and on teamwork, align with our agility in responding to new situations and challenges.
- Capitalising on existing research strengths and synergies across the University to address issues of societal need. We aim to lead on the development of three interdisciplinary research clusters hosted in the department: (i) atypical development and expertise acquisition across the lifespan, (ii) substance (mis)use, and (iii) multimodal analysis of human communication. This will formalise existing cross-disciplinary research links with the departments of Computer Science, English, Geography and Media, the faculties of Health, Social Care and Medicine, and Education, as well as the University research institutes for Creative Enterprise, Health Research and Social Responsibility.
- Supporting the development of our research groups through the appointment of honorary external members and building a specialist state-of-the-art dual-purpose infant/atypical human movement lab to support activity in these areas.
- Increasing our commitment to open science and research integrity by creating a workload-recognised role as departmental open science/research integrity champion who will be tasked with promoting best practice (psychological) science within our UOA, institution and beyond, and who will become a local network lead on the UK Reproducibility Network (where we currently have no representation).

2. Ensure sustainability through:

- Building our research capacity through recruitment and retention of staff able to undertake world-leading research and supporting them to realise their potential.
- Ongoing support for career progression of staff and continuing to address our department's gender pay disparity at senior levels (via recruitment, development and promotion of female research leaders) and increasing further the diversity of staff and PGRs. Towards maximising manifold benefits of workforce diversity in our department, we will embed explicit consideration of issues arising from disability, minority (ethnic) and gendered circumstances more resolutely across all relevant departmental processes. We will continue to use the PDR process to ensure that all staff consider how they can optimise research support resources to advance their careers and to ensure that they are aware of the resources available to them.
- Improving higher cost recovery rates from external sources to ensure sustainability.

- Expanding our research student numbers by drawing on our experience of establishing from scratch an increasingly vibrant community of PhD students during the current REF cycle.

3. Achieve impact by:

- Continuing to build our reputation through use of (social) media and enhancing the usefulness and impact of our research. This will be achieved by sustaining and deepening engagement through (cross-disciplinary) collaborations within the academy and partnership working with key actors in the public, private, and voluntary sectors.
- Enhancing the reach of our impact activities beyond relatively privileged (Northern) contexts. To achieve this, we will utilise experience from current departmental projects with University of Ghana concerning alcohol use in sub-Saharan Africa and, in collaboration with Geography, with Universiti Teknologi Malaysia regarding environmental sustainability.

Our research strategy is reviewed annually, and we monitor and evaluate our departmental performance through interrogation of both processes and outcomes in consideration of external quality benchmarks (including the REF) and investments/inputs (including staff time).

Section 2. People

Staffing and workload: The core elements of our people strategy are:

- a) to attract staff who can contribute to one or more of our research groups and are able to undertake high-quality, theoretically interesting research that has potential for impact and informs teaching
- b) to recruit at all career levels to ensure sustainability and help succession planning
- c) to provide an excellent experience from recruitment, through induction to development and promotion
- d) to invest in the next generation of researchers
- e) to be sensitive to equality, diversity and inclusion issues in all staffing considerations.

23.81 FTE Category A are submitted, representing 92% of academic staff in Psychology on the census date. All those submitted hold substantive posts and permanent contracts indicating significant responsibility for research. Over the REF period, we focussed on the recruitment of promising ECRs (**Atherton, Burns, Cross, Reeder, Tham, Van Rijsbergen**) and mid-career researchers (**Karaminis, McPhillips, Wolohan**) to add new dimensions to ongoing research. We also appointed a new professor as HOD in 2017 (**Nicolson**) to strengthen leadership of our expanding department. Three further appointments have been made since the census date and there has been an internal transfer from the Faculty of Education.

The on-going expansion of staff numbers has been managed carefully to ensure strategic fit. It has provided an opportunity to:

- organise workloads more effectively;
- harness economies of scale; and
- free up time for research through effective workload planning.

We conducted a full review of our teaching portfolio to help ensure that, wherever possible, new staff contribute to existing modules which reflect their areas of expertise. Undergraduate dissertation topics are now closely aligned with staff research interests, following changes as to how prospective projects are advertised. This careful management of our expansion of undergraduate students (412 in 2014 to 632 in 2020) has also been supported by the Graduate

Teaching Assistant (GTA) scheme (see below). These changes have resulted in more than 33% of staff time being identified for research and research-related activity.

A related development has been the review of our transparent workload allocation model to recognise fully research activities: for example, having ensured that everyone has equal opportunities to construct research bids, we endeavour to account for the submission of grant applications in workload allocations the following year. The model requires open and transparent management, but it better reflects the demands of a growing and supportive research-based department which is committed to both research excellence and fairness of opportunity. We will continue to refine and nuance the workload-allocation model in light of good management practice.

The growth in our research capabilities and capacities over the current REF cycle evidences the effectiveness of our staffing and workload strategy. It has also enabled us to establish a strong human capital base to build upon going forward, with significant stability in the workforce.

Equality, diversity and inclusion (EDI): With respect to the staff submitted, we acknowledge significant gender inequality at more senior levels: on the census date the percentage of staff at each grade (with female to male ratio) was 12% lecturer (3:0), 67% senior lecturer (8:8), 4% reader (0:1) and 17% professor (0:4). Two staff being returned identify as Black, Asian or minority ethnic and eight (33%) staff were born and raised outside the UK.

In support of our EDI strategy, we operate flexible working hours and afford staff opportunity to work from home (when appropriate) to promote their wellbeing and help bridge work and caring responsibilities. We continue to support staff moving between full- and part-time and those returning from maternity/paternity/adoption breaks (3 occurrences over current REF period) are given reduced teaching loads.

Over the REF period we have made concerted efforts to address the gender disparity in senior positions. In preparation for becoming the first department at Edge Hill University to be awarded an Athena Swan (AS) Bronze Award in 2018, we undertook an in-depth self-assessment that entailed a staff survey and structured discussions with all departmental stakeholders. This helped drive several significant changes: first, we have ensured greater representations of female staff members as departmental representatives on research-related institutional committees, such as the Graduate Board of Studies. Second, we revised the membership of what in 2014 was an all-male Research Management Group (RMG) to achieve a more balanced membership in terms of gender (now 40% female). This group reviews applications to the University's internal research support funds so it is particularly important it is more representative of the Department's demographics. Third, we funded **Kaye** and **Monk's** participation in Advance HE's Aurora training, thereby facilitating their subsequent promotions to reader (Aug 2020). Fourth, AS issues are now a standing agenda item on staff and research management meetings and we now monitor EDI progress as we work towards our goal of attaining an AS Silver Award over the next REF period. Fifth, working with the wider institution, we more proactively encourage mentorship by female role models outside the department.

We also contributed to wider institutional EDI efforts. For example, **Humphries**, who led the AS Psychology steering group, was part of the University self-assessment team for successful re-submission of the institutional AS Bronze award. She was also part of the team advising and supporting other departments obtaining AS awards.

The detailed AS process served to reinforce the need to sustain our EDI commitment vigorously into the future (e.g., by embedding explicit consideration of disability, minority ethnic and gendered circumstances into our recruitment, staffing and workload strategies, as well as performance review processes and progression). Continuing to foster a diverse workforce with opportunities for all will continue to be important for our department, especially as there are early signs that our efforts are beginning to bear fruits: the professoriate, totalling four, is currently still all male, but given the recent promotion of two female staff (both ECRs in 2014), there is evidence that we are moving the right direction.

Following our REF2021 Code of Practice, 92% of Psychology's Category A eligible staff were identified as Category A submitted. All of our impact case studies reflect the research of both

women and men. We are pleased to be returning 100% of staff who have declared a disability, those who have declined to provide information on disability, those who identify as BAME and ECRs. We implemented the selection of outputs as described in the REF2021 CoP; our submitted staff began by selecting and self-reviewed outputs they wished to be considered for submission; for former staff this was facilitated by UOA co-ordinators. All outputs identified for consideration were peer reviewed internally by at least two members of staff (senior staff and those with subject expertise). Our REF group would then discuss the internal reviews to identify outputs for external review to support calibration and agreement on scores and rankings. External reviewers were identified from previous REF panels and fit with research clusters. All self-review scores and peer review scores were made available on a shared drive to enhance transparency and to support personal development. The REF group then identified a long-list of outputs for consideration by REF Decisions Panel, based on ranking, fit with unit's research narrative and to support representation of our submitted staff with particular priority given to ECRs (see below).

Staff development and support. As a young and ambitious department in the process of building a vibrant and sustainable research environment, we are – and must be – strongly committed to nurturing and supporting our staff. 75% of the REF2014 submission were ECRs, therefore a key goal was to manage carefully their transition to the mid-career stage through the application of the Vitae Research Development Framework. Our aim, articulated in our previous REF submission, was to support effectively their continued development, and the success of our strategy is evidenced by the fact that all ECRs included in REF2014 attained promotion.

In addition to facilitating career progression through careful workload management, outlined above, we have in place clear staff support structures and processes. Team members' professional and academic development continues to be reviewed annually through the Performance & Development Review (PDR) to identify areas for development and support. This is now augmented by (i) a separate annual 'research one-to-one' with the Research Director to identify any additional research support needs and (ii) tailored identification of impact opportunities/impact strategy development by the Director of External Impact. To complement these, departmental PDR processes are conducted with explicit consideration of other support mechanisms helping sustain research vitality (see section 1). As part of them, staff present a detailed self-assessment of research, impact and dissemination activities in the previous year and discuss plans for funding bids, dissemination, and impact. All staff are required to have a named research-mentor (at reader/professor level) to act as a 'critical friend' to support their development.

To help build methodological and analytical expertise, the department delivers training on research technologies (e.g., EEG) and software. This both supports professional development and enables staff to take advantage of our considerable investment into research technologies (see section 3). Conference attendance is supported through dedicated departmental and institutional funds, and support is made available for meetings with collaborators (£50k+ since 2014). Our staff have benefitted from considerable pump-priming of research activities which strengthen individual research profiles and promotion cases; over the current REF period, our staff have been awarded internal funding for 28 research projects with an average value of £13.8k (see also section 3).

ECRs: We maintain a strong commitment to supporting our ECRs in keeping with the 2019 Researcher Development Concordat. This is achieved through reduced teaching and administrative loads during probation, mentorship, targeted pump-priming funds for research, and sponsored attendance at research capacity-building events. Our ECR processes are designed to augment our wider research/impact support mechanisms, outlined above, and encompass (i) support for their immediate post-doctoral careers and gaining independence (e.g., by facilitating development of appropriate and effective publishing strategies) and (ii) longer-term career planning (e.g., supporting integration with relevant researchers/stakeholders in the research community and beyond; developing personal grant acquisition and impact development strategies). This includes mentoring by more experienced staff, as well as joint bids and co-authoring of manuscripts. Complementing PDR, ECRs are offered one-to-one support from the HoD and Research Director. Institutional ECR support processes supplement departmental

efforts and include dedicated ECR training events and a biennial ECR/PGR conference facilitating local networking.

With support from experienced supervisory team members and aided by mandatory training, we ensure ECR involvement and leadership in PGR supervision. Career stage is taken into explicit consideration (alongside research proposal quality and applicant suitability) to benefit ECRs when appointing GTAs. Particular attention is paid to affording ECRs opportunities for networking both nationally and internationally (a recent example being the co-funding, with Tohoku University Japan, visiting fellowships for **Cross** and **Atherton**). The effectiveness of our ERC support strategy is evidenced by demonstrable records of sustained publication successes by (former) ECRs in our department and by external funding (e.g., BA/Leverhulme small grants) secured by them. We will continue to refine and improve our ECR support strategy (e.g., by ensuring more equitable representation of ECRs on appointment panels).

When selecting outputs, the first criterion was quality but where there was no distinction, we considered EDI issues. In explicit recognition of our ECR research achievements, we did not make a unit reduction request for outputs in REF2021 and, accounting for quality assessments, the final selection panel prioritised the return of ECR outputs over those by the professoriate. Out of 60 outputs, 30% are attributed to ECRs (higher than their representation in the submission (25%)) whereas 10% are attributed to professors (lower than their representation in the submission (17%)).

PhD students. Complementing progress being made towards a strong and integrated student research culture at all levels, we have made considerable headway towards our aim of establishing a vibrant PGR community: Psychology PhD awards have increased from none in the last REF period to 11 in REF2021. On the census date we had 16 full-time PhD students enrolled (compared to just four in 2014), suggesting that we are well placed to continue our growth in PhD students into the next REF cycle. We also established an MRes degree in 2016. This allows us to identify and develop undergraduates with research potential, and helps fulfil our commitment to developing the next generation of researchers in our specialisms, while improving the throughput of PhD students. The MRes is proving particularly popular among former interns which suggests that this new research degree harmonises well with the internship scheme (see below).

Our achievement of establishing a PGR community was primarily accomplished through GTA studentships (see also section 3). Given that the studentship covers international fees, we have been able to recruit an international and ethnically diverse body of PhD students with eight non-UK students over the current REF period, including five from ODA countries and five from minority ethnic backgrounds, respectively.

All PhD students play an active role in our research groups and are fully supported in their development, both as researchers and in terms of their wider academic development (e.g., by enrolling on the Postgraduate Certificate in Teaching in Higher Education), by having full access to all – and participating in – research capacity building opportunities (as do fixed-term research staff), including those specifically aimed at ECRs. In addition to taking advantage of training opportunities within Edge Hill, we generously support their development through dedicated funds: over the current REF period our relatively small PhD student cohort was awarded £20k in PGR bursaries for activities that include external training events and (inter)national conference attendance.

Through their research-group membership, PhD students are also beneficiaries of our collegial approach to impact (with mentorship from experienced staff) to the benefit of those wanting to pursue careers both within and outside academia. We strongly encourage our PhD students to disseminate findings widely to a range of audiences. The research vitality of our rapidly evolving postgraduate community is evidenced by 46 publications being led- or co-authored by PhD students working with our academic staff since 2014. PhD students have gone on to secure permanent academic (e.g., Aston, MMU) and non-academic positions (e.g., Senior Policy Analyst for the Australian Government).

Section 3. Income, infrastructure and facilities

Research income

Key components of our income strategy reflect that we are a young department with a high proportion of ECRs over the REF period (more than 60% of staff returned in this submission were ECRs at some point during the current REF period): we target smaller calls to gain a profile, use internal funds for pump prime external bids and seek collaborations with departments with a track record of income generation to contribute to their bids. Our research groups were designed on the basis that we are at the beginning of our grant capture journey. Much of our current work does not, therefore, require very high levels of funding and the combination of small strategic awards with the institution's funding schemes has created a foundational research-funding package for researchers and teams that we can build on.

An important capacity-building innovation in this context has been the implementation of a research internship scheme. This was designed to nourish research activity and help develop profiles and projects that will contribute to strong external bid applications, while simultaneously fulfilling our research-based teaching objectives. The scheme was established in 2014 and has grown into one of the largest schemes of this nature nationally. Following a competitive application process, 40 undergraduate and MSc conversion students are awarded paid internships (@60 hours each) for the academic year to assist staff with research. With considerable financial support (currently £22k per annum) from the University – ring-fenced in our annual departmental budget to ensure sustainability – we now offer staff a substantial amount of remunerated research support from our own students. Providing them with a guaranteed income, it is also enabling students to gain valuable hands-on research experience, with benefits for employability, and it reflects our ethos of inclusivity in the research process. Meanwhile, staff obtain dedicated support (e.g., for data collection) and can build student research-teams around projects, thereby enhancing productivity. Our internship scheme also helped to facilitate our strategic shift towards more methodologically rigorous (e.g., multi-study) papers. The success of involving our students in research is a prime reason why, since 2014, 68 undergraduates have joint publications with staff. Internship experience has also been cited by several Psychology graduates as a key reason for helping them secure PhD studentships or employment as RAs.

Complementing the internship scheme, each staff member (including those on fixed-term contracts) receives £700 p.a. to reimburse participants. This, alongside our SONA participant recruitment/management system, has been important in furthering our goal of more routinely attracting participant samples drawn from beyond undergraduate populations that have been the focus of much psychological research. In addition, staff with specialist, or 'hard to reach', data-collection needs receive additional funds: e.g., **Litchfield** was funded to collect data at a large radiography conference in Chicago to support his eye-tracking cancer diagnosis research. Having secured a firm foundation on which to conduct research, we have shifted our focus to winning external funding. Evidencing some significant early successes, we have attracted highly competitive but smaller grants from bodies like the British Academy/Leverhulme (four successful applications in the current REF period, none in the previous REF period) and research has been presented at the British Academy (B.A.) Summer Showcase (2018), which highlights some of the very best research funded by the B.A. We have also gained experience of securing contract research income during the REF period. The number of (cross-disciplinary) grant applications submitted by members of the department as PI or co-PI has shown a very significant increase and, as a result, our total research income more than trebled from £50k (14 awards) in REF2014 to £161k (21 awards) in REF2021. We can see a step change in behaviour with more applications and, increasingly, these are to funders with higher cost-recovery rates which will contribute to long-term sustainability.

In absolute terms, we recognise that overall levels of external income are low. We have relied on internal sources of research support, which have been generous. We have begun to establish a successful track-record for external bids. Going forward, we intend to be more ambitious in our grant capture strategy. In addition to recognising grant applications in workload allocations (see section 2), we support bidding by senior staff through providing grant-preparation sessions for

staff who are also given access to previous successful grant applications from a range of funding sources. All proposals over £10k now undergo a recently instigated UOA peer review process by members of the professoriate and, with support from the University's Research Office, institutional or paid external reviewers are now also used to advise where appropriate. Smaller bids are also routinely reviewed by senior team members although this is not mandatory. Ability to support grant acquisition by research groups will be a consideration for planned honorary appointments to research groups.

Our strategy augments that of the institution which, over the current REF period, has instigated new grant capture reward mechanisms over and above existing ones such as promotion. Since 2016/17, for example, the institution rewards financially successful grant applications by using centrally-held funds to allocate the equivalent of up to 10% of the value of grant funding secured to staff members as a 'bonus' to be spent flexibly with minimal institutional direction on (open) research-, dissemination- and impact-related activities. Over the current REF period the University research institutes have also become active in organising bid writing retreats and relevant workshops (including for knowledge exchange and consultancy), which our staff are encouraged to attend. Attendance of such events will feature in performance reviews going forward.

Psychology secured 25 GTA studentships over the current REF period which is one of the highest numbers in the University. Nonetheless, in support of our goal to become less reliant on internal funding, a strategic aim is to increase bids for studentship funding. This has been assisted by an institutional initiative that 'rewards' departments for securing externally funded PhD studentships (i.e., for every externally fully-funded studentship secured, departments receive an internally funded one). Having established a track-record of successful PhD completions and securing two partially externally funded PhD studentships for alcohol research over the current REF period (compared to none in the REF2014 cycle), this UOA will seek to maximise its thematic strengths to target appropriate funders in pursuit of our long-term goal of filling gaps in doctoral training partnerships.

Facilities and equipment

With significant institutional capital-funding and support, the move to our new home represented an opportunity to transform our research facilities. To take full advantage of this, we established a working group which, via consultations with research groups, undertook a research infrastructure needs assessment with 'bang for buck' considerations at heart prior to building work commencing. As a result, and consistent with our collaborative and collegial research culture, all facilities were designed to maximise sharing across the department. Access is bookable via our technicians or controlled by relevant research groups themselves.

We have expanded our research infrastructure very significantly from 2014 when we only had one observation suite and one specialist lab. To benefit all research groups, we now have an electroencephalography (EEG) lab with an adjacent dedicated data acquisition room to minimise interference from electrical sources, where we combine 64-channel EEG data with measurement of physiological variables (such as heart rate, and facial muscle movements) through BioPac. There are now also dedicated rooms for each of our three fixed eye tracking systems (Eyelink 100; Tobii), a dedicated near-infrared spectroscopy (NIRS) lab, as well as a lab housing our transcranial direct current stimulation (tDCS) and transcranial magnetic stimulation (TMS) equipment. The department now also houses a VR suite.

Supporting more ecological research in a controlled environment, we now have a 'bar lab' for alcohol research (with police-grade breathalysers and wheelchair-accessible back/front bar areas). We also have a social and infant observation lab to support our growing developmental research strand. These labs have state-of-the-art video recording equipment. We have also established a human tissue lab in which we collect saliva, blood and tissue samples. The HTA lab is governed by a University oversight group and we now have technical support to ensure secure freezer storage. The department now also has two dedicated labs with high-performance computers for our modelling work.

The University invests annually in infrastructure and upgrades. Our research groups have the opportunity each spring of identifying capital and revenue equipment needs of members for the

benefit of both research and teaching. These are then prioritised by the RMG with consideration of how equipment can be shared, with the recommendations fed forward to the HoD, who submits the annual departmental plan and budget proposals to Faculty. Over the current REF cycle the department has been able to procure in excess of £100k worth of capital equipment (e.g., TMS equipment) via this route and we have collaborated on several successful bids exploiting synergies with other departments for shared equipment. We also receive a good allocation for revenue items: i.e., consumables under a ceiling of 10k each. In addition, through that annual planning route we appointed a research-support administrator and a second technician over the current REF period in recognition of our expansion.

Through our external-grant proposal peer-review system we ensure that equipment needs are fully costed in. Finally, as part of our regional collaboration strategy (see section 4) we maintain links with the Liverpool Magnetic Resonance Imaging Centre to meet our scanning demands (to which we contribute financially on a project-by-project basis) at Liverpool University, which shares access to this resource.

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

Collaboration, contribution to the research base and recognition

A strategic focus throughout has been on strengthening existing, and forging new, significant links with research centres within our region and beyond. The aim has been to build strong connections in the region to provide a solid base from which to develop national and international ties.

We made noteworthy progress towards our goal of **better integration with partners** in our region, including:

1. Becoming a member of the Liverpool Neuroscience Research Group which includes researchers from all three Liverpool universities and clinicians from the NHS Walton Centre, which is the only specialist hospital trust in the UK dedicated to providing comprehensive neurology, neurosurgery, spinal and pain management services. Our department contributes financially to this interdisciplinary neuroscience network to support its activities and is represented by **Wolohan** on its committee.
2. Our Health, Lifestyles & Wellbeing research group has become a member of the Liverpool Health Partnership (LHP) which is a major regional academic health science collaboration, covering Merseyside and Cheshire, that delivers research and education programmes to address population needs. The substance use and misuse laboratory has joined the LHP Alcohol Research Centre, **Larkin** is a member of LHP Psychosocial Oncology Research Group and **Murphy** is a member of the LHP Neuroscience Group.
3. We now are represented by **Litchfield** on the BPS-funded North West Visual Cognition Group committee which brings together four regional universities to collaborate and share expertise.
4. **Powell** holds a visiting Fellowship at MARIARC (University of Liverpool).
5. **Levy** holds a visiting fellowship at Liverpool Heart & Chest Hospital.

We have also made good progress in establishing and sustaining collaborations with institutions across the UK and overseas. New appointments have helped to expand our networks and collaborations: **Atherton** (e.g., Pompeu Fabra University), **Burns** (e.g., Harvard University), **Cross** (e.g., Jyväskylä University), **Reeder** (e.g., Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig), **Tham** (e.g., Sunway University), **Van Rijsbergen** (e.g., University of Glasgow), **Karaminis** (e.g., UCL), **McPhillips** (e.g., Queen's University, Belfast), **Nicolson** (e.g., Universidad Autónoma de Chile), **Wolohan** (e.g., Western University, Ontario). These new collaborations have facilitated our department embarking on new avenues of inquiry (e.g., prosopagnosia/face perception; atypical patterns of child development, supported by £16k internal funding).

Staff in our UOA are actively **engaged in peer review** for a wide array of international journals as well as **national grant review**, including Cancer Research UK, MRC, ESRC, BBSRC, NIHR, British Academy, Wellcome Trust, The Lister Institute Research Prizes. A member of staff is a fellow of the ESRC peer review panel and served on the grants panel of *Alcohol Change UK/Alcohol Research UK*. Evidencing our growing international reputation, staff members have contributed to **international grant reviews** for diverse funding bodies such as European Commission ERC Consolidator Grant programme, Swiss Foundation of Alcohol Research, Austrian Science Fund, National Science Foundation (USA), Belgian Science Policy Office, British Academy Knowledge Frontiers, Neurological Foundation of New Zealand.

The number of **editorial positions** held during the REF period has increased significantly in comparison to REF2014, as follows. **Chief editorial positions:** *Addiction Research & Theory* (**Heim**) and *International and the Journal of Sport Psychology* (**Levy**). **Editorial board positions:** *Cyberpsychology, Behavior and Social Networking* and *Computers in Human Behavior Reports* (**Kaye**), *Addiction Research & Theory* (**Monk**). **Guest/Action editorial position:** *Journal of Social Psychology; Sage Open* (**Monk**), *International Journal of Environmental Research and Public Health* (**Kaye**). **Editor of book series:** *Current Issues in Psychobiology* (Routledge) (**Murphy**).

With regard to facilitating the development of our discipline, since 2014 members of staff have acted as **external examiners for PhDs** at more than 30 UK and five international institutions, representing a more than a ten-fold increase compared with the previous REF period. In firsts for our maturing department, colleagues have also (i) been awarded **invited visiting fellowships** which include Nanyang Technological University, Singapore (**Burns**) and invitations for research collaboration to the University of Toronto (**Beattie**), and (ii) **hosted international researchers** from Public University of Navarre, Autonomous University of Madrid, and the University of Toronto.

Service to learned societies and research organisations has also improved since 2014, including: Chair of the BPS Cyberpsychology Section; member of the BPS Presidential COVID Coordination Task Force and BPS Task and, in 2017, chair of the Task and Finish group reviewing and updating the BPS Internet-mediated research ethics guidelines (**Kaye**); member of BPS Expert Review Group its 2020 theme of 'From Poverty to Flourishing' (**Murphy**); trustee of Alcohol Change UK (formerly Alcohol Research UK) (**Heim**); committee member of the BPS Psychobiology Section (**Murphy**); invited member of the Scientific Committee of the UN-based International Panel on Behavior Change (IPBC), a member of the Executive Board of the International Interdisciplinary Environmental Association (IIEA) and a member of the International Advisory Board of the Japanese research organisation and think-tank the International Academic Forum (IAFOR) (**Beattie**); co-founder in 2017 of the international Addiction Theory Network which already has 200 members (**Heim**).

A further indication of our growing reputation is **invitations to speak** at over 80 research and public engagement events, of which more than 20 were **plenary addresses**. Exemplifying our growing international reach, events include Technology Enabled Mental Health Conference (Barcelona); TEDx Vienna Conference: "On the Edge" (Vienna) (**Kaye**), the International Symposium on Drug Policy and Public Health (Istanbul) (**Heim**), and the International Congress on Speech and Language Therapy (Thessaloniki) (**Karaminis**). **Beattie's** many international keynotes included the Italian National Geographic Science Festival (Rome) and the International Psychology Conference (Dubai). **National and international conference organisation involvement, including:** Asia Pacific Conference on Vision, VS-Games, Emerging Methods in Addiction Research (London, UK; sponsored by the Society for the Study of Addiction), conferences for both IAFOR and the IIEA, all Annual Scientific Meetings of the BPS Psychobiology Section during the current REF cycle.

Engagement with the public, research users and contributions to the economy and society

Towards our goal of becoming better known among key stakeholders and the public (see section 1), we are increasing engagement activities in line with our commitment to the Concordat for Engaging the Public with Research (see also impact case studies).

We have marketed our research achievements and expertise more effectively across both social and traditional media. Through sustained activity, we enhanced our departmental presence on social media via our Twitter (2700 followers; January 2021) and Facebook (720 followers; January 2021) feeds. We encourage staff and PGRs to make use of personal Twitter accounts to promote their work and connect with other researchers and end-users. We have also increased exponentially our contributions to digital media outlets such as *The Conversation* and, illustrating significant reach, since December 2020 **Balani, Beattie, Kaye, Larkin** and **Wall** have had over 800k combined reads on this platform alone, with considerable subsequent coverage in both the print and broadcast media (including *Newsweek*). Enhanced social media visibility has helped initiate several new collaborations: e.g., a recently submitted meta-analysis on 'screen-time' and mental health of young people with colleagues from a wide range of institutions, including Stetson University, Northumbria University, Villanova University, College of Liberal Arts and Human Sciences, Institute of Technology Carlow.

We also disseminate newsworthy research achievements via targeted use of media releases (not done prior to 2014). Our research findings have subsequently been reported in a much broader range of media outlets catering to different demographics. This included international coverage in more than 30 countries via *Time Magazine*, the BBC, ITN, *The Guardian*, and the *Daily Mail* amongst many others.

Staff continue to develop their reputation as expert commentators drawing on their research findings and offering psychological insights on a range of important topics (e.g., autism, digital safety/wellbeing, substance use, sustainability, communication) across diverse, international media platforms. Our case studies also evidence increased service as **expert advisors on policy and practice**, both nationally and internationally. Locally, we actively participate in Edge Hill's annual Festival of Ideas which attracts the general public.

We have improved engagement with research users and industry in line with strategic aims: for example, **Levy** collaborated with the World Anti-Doping agency (WADA) to develop and validate a unique measurement tool for assessing adolescent beliefs about the use of performance-enhancing drugs; **Nicolson** worked jointly with the British Dyslexia Association and Dyslexia Association of Singapore on projects focussing on strengths and dyslexia; **Beattie** worked with the Leadership Vanguard, founded by Unilever, on sustainable decision-making; **Makris** is collaborating with industrial partner Ipsos Mori, on projects exploring object affordances for the design of novel products and packaging; **Murphy** worked with Alcooliques Anonymes in France to provide information and support for people seeking help with addiction; **Atherton** and **Gray** are working jointly with GameInLab (the R&D arm of Asmodee, France) to systematically examine if boardgames (particularly those involving social deduction and bluffing) may improve perspective taking in individuals with autism; and working with Children and Family Centres (Liverpool), **Wall** has been contributing to client-focussed work to encourage behaviour-change and support their wellbeing during the COVID-pandemic.

Our strategy has yielded several impact successes both locally and (inter)nationally. These include **Levy's** development of an e-learning tool to train healthcare professionals to facilitate behaviour change in patients undertaking prescribed rehabilitation programmes, **Monk's** joint-working with a large national treatment provider (Richmond Fellowship) to better understand predictors of client-reported outcomes and **Beattie** working with the Born Free Foundation to understand the psychological motivations behind trophy hunting, which has fed into presentations by Born Free to the South African Government's High-Level Panel on Wildlife Management. **Karaminis** has conducted experimental research on cognitive development in autism (supported by £18k internal funding) through a project that also developed an engagement scheme with children, their families and schools. As such, the work fittingly illustrates our 'win-win-win' approach to impact, demonstrating how working with stakeholders (i)

helps us embed end-user needs into our research whilst simultaneously (ii) facilitating access to research participants, and (iii) becoming better known with relevant stakeholders.