

Institution: University of Derby	
Unit of Assessment: 4 Psychology, Psychiatry and Neuroscience	
1. Unit context and structure, research and impact strategy	
1.1 Context and structure	
<p>Unit of Assessment (UoA) 4 includes 18 researchers from the School of Human Sciences in the College of Life and Natural Sciences (LNS) and 12 researchers from University of Derby Online Learning (UDOL), plus one from the College of Business, Law and Social Sciences, and one joint appointment between LNS and the College of Health and Social Care (CHSC).</p> <p>During the REF census period, psychology researchers were members of the Human Sciences Research Centre (HSRC), which conducts ‘theoretical and applied research into the prevention and treatment of diseases and into improvements to the quality of life for people of all ages.’ Key themes of the HSRC were ‘a healthy start in life,’ ‘enhancing mental health and wellbeing,’ and ‘combatting disease and promoting physical health.’ The HSRC promoted interdisciplinary research by bringing Psychology researchers together with researchers in Bioscience, Sports Science and Forensic Science. Some researchers in the Unit were also members of the Nature Connectedness Research Group (NCRG) and the Maths Anxiety Research Group (MARG).</p>	
1.2 Research and impact strategy	
<p>In the REF2014 UoA4 feedback, “<i>all aspects of the research environment were judged to be conducive to producing research of internationally recognised or nationally recognised quality.</i>” The sub-panel “<i>welcomed the increase in PhD students and the improvements in laboratory facilities since RAE 2008,</i>” and judged that “<i>further development of strategies to enhance grant capture and develop international collaborations will enhance the research environment moving forwards.</i>”</p> <p>The Unit implemented a Research Strategy for 2014-2020 that was aligned with the University Research Strategy. The objectives of the Strategy and indicators of its success are summarised in Table 1 below.</p>	
Table 1: Summary of Unit research strategy 2014-2020 and indicators of success	
Objectives 2014-2020	Indicators of success
a) Achieve an improved REF submission	Increases in all REF metrics from REF2014 to REF2021 and increased engagement with University research infrastructure.
b) Increase research student numbers and success rates	145% increase in research students (from 20 in 2008-2013 to 29 in 2014-2020) and 425% increase in PGR completions (from 4 in 2008-2013 to 17 in 2014-2020).
c) Support more staff to engage with research	213% increase in FTEs returned (from 14.4 in REF2014 to 30.7 in REF2021).
d) Increase research income	372% increase in research income (from £189,775 in REF 2014 to £706,000 in REF 2021).
<p>A key strategic development early in the REF census period was the replacement of the Centre for Psychological Research with the Human Sciences Research Centre (HSRC). The rationale for this was to promote greater multidisciplinary teamwork in order to achieve higher quality and more impactful research outputs and more successful research grant applications. The HSRC managed a University REF investment budget (see Section 1.3) and processed staff applications for internal funding for short sabbaticals and other support for research, including publication fees for high quality journal articles, and employed a Bid Support Officer who worked closely with Psychology researchers to prepare external research funding applications. Associate Professor Lipka organised fortnightly HSRC seminars to which all academic staff and Postgraduate Research (PGR) students were invited to give presentations and there were occasional external speakers</p>	

nominated for invitation by academic staff and postgraduate researchers in the HSRC. The HSRC also published a quarterly newsletter.

The HSRC enabled Psychology researchers to collaborate more effectively with researchers in the College of Health and Social Care (CHSC) and UoA3. The close links between Colleges and between UoAs is illustrated by the fact that in REF2021 eight health psychology researchers were returned in UoA3 (**Professors Elander and Mitchell; Baird, Cross, Garip, Holland, Montague and Williams**); four forensic psychology researchers were returned in UoA20 (**Bergstrom, Best, Bull and Page**); one educational psychology researcher was returned in UoA23 (**Petronzi**); and one ergonomic psychology researcher was returned in UoA32 (**Sims**). Psychology researchers returned in UoA4 also contributed to the UoA3 impact case studies on management of painful chronic conditions (**Professor Gilbert** and **Associate Professors Maratos** and **Van Gordon**) and academic integrity and critical thinking (**Associate Professors Hunt, Maratos** and **Stupple**).

Compassion-related research was a key focus of the Unit research strategy and both LNS and CHSC supported the University's partnership with the [Compassionate Mind Foundation](#), an international charity. **Professor Gilbert's** 0.3FTE University post was jointly funded by LNS and CHSC. [Compassion-related research](#) is a major strength of the University and the development and expansion of compassion-related research is both a significant achievement for the Unit and evidence of successful collaboration between LNS and CHSC.

1.3 Strategic investment

Since 2014 the College of Life and Natural Sciences (LNS) and University of Derby Online Learning (UDOL) received a University REF investment budget worth approximately £1.9M. This budget, managed by HSRC, funded a Research Chair in Nature Connectedness (**Professor Richardson**); post-doctoral researchers in nature connectedness and compassion-based interventions; PhD studentships in pro-conservation behaviours and intergenerational physical activity; a Research Impact Officer post; short sabbaticals for Unit researchers including **Howard, Hunt, Kotera, Lipka, Stupple** and **Van Gordon**; selected open access publication costs for **Gilbert, Maratos, Richardson, Sheffield** and **Stupple**; as well as seed-funding, consumables, travel, dissemination and other support for research in the Unit. This included, for example, support for projects on good things in nature in Brazil, UK and Japan (**Vione**), critical thinking skills (**Simonovic**), contemplative psychology (**Van Gordon**) and psychopathy (**Fido**).

1.4 Growth since 2014

Table 2 below shows how the growth of the Unit across all REF metrics between 2014 and 2020. There was also significant investment in research laboratories and equipment, including successful Capital Bids related to research facilities and equipment (see Section 3.3).

Table 2: Summary of UoA4 REF progress 2014-2020

	Staff FTEs	Outputs	Impact Case Studies	Research income	PGR completions
UoA4 REF2014 Submission	14.4	53	2	£189,775	4
UoA4 REF2021 Submission	30.7	77	3	£706,000	17

1.5 Achievements since 2014

1.5.1 Compassion-focused research

A first major achievement for the Unit was the further development and extension of [compassion-focused research](#) led by **Professor Gilbert**. The Unit collaborated with the Compassionate Mind Foundation between 2014 and 2020 to create a global network of researchers that promote compassion-based research and practices, further enabled by 10 affiliated organisations around the world. A significant development was the extension of the compassion-based approach from clinical and healthcare applications to wider educational, social and political issues, including the development and evaluation of compassion-based interventions designed specifically for schools

[output **779505-4**]. The Three Circles model has been used throughout Europe by organisations to improve productivity and retention in workplaces and it contributed to a successful CPD programme for educators (see also REF3, 4-1 on compassion-based interventions).

Some of the highlights of the compassion research include functional Magnetic Resonance Imaging (fMRI) studies of neurophysiological and behavioural markers of compassion [e.g., output **782891-3**], as well as studies of the expression and communication of compassion [outputs **779505-3** and **782891-4**]. The Unit developed and validated stimulus sets for experimental research on compassion [output **771856-2**] as well as self-report measures [e.g., outputs **782891-1** and **782234-2**], enabling researchers around the world to study compassion-related processes and evaluate compassion-based interventions. The Unit's research includes development and evaluation of compassion-based interventions adapted for specific populations, including people with fibromyalgia [outputs **785707-2** and **785707-4**], people in weight management programmes [output **782234-1**] and compassion-based interventions using virtual reality technology for people with depression [output **782891-2**].

1.5.2 Nature connectedness research

A second major achievement was the international leadership by **Professor Richardson** of research on [nature connectedness](#), which in 2018 was named by Universities UK (UUK) as one of the UK's 100 best breakthroughs for its impact. The researchers established a multidisciplinary [Nature Connectedness Research Group](#) (NCRG) which has contributed research income to this UoA during the census period. NCRG research informed the redesign of the public engagement activities of national and international nature and conservation organisations to improve public wellbeing and promote pro-conservation behaviours. It was also used in the development of the Mental Health Charter by Student Minds and UUK, prompting the scheme to choose the University of Derby as the first university to pilot the charter. From 2014-2020, NCRG research findings influenced public policies and population measures in the UK and New Zealand and were adopted by the United Nations to improve people's connection with nature. Ongoing nature connectedness projects with regional and national charities and non-governmental organisations led by **Harvey** and others enable those organisations to demonstrate the value they provide to local communities, many of which are in socioeconomically deprived areas, and they enable the Unit's research to impact human wellbeing and the conservation of natural environments in the real world.

The NCRG's research included developing and validating measures of nature connectedness [output **770910-1**] and pro-nature conservation behaviours [output **770910-5**] as well as assessing the impact of nature connectedness on health, wellbeing and pro-environmental behaviours [outputs **770910-2** and **770910-3**]. The Group also evaluated different nature-based interventions to improve wellbeing, including combining natural environments with mindfulness-based stress reduction [output **781372-2**], simulated natural environments [output **781372-4**], and smartphone apps to help people connect with urban nature [output **770910-4**]. The NCRG developed the Pathways to Nature Connectedness, a behaviour change framework that focuses on experiencing rather than mastering nature [output **785039-1**]. This Framework was recognised by the United Nations and influenced the development of the United Nation's post-2020 Biodiversity Framework. The National Trust, Wildlife Trust, European Forest Therapy Institute and the New Zealand Government Department of Conservation have all made improvements to their policy and practice by adopting the framework. Externally funded projects evaluated interventions to improve nature connectedness and the NCRG advises national bodies about policies and measures to promote greater connections to nature for their visitors (see also REF3, 4-2 on improving people's connection with nature).

1.5.3 Maths anxiety research

A third major achievement was the development of [maths anxiety research](#) led by **Associate Professor Hunt** and others in the interdisciplinary [Maths Anxiety Research Group](#) (MARG), which provides internationally recognised research to inform national initiatives for preventing and reducing maths anxiety. The Research changed the practices and policies of Pearson Education, National Numeracy, Health Education England and the British Dyslexia Association and led to work with local, national and international educators to improve maths attainment by identifying

and reducing maths anxiety. A collaboration with the School of Computing and Engineering led to the incorporation of maths anxiety scales and strategies into the software packages of Vretta Inc., resulting in a formal partnership that allowed the University to become Vretta's first academic hub in the UK to support success in mathematics. The University also established its own Maths Hub to support UG and PG students across disciplines to engage positively with mathematics (see also REF3, 4-3 on understanding and reducing maths anxiety).

The Research produced insights into the neurophysiological basis of maths anxiety [output **780122-1**] and the physiological basis of the stressful nature of arithmetic performance for children with maths anxiety [output **779929-5**], as well as research on factors that influence mathematics ability [outputs **779929-1** and **779929-4**]. The research also included studies using eye-tracking [output **779929-3**] and measures of physiological reactivity [output **779929-5**] to examine the mechanics of arithmetic performance, and studies of ways that maths anxiety leads to specific patterns of error [output **779929-2**]. The MARG also produced self-report tools to measure maths anxiety, including the first for young children [output **779548-2**], which have enabled schools and educational specialists nationally and internationally to measure maths anxiety, identify those in need of support, and implement strategies to reduce maths anxiety and increase maths attainment whilst also improving well-being and increasing access to maths education.

1.6 Research methods strengths

One of the strengths of the Unit is expertise in psychometrics and the development of scales. In addition to scales related to compassion, nature connectedness and maths anxiety that are mentioned above, researchers in the Unit have also employed best psychometric practice to develop scales measuring a wide range of constructs including authorial identity [output **776825-1**], critical thinking [output **779505-2**], cyber victimisation [output **785240-2**], flourishing [output **785505-2**], motivation to change lifestyle for dementia risk reduction [output **776825-5**], pain medication attitudes [output **782694-3**], parental confidence in managing food allergy [output **781114-1**], quality of life of carers for people with Huntington's disease [output **782694-1**], relationship continuity in acquired brain injury [output **786767-1**], and satisfaction with treatment for pain [output **782694-4**].

A second strength of the Unit is developing and evaluating psychological interventions. In addition to compassion and nature connectedness interventions mentioned already, researchers in the Unit have developed and evaluated interventions including mindfulness training for sleep problems among people with fibromyalgia [output **785707-3**], meditation awareness training for the treatment of workaholism [output **785707-1**], and hand massage and therapeutic imagery for people with high self-criticism [outputs **781114-2** and **781114-3**]. The evaluations also include randomised-controlled trials, for example of meditation awareness training for the treatment of fibromyalgia [e.g., output **785707-5**].

A third strength of the Unit is research on physiological and psychophysiological mechanisms, with measures including functional Magnetic Resonance Imaging (fMRI), electroencephalography (EEG), eye tracking, cardiovascular stress responses and autonomic arousal (alpha amylase). Researchers in the Unit have used these techniques to study a range of issues in addition to the studies of compassion, nature connectedness and maths anxiety mentioned already. These include challenge and threat responses [output **781372-1**], diabetic polyneuropathy [output **786105-1**], emotion processing [output **784737-1**], judgement and decision making [outputs **776825-4** and **783597-1**], problem solving [output **776825-3**], reasoning [output **776825-2**], spatiotemporal regularity in visual perception [output **300725-2**], and violence inhibition mechanisms [output **786105-3**].

A fourth strength is research on cognitive processes, which unit researchers have conducted to examine attentional processes in emotion processing [outputs **771856-1** and **779505-1**] and children's food neophobia [output **779548-1**], language processing [outputs **783951-1** and **300725-3**], cognitive factors in hearing and listening [output **300725-4**] and working memory in language processing [output **300725-1**]. There is also a special focus on beliefs and the factors that influence beliefs, with an emerging Belief: Identity, Cognition, Experience and Personality

(B:ICEP) Research Group including **Baker, Harvey, Howard, Schofield** and **Stupple**. This group secured external funding for two projects on factors that influence supernatural belief and one on differences between linguistic and non-linguistic mentation (see also Section 3.1.4).

A fifth strength is applied qualitative research using thematic analysis, discourse analysis, conversation analysis and interpretative phenomenological analysis including investigations of young people's engagement with disused space [782496-1], the teaching of art in primary schools [output 780937-1], parenting in the age of sexualisation [output 781841-1], illness perceptions [output 787205-1], and police interviewing of child witnesses [output 782086-1]. Together with other qualitative research conducted in the Unit and research by psychology researchers returned in UoA3 (**Holland, Montague** and **Williams**), the Unit is well known for providing qualitative training for academics and students internationally and the Qualitative Psychology team run multiple training sessions on a range of qualitative methods in psychology and specific techniques each year (see also Section 2.4).

1.7 Research governance

All research in the Unit undergoes research ethics review. **Associate Professors Maratos** (2014-17) and **Stupple** (2017-2020) chaired the College of Life and Natural Sciences Research Ethics Committee (**Barnes** and **Associate Professor Hunt** were deputy chairs), which provided ethical scrutiny and approval for research conducted in the Unit as well as providing training and development in research ethics for researchers in the Unit. **Stupple** also represents the Unit on the University Research Ethics Committee and ensures that Unit researchers are kept informed about University ethics processes and that new University processes take account of the needs of researchers in the Unit as well as the requirements of relevant professional bodies including the British Psychological Society (BPS) and the Health and Care Professions Council (HCPC).

Kotera, Lipka, Sheffield, Stupple and **Van Gordon** all played key roles in the University's introduction of Ethics Monitor, an online research ethics application system for all staff and student researchers including UG, PGT and PGR students. The Unit researchers contributed to this element of University research infrastructure as active members of a Research Ethics Digitisation Board, which was established by the University Professorial Council to oversee the development and introduction of Ethics Monitor, which became operational in September 2019.

The Unit is compliant with the Concordat on Open Research and all Unit researchers follow the University policy of enabling 'Green' Open Access and self-archiving published outputs in the [UDORA](#) repository. The Unit also supports the University commitment to responsible use of metrics and is represented on the Bibliometrics Working Group. The Unit's Responsible Metrics Champion, **Pitrolino** (HSRC Research Impact Officer) supports the implementation of the Concordat to Support Research Integrity.

Several researchers including **Hunt, Richardson** and **Van Gordon** publish research blogs to encourage wider public involvement and engagement, for example on [Maths Anxiety in Young Children](#), [What is Maths Anxiety?](#), [Finding Nature](#), and a regular [Contemplative Psychology](#) blog in Psychology Today.

1.8 Future research and impact strategy

The Unit's Research Strategy 2020-2026 is aligned with the University's Innovation and Research Strategic Priorities (2020–2026) (REF5a, 2.3). The strategic priorities are to:

1. Invest in talent by recruiting staff and research students who can contribute to the research of the Unit;
2. Grow innovation by developing specialised interdisciplinary research groups to address major external challenges and work with external partners to apply our research and translate research into demonstrable impact;
3. Achieve greater regional, national and international impact by strengthening and expanding key strategic external partnerships in research, including between the Unit and NHS hospital trusts;

4. Empower our graduates by supporting improved achievement and success by graduates of Masters and Doctoral research programmes in terms of publication and dissemination of research, and career progression and achievement of Masters and Doctoral graduates.

The Unit's Research Strategy 2020-2026 is supported by the establishment in September 2020 of a new School of Psychology. This brings Psychology researchers who were previously in different Schools and Departments together into an integrated School of Psychology in an expanded College of Health, Psychology and Social Care (CHPSC). This will enhance the Unit's research capacity and impact by providing:

- Better communication between Psychology researchers;
- A stronger collective Psychology research identity;
- A clearer external profile for Psychology research;
- More consistent policies and practices for supporting Psychology researchers;
- Closer interdisciplinary integration in key areas of research strength between Psychology and Allied Health disciplines.

The Unit's Research Strategy 2020-2026 will be delivered through new structures and groupings that recognise emerging areas of Psychology research strength, including beliefs, weight stigma and eating behaviours, forensic psychology and community psychology. The Unit will continue to develop interdisciplinary research with the Human Sciences Research Centre (HSRC), especially in areas of shared strength including clinical research, forensic science research, and sport and exercise research. The Unit Strategy also aligns closely with the CHPSC draft Research Strategy 2021-2030, which identifies three research themes: Health and Wellbeing; Understanding People and Planet; and Education and Professionals, with six Research Groups associated with each theme. Psychology researchers in the Unit will each belong to one or more of those Research Groups (RGs).

The Health and Wellbeing theme includes an Arts and Health RG; a Child and Family Health and Wellbeing RG; a Compassion-focussed Therapy and Compassionate Mind Training RG; a Contemplative Psychology and Mindfulness RG; a Weight Stigma and Eating Behaviour RG; and a Health and Wellbeing RG. These Research Groups will provide supportive communities for Psychology researchers who are not members of the Unit's presently existing Research Groups, such as the researchers conducting research on rank perception and self-evaluation in eating disorders [output **782891-5**], models of change among people with chronic pain [output **782694-2**], mental health among UK hospitality workers [output **783564-1**] and Japanese workers [output **783564-2**], patient experiences in primary care [output **779505-5**], and public health compliance in the COVID-19 pandemic [output **786105-2**]. These and other Psychology researchers will benefit from membership of the new interdisciplinary Research Groups that bring Psychology researchers together with other researchers in the CHPSC and the HSRC, including those returned in UoA3.

The Understanding People and Planet theme includes the existing Nature Connectedness RG (NCRG); a Community Engagement RG; a Qualitative Methods RG; a Cognitive Psychology RG; a Belief: Identity, Cognition, Experience and Personality (B:ICEP) RG; and a Forensic Psychology RG. The new research groups will provide supportive communities for Psychology researchers who are not members of the Unit's presently existing Research Groups, such as researchers conducting research on behavioural modelling approaches [output **785436-1**], value change over the life span [output **785505-1**], and narcissistic personality [outputs **300565-1** and **781649-1**], as well as Forensic Psychologists in the Unit whose research includes cyber bullying [output **785240-1**] and predictors of offending behaviour [output **785240-3**].

The Education and Professionals theme includes the existing Maths Anxiety RG (MARG); a Compassion in Education RG, a Health and Social Care Education RG, a Nursing and Professional Practice RG; a Health and Social Care Workforce RG, and a Sports Psychology RG. The Sports Psychology RG will provide a supportive new interdisciplinary community for Sport

Psychology researchers in the Unit whose research includes sports performance during pain [outputs **781372-3** and **781372-5**] and predictors of 'yips' and 'choking' in sport [output **782093-1**]. The Sports Psychology RG will also promote closer collaboration between Sport Psychology researchers in the Unit and other Sport and Exercise researchers in the HSRC.

2. People

2.1 Staff recruitment and significant responsibility for research (SRR)

Consistent with the University strategy, the staff recruitment strategy of the College of Life and Natural Sciences (LNS) and University of Derby Online (UDOL) prioritised research and the fit between applicants' research and the strategic aims of the Unit and the Human Sciences Research Centre in shortlisting and final selection for academic posts in Psychology. The Unit policy for staff support includes assigning a research mentor to every newly appointed member of academic staff.

Significant responsibility for research (SRR) was determined by following the University Code of Practice. For each member of staff, the UoA lead made a recommendation to the PVC Dean based on individual discussion with the person concerned and consultation with their line manager, taking account of past and planned workload, expected work roles and responsibilities, and objectives recorded in the University appraisal system.

2.2 Visiting professors and research fellows

The Unit also benefited from appointments of Visiting Professors and Research Fellows who work with Unit researchers on grant applications and journal articles, act as expert consultants in areas of specialist expertise, give talks, mentor early career researchers and support PGR achievement. During the census period the Unit appointed three Visiting Professors (James Stubbs, appointed March 2014; Abigail Locke, appointed 2016; and Eduardo Massad, appointed March 2017) and six Visiting Research Fellows (Mark Nesti, appointed December 2014; Stephanie Archer and Claire Williams, both appointed July 2015; Chris Irons, appointed March 2016; Chris Blackmore, appointed July 2017; and Eleanor Phillips, appointed March 2018). These Visiting Professors and Research Fellows were all working in priority areas of research for the Unit and increased the Unit's opportunities for support and collaboration with external experts.

Several visiting professors and fellows were appointed because of their positions in industry which supported strategic collaborations, for example James Stubbs's appointment cemented the University's strategic partnership with Slimming World, a commercial weight loss organisation, and Claire William's appointment strengthened collaborations with health and safety organisations to support the Unit's behaviour change research. Eduardo Massad (University of Sao Paulo, Brazil) was appointed to strengthen the Unit's international links in behavioural health, and others were appointed to strengthen specific areas of the Unit's research, e.g., qualitative research (Abigail Locke and Eleanor Phillips), compassion-focused therapy (Chris Irons) and health psychology (Stephanie Archer).

2.3 Support for early career researchers

The Unit includes ten early career researchers (ECRs) (**Clarke, Vione, Fido, Fillingeri, Kotera, Schofield, Simonovic, Stalker, Taylor** and **Yasmin**) who make up 31% (10/32) of the researchers with SRR in UoA4. ECRs have been supported in multiple ways, including membership of the University's ECR Forum (**Clarke, Vione, Fido, Schofield, Simonovic** and **Taylor**) and **UPC** (**Kotera** was an ECR representative on **UPC** since its launch until September 2020).

ECRs in the Unit are supported through the University's ECR mentoring scheme, which provides mentors in other disciplines to support interdisciplinary perspectives in research. For example, **Kotera** was mentored by **Holloway** in the College of Arts, Humanities and Education.

The Unit also operates an informal research mentoring scheme within the discipline that includes ECRs but is not restricted to them. For example, **Schofield** is mentored by **Baker, Sharpe** is

mentored by **Associate Professor Maratos**, and **Clark** is mentored by **Akehurst** and **Professor Sheffield**.

ECRs in the Unit were also supported by the ECR Forum's ECR Support Fund. For example, **Vione** received funding in 2018 and 2019 for projects on emotional factors in romantic relationships and the roles of emotion and cognition in pathways to nature connectedness, and **Fido** received funding in 2018 and 2019 for projects on nature connectedness, personality and emotion regulation.

2.4 Staff development and progression

Researchers in the Unit benefitted from the University Internal Conferment process. Since 2014, one researcher in the Unit progressed to Professor (**Richardson**) and five progressed to Associate Professor (**Hunt, Lipka, Maratos, Stupple** and **Van Gordon**), demonstrating how the reputation and research strength of the Unit has developed. The Associate Professors benefitted from the University's Associate Professor Mentoring Scheme, which provides experienced Professors from other disciplines as mentors to new Associate Professors and staff applying to progress to Associate Professor. For example, new **Associate Professor Stupple** was mentored by **Professor Stewart** (UoA12), and **Lipka** mentored **Hill** (UoA12) and **Holmwood** (UoA3) in successful applications for progression to Associate Professor.

Researchers in the Unit also participated in the University's Researcher Development Programme (REF5a, 3.4.4), including workshops in academic writing, grant application writing and presenting research to non-academic audiences, as well as the monthly Research Cafés (presenters included **Associate Professor Maratos** and **Schofield**) and annual University Research and Knowledge Exchange Conferences. Unit researchers are also active contributors to other parts of the University research environment, including research skills training for new PhD students (**Associate Professor Lipka, Professor Sheffield** and others), peer review of external research grant applications (**Lipka, Sheffield** and others), and multiple staff training programmes on a range of qualitative methods, including courses offered to staff across the University which run yearly and attract post-graduate and senior researchers both internal and external to the University of Derby (**Childs, Hallam, Howard**, plus **Holland** and **Montague** (UoA3)).

Several Unit staff play key roles in University and College processes that support staff development. **Associate Professor Lipka** represents the Unit (and the College) on **UPC** raising topics or questions suggested by Unit staff at UPC meetings and feeding back information about UPC activities to members of the Unit and managers to ensure that researchers in the Unit benefit optimally from the operation of the UPC.

Supported by the University Research and Knowledge Exchange Office (URKEO), **Associate Professor Lipka** leads and organises a University programme of training for academic staff in PGR Supervision, which contributes significantly to the University PGR environment but also supports researcher development in the Unit. **Childs, Hallam, Harvey, Hunt, Kotera, Spenser, Van Gordon, Vione** and **Yasmin** have all undertaken this training, which increased the Unit's PGR supervisory capacity and helped to improve the progression and achievement of PGR students in the Unit.

Unit researchers also make leading contributions to University-wide staff development and dissemination events that enable wider participation in research across the University. For example, **Associate Professor Maratos** presented at the [University Health and Wellbeing Research Week](#) in October 2019. **Professor Richardson** presented a Headline Lecture and **Lipka** presented a workshop at the [University Global Challenges Research Weeks](#) during 2019-20. **Richardson** and **Harvey** organised the University's annual Nature Connections conferences in March 2015, June 2016, [June 2017](#), [June 2018](#) and [July 2019](#). The Nature Connections Festival in September 2015 was organised by the Colleges of Art and Design and Health and Social Care with **Richardson** and **Harvey**. **Childs** and colleagues organised the University Applied Qualitative Research conference in July 2015 and July 2016. These sessions also ran in 2018 and 2019 as part of the qualitative summer school organised by **Holland** (UoA3) and others.

Maratos organised, hosted and presented at the University's Compassion in Schools for Educators day in November 2019, with workshops and keynotes for teachers and other key stakeholders.

2.5 PGR support

The Unit has a very strong, integrated research student culture, with staff and PGR students comprising a single cohesive community. PGR students occupy a large spacious office that was refurbished in 2018 with dedicated computing and telephone facilities, located very close to the Unit staff offices in the same building (the 'College Home'). The community of PGR students in the Unit has grown during the census period, from 20 in 2014 to 29 in 2020. Two PhD students in the Unit were supported by University Graduate Teaching Assistant (GTA) studentships.

The Unit advertises areas of research where expert supervision can be provided, with the result that research areas of PGR students in the Unit are closely aligned with those of key researchers in the Unit and with the Unit's areas of greatest research strength and impact. For example, there are six students undertaking PhDs on different aspects of compassion-based interventions, three on nature connectedness, three on behaviour change, three on wellbeing and mental health, three on chronic pain management and two on maths anxiety, as well as a range of other applied psychological investigations.

The College of Life and Natural Sciences (LNS) provides a College-level PGR student induction led by **Lipka**, in addition to the University induction. All PGR students in the Unit were also members of the Human Sciences Research Centre (HSRC) and joined in HSRC events including a regular research seminar programme (see above). PGR students are also represented on College and University Research Committees. PGR student progress is monitored by the College Research Committee via annual Progress Reports and half-yearly Progress Review meetings.

Staff researchers in the Unit include several very experienced PhD supervisors and examiners, who act in external PhD supervision and examination roles at other institutions (**Howard, Maratos, Sheffield, Stuppel, Van Gordon**) as well as acting as internal PhD examiners, viva chairs and assessors for Confirmation of Registration events (**Childs, Hunt, Lipka, Maratos, Sheffield** and others).

PGR students in the Unit participated in the College and University 3MT competitions, an international event in which the University has participated since 2017. In 2017 a Health Psychology PhD student in the Unit came second in the University competition and went through to the regional final. In 2019 a Sport Psychology PhD student in the Unit won the College competition. PGR students in the Unit also received University funding to present their work at national and international conferences including the East Midlands Doctoral Network conferences.

Levels of PGR satisfaction expressed in PRES surveys are high in the College of Life and Natural Sciences (LNS), where most PGR students in the Unit were enrolled. For 2018-2020, the LNS average satisfaction ratings were above the Institutional average for all but one of the areas of satisfaction covered by the surveys. For three of those areas (Resources, Progression and Responsibilities), the LNS average was also above the PRES national average (See Table 3 below).

Table 3: Average PGR PRES satisfaction ratings

Area of satisfaction	PRES National Average	Institution Average	LNS Average
Student satisfaction	86.3%	82.3%	84.0%
Resources	79.7%	73.7%	81.0%
Progression	79.3%	78.7%	89.0%
Responsibilities	78.3%	73.3%	82.0%
Research Skills	86.0%	82.3%	81.0%
Professional development	79.3%	75.3%	76.0%

The Unit also has an excellent record of PGR achievement, progression and completion, with 17 PGR completions since REF 2014 and many indicators of PhD student achievement in terms of publications and awards that illustrate successful close relationships between PGR students and supervisors. The graduate destinations of PhD graduates in the Unit include six lectureships at the University of Derby, four lectureships at other UK universities, one scientific officer post at Cambridge Assessment and one post-doctoral research fellow post at the University of Cambridge.

2.6 Equality and Diversity

Table 4 below shows that the Unit was representative of the Institution in proportions of staff in Protected Categories, both in terms of eligible Category A staff and those with Significant Responsibility for Research (SRR). The Category A staff with SRR who are returned in UoA4 include 15/32 (47%) females, and the ages of researchers span the range 25-34 to 55-64, and none were on fixed term contracts. Consistent with University policy, managers in the Unit have committed to developing a high performing and inclusive culture aligned with the ten core principles of Athena SWAN, and have committed to raising awareness of gender equality and celebrating women's achievements in research. Part of the Strategy of the new School of Psychology (see earlier) will be to reduce the numbers of staff on fixed term contracts and increase support for researchers with disabilities and researchers in BAME groups. Equality and diversity considerations, including support for Protected Characteristics, are considered by managers in the Unit as well as managers in LNS and the URKEO when providing support for research grant applications, conference attendance, research leave and allocations from REF investment budgets.

Table 4: Proportions of Category A staff and those with SRR in UoA4 and the Institution by Protected Characteristics

	UoA 4		Institution	
	Cat. A staff	Staff with SRR	Cat. A staff	Staff with SRR
<i>Disability</i>				
Disabled	2%	0%	6%	<5%
None known	98%	100%	94%	97%
<i>Gender</i>				
Female	55%	47%	50%	42%
Male	45%	53%	50%	58%
<i>Contract type</i>				
Permanent	85%	100%	94%	93%
Fixed term	15%	0%	6%	7%
<i>Ethnicity</i>				
Arabic	0%	0%	<5%	<5%
Asian	5%	6%	7%	10%
Black	<5%	0%	<5%	<5%
Chinese	<5%	<5%	<5%	5%
Other/mixed	<5%	6%	<5%	<5%
Did not say	<5%	<5%	<5%	<5%
White	88%	81%	82%	75%
<i>Age group</i>				
Under 25	<5%	0%	<5%	0%
25-34	23%	28%	13%	17%
35-44	35%	41%	28%	35%
45-54	25%	22%	33%	29%
55-64	14%	6%	22%	17%
65 and over	<5%	<5%	<5%	<5%

3. Income, infrastructure and facilities

3.1 External research income

The Bid Support Officer supported Unit researchers with preparing external funding applications, which were also evaluated through a peer review process coordinated by the URKEO. The University recorded **£706,000** external research income for UoA4 during the census period, which includes funding for research on health and wellbeing, compassion-based interventions, nature connections and beliefs about the supernatural. Many of the externally funded projects involved Unit researchers as part of major collaborative projects where the main budget was held by partner institutions including Barts and the Royal London Hospital Trust, the Compassionate Mind Foundation, and the University of Sheffield.

The Unit also secured external funding for the University's first externally funded research chair, the [Miles-Bramwell Chair in Behaviour Change and Weight Management](#), funded by Slimming World and awarded to [James Stubbs in July 2014](#).

3.1.1 External income for health and wellbeing research

The externally funded health and wellbeing research included projects on the impact of food allergies among children (**Barnes** and **Stalker**, output **781114-1**); improving musculoskeletal health by promoting break-taking in the workplace (**Sheffield** with **Baird**, UoA3); weight loss maintenance (**Stalker** with others, output **782234-2**); improving the management of painful crises in sickle cell disease (**Schofield** with **Elander**, UoA3), output **782694-4**); and mental health and support needs of female veterans (**Spenser**).

For two of these projects, the income to the University represented the Unit's share of a larger collaborative project. In one case, the returned income for research on weight loss maintenance was the Unit's part of a €5M EU Horizon 2020 Research and Innovation Framework-funded, 5-country, 12-partner organisation programme to develop evidence-based ICT tools for weight loss maintenance (the 'NoHow' project). In the other, the returned income for research on improving the management of painful crises in sickle cell disease was the Unit's part of a £245,744 Barts and the London Charity Strategic Research Grant for the Sickle Cell Analgesia Protocol Evaluation (SCAPE) project, led by a Consultant Haematologist at the Royal London Hospital, London.

Unit researchers were also part of externally funded research projects where the income was returned in other UoAs. These included a £34,492 British Renal Society/Kidney Care UK-funded project on acceptance and commitment therapy for patients receiving renal dialysis (**Stalker** with **Elander**, UoA3).

3.1.2 External income for compassion-related research

The externally funded research on compassion-based interventions included a project applying compassion-focused therapy to weight loss maintenance (**Gilbert** and **Stalker**, output **782234-1**); and another applying a compassion-based intervention to school staff wellbeing (**Gilbert** and **Maratos**; output **779505-4**). In this project, the income to the University represented the Unit's part of a £106,920 REED Foundation funded project conducted in collaboration with international partners and the Compassionate Mind Foundation.

3.1.3 External income for nature connectedness research

The externally funded nature connectedness research included the Unit's contribution to a £1.3M NERC-funded collaborative project with the University of Sheffield on Improving Wellbeing through Urban Nature (IWUN) to develop and evaluate a nature connectedness-based green prescription app based on noticing good things in urban nature (**Richardson**, **Sheffield**, output **770910-4**). It also included funding from the City of London and the National Trust for applied projects led by **Richardson** that extended the impact of nature connectedness research and consolidated strategic relationships with significant stakeholders, and funding for evaluations conducted by **Harvey** for Wildlife Trusts that were the Unit's part of a £1M+ Heritage Lottery funded project

supporting the development a new visitor centre and additional activities for local communities in Suffolk and the surrounding area.

3.1.4 External income for research on beliefs

The Unit's externally funded research also included BIAL Foundation grants for three projects on different aspects of belief conducted by members of the emerging research group on Beliefs: Identity, Cognition, Experience and Personality (B:ICEP). The projects focus on cognitive and personality differences in supernatural belief; meta-representations of supernatural belief and the effect of context on physiological responses and cognition; and linguistic vs non-linguistic mentation (**Baker, Harvey, Howard, Schofield and Stupple**).

3.2 Internal research funding

The Unit benefitted from several internal University research funding schemes, including the Undergraduate Research Scholarship Scheme (URSS) for which staff researchers bid for £2,000 scholarships to be awarded to undergraduate students for research projects supervised by staff researchers. Researchers in the Unit won 45 URSS scholarships in the five years since the scheme was introduced, representing a £90,000 University investment, and in 2018-19, Unit researchers won 40% of the total scholarships awarded. The Unit used URSS scholarships to support developing areas of psychological research and growth of PGR numbers, for many of the students involved went on to postgraduate research.

Examples of URSS research supervised by researchers in the Unit include projects on eating disorders, food neophobia, attentional biases, emotion processing, childhood trauma and paranormal belief (**Sharpe**); critical thinking skills in HE (**Simonovic**); affect and need for cognition in pathways to nature connectedness (**Vione**); nature connectedness, critical thinking in online students, athletic and business success, digital risk, and image-based sexual abuse (**Fido**); face recognition and reading (**Lipka and Maratos**); dyslexia and reading (**Lipka**); anxiety and emotion processing, visual working memory, compassion-focussed imagery and regulation of threat responses (**Maratos**). There were also URSS projects on mindfulness and compassion-based interventions for biased thinking (**Stupple, Maratos and Sheffield**); "dark" personality traits, belief in the supernatural, and beliefs about science and existential anxiety (**Baker, Harvey, and Schofield**); and compassionate parenting for children with autism (**Kotera and Fido**).

Other internal University research funding schemes that Unit researchers used to support developing research in the Unit included the On-Campus Internship Scheme (OCIS), the Vice Chancellor's Ideas Forum, the University GCRF Pump Priming Fund and the University Strategic Priorities Fund. Unit researchers have an excellent record of using internal funding to support emerging areas of Unit research by creating opportunities for students to collaborate with staff researchers.

3.3 Infrastructure and facilities

There has been a significant consolidation of office space for Unit researchers and research students in the 'College Home' (see Section 2.5), and significant development of research laboratories and equipment since 2014.

The laboratory facilities and equipment available to researchers in the Unit include a Cognitive Research Laboratory with experimental cubicles; a sound-attenuated Human Psychophysiology Laboratory with research grade, 64-channel cortical electrophysiology recording system and EEG-STIM hard and software, plus electrodermal and hemodynamic measurement equipment; a physical activity and physical function suite, with equipment for detailed behavioural studies and physiological measures; a Sport and Exercise science laboratories, including biochemistry labs; and an observation suite with one-way window for in-depth studies of behaviour and interaction.

Other research tools and equipment available for Unit researchers include a test bank of copyright-cleared and licensed psychometric testing and assessment materials, administered by a team of qualified staff; electrodermal activity monitors, Accutacker ambulatory blood pressure monitors, and Finometer and Portapres continuous blood pressure monitors that can

assess haemodynamic changes and heart rate variability during daily life and in the laboratory; a Cold Pressor and Digitimer High Voltage Stimulator for pain studies; a research-grade 30Hz TOBII X2-30 eye-tracker with dedicated laptop for display-related research; a research-grade SMI eye-tracking system with dedicated laptop for general “real world” eye-tracking studies; a research-grade 1KHz Eyelink eye-tracking system with dedicated laptop for display-related research as well; Qualtrics, a secure web-based survey tool that allows online collection of research data in an easily accessible interface; and Inquisit v5 Experimentation software for running precision online experiments from remote workstations, desktops and laptops.

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

4.1 Collaborations with external organisations

Researchers in the Unit have multiple international collaborations with leading universities and institutions of higher education, including in Australia, Brazil, Canada, Chile, China, Czech Republic, Germany, France, Ireland, Iran, Italy, Japan, Malaysia, Pakistan, Poland, Portugal, Romania, Rwanda, Serbia, South Africa, Sweden, Thailand, Turkey, Uganda and the USA.

Unit researchers in health and wellbeing developed strategic collaborations with healthcare organisations that are partners or end-users of applications of Unit research. These include the CHU Montpellier Hospital, France; Miguel Servet Hospital, Spain; UK NHS hospital trusts; Orange Home Care Clinic, Japan; the Positive Birth Movement; Sephirah Centre for the Promotion of Psychological and Physical Wellbeing, Italy; Web Mindfulness, Spain (**Hallam, Howard, Kotera, Sheffield, Stalker, Van Gordon**; see REF3, 3-3 on painful chronic conditions).

Unit researchers in nature connectedness and conservation developed similar strategic collaborations with partner and end-user organisations including Derbyshire Wildlife Trust, Durrell Wildlife Conservation Trust, Defra, Derby Museum, Feral Spaces, the Forest Therapy Institute, the National Trust, Natural England, the New Zealand Government Department of Conservation, the RSPB, Suffolk Wildlife Trust, the Wildlife Trusts, Urban Wilderness, and other national and international organisations involved in preservation of natural environment (**Hallam, Harvey, Richardson, Lumber, Sheffield**; see REF3, 4-2 on nature connectedness).

Unit researchers in compassion developed strategic collaborations with partner and end-user organisations including the Compassionate Mind Foundation and many other national and international organisations involved in the development of compassion-based approaches. Organisations affiliated to the Compassionate Mind Foundation that were set up between 2014 and 2020 include Compassionate Mind Australia, the Canadian Network for CFT, Compassionate Mind Ireland, Compassionate Mind Italia, and the International Centre for Compassionate Organisations USA (**Gilbert, Maratos** and others; see REF3, 4-1 on compassion-based interventions).

Unit researchers in psychology applied to education developed strategic collaborations with partner and end-user organisations including the British Dyslexia Association, Derby Emotionally Healthy Schools Network, Derbyshire Educational Psychology Service, National Numeracy, Health Education England, Pearson Education, Vretta Inc. and schools in the UK, Portugal and Turkey (**Hunt, Maratos, Sheffield, Staples, Van Gordon**; see REF3, 4-1 on compassion-based interventions and REF3 4-3 on maths anxiety).

Other external collaborations include The Actors Workshop (**Van Gordon**); Derby Theatre (**Hallam**); Derbyshire Constabulary (**Childs**); Derbyshire Voluntary Action (**Kotera**); East Midlands Trains Derby (**Lipka**); First Steps Derby (**Fido and Kotera**); Highways England (**Kotera**); Kubota Corporation, Japan (**Kotera**); Leeds United Football Club (**Zhang**); Methodist Homes Association (**Van Gordon**); Relate Chesterfield (**Kotera**); Road Safety Trust (**Van Gordon**); and YMCA Derbyshire (**Hallam**).

4.2 Organisation of external events

Unit researchers have organised and/or contributed to many external events in recognition of their expertise and achievement in relevant research. Examples include: a Pearson Education roundtable event (London, July 2019) on tackling maths anxiety; National Numeracy's National Numeracy Day, and the launch event of a key National Numeracy report at the Bank of England in November 2019; multiple maths anxiety workshops for educational psychologists (September 2018), Derbyshire teachers (2018-19), and teachers, parents and pupils in schools in Turkey and Uganda in September 2018, February 2019 and March 2020 (**Hunt**). This work is progressing and expanding; there was a national workshop in October 2020 on overcoming maths anxiety in health and social care (**Hunt**).

Unit researchers also organised: an online nature connectedness policy workshop in June 2020, attended by representatives from Government departments and wider stakeholders to hear the latest evidence and discuss policy implications (**Richardson**); a webinar on self-care delivered to Highways England (11th July 2019), Derbyshire Voluntary Action (16th June 2020), and Taisho University, Tokyo (August and September 2019) (**Kotera**); and an international online conference on 'the higher education sector in the post pandemic landscape' (July 2020) (**Howard**). Researchers in the Unit also had their research experience and expertise recognised through invited keynote talks at international events (**Childs, Hunt, Gilbert, Kotera, Lumber, Maratos, Richardson, Stuppel and Van Gordon**).

4.3 Recognition of contributions and expertise through positions and awards

Researchers in the Unit had their research experience and expertise recognised through being invited members of committees and advisory groups. These include the Core Advisory Group for the Mind-Matter Mapping Project (**Baker**); the Steering Committee of "Compassion in Politics", a major international group seeking to create opportunities for improved compassion in society (**Gilbert**); the BPS Qualitative Methods in Psychology Section (**Howard** is an elected committee member); the BPS Psychology of Education Section (**Hunt** is an elected committee member); Health Education England's Special Interest Group for Functional Skills, National Numeracy (**Hunt**); the Durrell Wildlife Conservation Trusts' Conservation Committee (**Lumber**); the Mindfulness Initiative (MI) steering group, which provides the secretariat for the Mindfulness All-Party Parliamentary Group (MAPPG) (**Maratos**); the UK government's Nature Friendly Schools External Advisory Board (**Richardson** is Chair); Natural England's Strategic Research Group for Learning in Natural Environments (**Richardson**); the International Ergonomics Association Technical Committee on Human Factors for Sustainable Development (**Richardson**); the Council of the Chartered Institute of Ergonomics and Human Factors (**Richardson**); Derby Women's Centre (**Spenser** is a trustee); the Medito Foundation (**Van Gordon**); and the Concurrent Disorders Society, Canada (**Kotera and Van Gordon**).

Researchers in the Unit also had their research experience and expertise recognised through academic editorial duties and publishing advisory work (**Baker, Gilbert, Howard, Hunt, Kotera, Lipka, Maratos, Richardson, Sharpe, Stuppel, Van Gordon**) and have used their reputations and profiles to lobby government and campaign for change by writing public letters and letters for publication in the press on subjects related to their expertise (**Gilbert, Maratos and Richardson**).

Gilbert is the founder and president of the Compassionate Mind Foundation and Consultant Clinical Psychologist at Derbyshire Health Care Foundation Trust. **Gilbert** was awarded an OBE in March 2011 for services to mental health and was also awarded the BPS Division of Clinical Psychology's Monte Shapiro award in 2015. **Zhang** received a Young Investigator Award at the 2015 Congress of the European College of Sport Science.