Institution: Durham University

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

a. Overview

Durham Psychology is a vibrant and well-resourced UoA within the Faculty of Science. The UoA is a single department, based across two sites; Durham City and Queen's Campus in Stockton. The positioning of the department across these two sites allows us unrivalled access to the full breadth of research at Durham University; integrating with the Wolfson Research Institute at Queen's campus (including a strong partnership with the NHS) and a range of facilities (such as our animal facility, the refurbished Life Sciences Support Unit) and opportunities for high profile inter-disciplinary research in Durham City, including links with the Biophysical Science Institute and Institute for Advanced Studies.

The department's research is centred around five groups which are distinctive in that all staff are members of more than one group and each group meets regularly and has access to departmental funds to support their activities. As a result, these groups have provided exciting new collaborations – often crossing artificial boundaries within the discipline, e.g. work linking the social psychology of stereotype threat and hormonal influences on cognition (Hausmann & Rosenthal).

Since RAE2008 we have committed to investing in a young staff with outstanding track records and exceptional potential. The academic staff comprises 5 Professors, 2 Readers, 9 Senior Lecturers and 14 Lecturers with an average age of 42. Research excellence is evident across the full breadth of the staff, with this REF period seeing awards to staff at Durham, including a Fellowship of the Royal Society (Milner), an ESRC Professorial Fellowship (Meins), the ESRC & Longview's Neville Butler Memorial Trust Prize for longitudinal research (Centifanti) and the David Marr Medal from the Applied Vision Society (Smithson). Our significant investment in research facilities has allowed us to recruit new staff from a range of high profile departments both nationally and internationally, such as UCL and the Universities of Oxford, Tuebingen and Western Ontario. Our strategy for research is to build outstanding strength in key areas, maximising the potential for multi- and inter-disciplinary collaboration across the University and beyond, to answer key questions in the field. We continue to build this research in a sustainable manner, and are developing significant links across the region and with key partners. We have invested heavily in both major facilities (such as fMRI and a refurbished animal facility) and key equipment (such as TMS, TDCS and EEG) as well as expanding our overall space available for research (such as approximately 100m^2 of newly refurbished laboratory space for the Centre for Vision and Visual Cognition) to provide us with a distinctive research environment where there is a breadth of research techniques, but built around specific areas of expertise. As a moderately sized, energetic and enthusiastic department, we are also uniquely able to take advantage of new opportunities as they arise, which enables us to drive our research focus towards areas of sustainable growth.

b. Research strategy

Since RAE2008 we have aimed to build on our existing research strengths, whilst developing critical mass and quality infrastructure that allows us to address new questions and integrate research across discipline boundaries. Our research strategy seeks to build on these developments and deliver on key future objectives: 1) Build on our existing research strengths and open up new research strength in emerging areas of the discipline 2) Maintain a vibrant research environment in which all researchers (from PG to Emeritus) are able to share ideas and expertise to answer key questions in the field as they arise 3) Provide a high quality research infrastructure where facilities are open to all to aid cross-disciplinary approaches to questions, responding both to immediate need and long-term sustainability 4) Build closer links with external partners to develop high quality research with impact 5) Invest in the future of the discipline by supporting researchers in their career development at all stages. This will ensure a sustainable future for academic psychology as well as providing PG students and PDRAs with the necessary skills and understanding to develop psychology outside academia.

Research management: In order to direct our strategy, and yet maintain our ability to respond quickly to new opportunities, we have a focused, but responsive research management structure. A departmental Research Committee governs research strategy and direction, mapped onto the University's overarching research strategy and with direct representation on the Science Faculty's research advisory group. The departmental committee oversees an annual revision of a five year

plan, incorporating the resources required to develop key opportunities and research programmes. The committee operates an annual budget of £20k, supplemented by *ad hoc* faculty and institute funds (which amounts to some £100k over the REF period), which is used to pump-prime key new research ventures and support travel to international conferences. A departmental Postgraduate Committee monitors recruitment, training, welfare and development of postgraduate students, with a Director of PG research, sitting on the Research Committee, who ensures that our research PG community is part of the development of future research plans in the department. A departmental Resources and IT committee oversees space and equipment needs for the department and ensures efficient and effective use of these resources. It is particularly critical in maintaining a well-resourced research base at both Durham City and Queen's Campus – ensuring facilities are available to all and appropriately located to fit the research needs of the department. A new mechanism of centrally booking laboratory space and equipment ensures facilities are available to all staff and used to capacity whilst encouraging collaboration through the shared use of resources. Annual staff reviews feed into annual research group plans and (*via* Research Committee) into the department's annual planning. To date this has allowed investment in areas to pre-empt needs, such as a clinical grade TMS facility (£50k) as part of the Cognition and Cognitive Neuroscience Research Group's linking with the NHS and has allowed us to respond to new areas of research in a timely fashion to ensure Durham Psychology is at the forefront of such research.

Building Research Strength: In 2008 the department had grown both in staff numbers and in space occupied and our strategy was to build upon this new position, mentoring a new young staff to build research excellence and research income. In addition we looked to consolidate the research themes present at that time and build partnerships with the local region. This new position provided an opportunity to build research strengths in three key research areas during this REF period: Cognitive Neuroscience, Behavioural Neuroscience and Developmental Psychology. The exciting expansion of staff in these areas also provided us with an opportunity to grow expertise in new areas crossing disciplinary boundaries. As a direct result, research is now organised around five distinct research groups.

Research Group	Members (Senior staff coordinating the groups highlighted)
Cognition and Cognitive Neuroscience (C&CN)	Heywood, Kentridge, Milner, Eacott, Easton, Atkinson, Ellison, Hausmann, Lever, Schaefer, Smith, Weis, Connolly, Lane, McGregor, Sanderson, Schultz, Thaler
Developmental Psychology (DP)	Riby, Reissland, Fernyhough, Atkinson, Boothroyd, Burt, Centifanti, Cowie, Hanley
Neuroscience of Learning and Memory (NL&M)	Eacott, Easton, Ellison, Lever, Schaefer, Weis, McGregor, Sanderson, Thaler
Social, Evolutionary and Emotional Psychology (SEE)	Schaefer, Campbell, Atkinson, Reissland, Schaefer, Boothroyd, Burt, Centifanti, Rosenthal, Schultz
Applied, Clinical and Health Psychology (AC&H)	Ellison, Fernyhough, Towl, Reissland, Adams, Centifanti, Covey, Lane, Rosenthal

The department's core strengths from RAE2008 are covered by three of these research groupings (C&CN, DP and NL&M) and all staff are allied to at least one of the five. These core research areas provide the primary focus of recruitment and investment, ensuring focused and sustainable development in our existing areas of strength. The development of our staff profile since RAE2008 has allowed us to begin to grow two new research areas (SEE and AC&H) providing opportunities for exciting new developments at the boundaries of the department's traditional themes. In particular, these groups are promoting our links with external partners such as the NHS and provide unique opportunities for future growth and investment.

Each research group has access to Research Committee funds to support activities of benefit to the group, in order to help build research strength in these areas. To date these funds have supported workshops where high-profile international speakers have helped introduce methodological approaches new to Durham (e.g. Prof. Pennebaker, Austin, Texas AC&H) and a series of research meetings such as a large meeting of researchers from Durham, Lancaster, Edinburgh, St. Andrews, Dundee and York with overlapping interest in the mechanisms of spatial memory (NL&M) – with a view to building a collaborative venture, sharing expertise within the region. The University also provides financial support to pump-prime high quality interdisciplinary projects across Durham. For example, the University Research Seedcorn Fund provides up to £20k to demonstrate proof of principal and cover development costs and has helped generate

significant income in Psychology (e.g. Hearing the Voice – see IAS, below). Over the REF period, these various routes of support have allowed Durham Psychology to host five small but important international meetings. For example, through this mechanism researchers at Durham initiated the first North Sea Meeting on lateralisation. This included attendees from Bergen, Aachen, Ghent, Groningen and UCL (amongst others) and the meetings have since continued annually. The meetings organised through this route have provided both significant research outputs and grant applications for the department, and their increasing number and strong attendance is highly indicative of our growing international reputation.

Maximising multi- and inter-disciplinary research: Durham University provides an excellent environment for multi- and inter-disciplinary research. The University has several large inter-disciplinary research institutes, of which Psychology plays a significant role in three. These institutes provide outstanding opportunities for collaboration across traditional discipline boundaries and have been the origin of much of the work Psychology does with other departments in Durham (including Anthropology, Education, Applied Social Sciences, Medicine, Pharmacy and Health, English, Physics, Engineering and Computer Sciences, Philosophy and Theology).

The **Wolfson Research Institute** (WRI) is focused on Health and Wellbeing and Durham Psychology has been integral to the Institute since its foundation. One of its research themes (Tomorrow's Healthy Adults) is led by a member of Psychology (Ellison) who is a co-Director of the institute. Funds from the WRI are available to support small scale research projects, meetings and pilot work. This scheme has supported the development of clinical grade TMS and the hosting of various national and international meetings, such as a workshop for clinicians on basic memory research in order to build links between the NL&M group and the NHS.

The **Biophysical Sciences Institute** (BSI) addresses major biological challenges through the development of new methods and techniques. Psychology has been integral to the BSI from its origins in 2007, with the very first research theme being 'Eye and Vision'. This exciting project brought together staff from Psychology, Physics, Biology and Chemistry as well as high profile international researchers (e.g. Prof Banks, UC Berkley who made an extended visit as a Research Fellow) and grew new collaborative work including links with Physics on the use of adaptive optics.

The Institute for Advanced Studies (IAS) brings together all departments within Durham around broad research themes. The IAS provides funds to support fellowships (both to members of the university and high profile researchers from outside Durham) and research activities. Durham Psychology has been engaged with the IAS and through it has hosted high profile meetings with Anthropology, Philosophy and English on 'Future episodic thinking' (resulting in a special issue on 'Remembering the Future' in *Learning and Motivation*) and a series of workshops and programmes which have brought together researchers from Psychology, School of Medicine, Pharmacy and Health, English, Geography, Theology and Philosophy. This has resulted in a large interdisciplinary research project on 'Hearing the Voice'. Through awards of fellowships, support for workshops and a research theme, the IAS has supported this Psychology-led project (Fernyhough) from its inception and helped secure >£1M Strategic Award from the Wellcome Trust to support the work.

In addition to this key work of University Institutes, University Research Centres provide opportunities for staff across a range of departments and institutions to carry out more specialised multi-disciplinary research around areas of research strength. Psychology houses two highly active University Research Centres, each receiving a budget from the department to support workshops, training and seminar series.

The **Centre for Vision and Visual Cognition** (CVVC) reflects the breadth of research in Durham on vision and visual cognition. Directed by Prof. Findlay (Emeritus) this high profile centre also includes researchers from the School of Engineering and Computer Sciences and Physics. The centre's activities revolve around a seminar series routinely attracting some 30 specialist researchers and high profile national and international speakers. In collaboration with the Institute of Neuroscience at Newcastle University, the centre led and hosted a North East Vision Conference in Durham in 2011 with external speakers including Prof. Mike Land, FRS, Prof. John Mollon, FRS, Prof. Marty Banks and Prof. Kia Nobre.

Durham University Neuroimaging Centre (DUNiC) was founded to coincide with Durham's largescale (£1.5M each from the University and NHS Trust) investment in a new functional imaging facility in partnership with the James Cook University Hospital in Middlesbrough. The centre (Directed by Prof. Milner, FRS) has strong links with both the WRI and the BSI and provides an active seminar series, as well as opportunities to present planned imaging studies to members and

a well-attended annual training programme which ensures members have access to up-to-date tools and methods for imaging research in psychology.

The broad nature of the department's research groupings and the encouragement for staff to be members of multiple research groups has resulted in a lively research environment with growing numbers of collaborative outputs (over 20% of outputs in this REF period have more than one staff member as an author). A growing number of publications also cross research groupings – building strong multi-disciplinary collaborations across the department (e.g. Rosenthal, Norman, Smith & McGregor linking SE&E and NL&M and Atkinson and Smithson linking SE&E and C&CN).

Building a Sustainable Research Environment: With a moderately sized staff, and an expansion in space and resources, it has been critical to ensure that we have built our research strength in key areas in a sustainable manner. In 2008 we highlighted that we had a young staff with an average age of <40 and that we aimed to maintain these staff numbers whilst enhancing our research output. We have achieved this goal, with the total number of outputs over the REF period increasing compared with the longer period covered by RAE2008. This increase in productivity has been managed whilst maintaining an average age of 42. This young department provides an enthusiastic 'anything is possible' environment and makes full use of our opportunities to collaborate. To ensure this increase in productivity is sustained alongside the building of research strength in our three key areas and the development of new opportunities within other research groups, we have made 12 new appointments over the REF period (5 of these to their first academic position). In each case we have ensured that each appointment serves only to strengthen our existing core research themes whilst providing new opportunities to develop in key strategic areas. For example, one recent appointment (Cowie) serves to bring together two key research groupings in the department (DP and C&CN) and in particular extend high profile work in the department on visuo-motor interaction (from Milner and colleagues) into the development of such visuo-motor behaviour. As such, our research direction continues with exciting new opportunities for expansion as the staff profile develops.

Our promotion of a sustainable research environment is extended into our PG population. We have expanded our provision of taught PG programmes so there are now four (Developmental Psychopathology, Developmental Cognitive Neuroscience, Cognitive Neuroscience and Research Methods (Developmental Psychology)). On average there are 50 taught PGs in the department at any one time and the MA Research Methods programme links directly to the new ESRC DTC jointly between Durham and Newcastle Universities. In this DTC, only Durham has representation of Psychology, providing excellent opportunities to bring in the strongest candidates through the MA, into PhD training in the department and maintain a critical mass in these areas of strength.

Developing links with key partners: A critical development over the REF period has been the department's increase in engagement with key partners. In 2008 these links were few and primitive, but over the course of the past five years opportunities developed across the University and within the department (based on developing interdisciplinary strength as detailed above) allowing us to build a number of new and successful partnerships. Durham University has established an extensive partnership with Procter & Gamble, involving approximately 100 staff across the University, which has been acknowledged internationally (e.g. P&G collaborative award, Cincinatti, 2011). Psychology has established a P&G research interest group within the department that brings together a group of 8 staff with research interests that overlap with P&G research questions. This interest group meets regularly with P&G representatives and supports new research links as they develop. For example, the group has assisted in the liaison of staff in the department interested in visual properties of materials (Heywood & Kentridge) with P&G research on perception of materials following cleaning processes. This partnership has been supported with a jointly funded PhD studentship with P&G. Similar developments with other PIs in the department are at an advanced stage. The use of this small focused interest group is one of the ways in which we are able to manage a responsive approach to new situations as and when they arise. New opportunities are identified early on and nurtured and invested in until maturity.

Psychology has also established strong links with smaller industrial partners, such as Cambridge Research Systems (CRS) who provide research equipment at substantially reduced cost in return for training students (through PG programmes) and external researchers (through regular summer schools) on the use of the equipment. This collaboration has allowed us access to key research equipment ahead of other institutions – such as a recently acquired high quality visual display for fMRI (the first in the UK), fMRI compatible eye-trackers etc at a cost of ~£150K.

To ensure our early and responsive approach to these opportunities is managed successfully, the department has built a strong relationship with the University's Business and Innovation Services. As well as helping to coordinate burgeoning research links with industry, we have also been able to make use of their expertise to develop spin-out companies. For example, Developmental Solutions (spun out from work of the DP group) was awarded a Blueprint Award (which celebrates the best spin-out companies emerging from the region's universities). In addition, work in the department has been highlighted on national industrial liaison networks (e.g. Easton through the NC3Rs Crack-IT scheme which has fostered research links with GSK).

Our collaborations with the NHS have continued to strengthen over this REF period. In addition to the new fMRI facility, which is jointly run with the James Cook University Hospital in Middlesbrough, the partnership provides access to neuropsychological patients and neonatal units, and (as outlined above) the WRI helps facilitate regular link meetings with clinicians in order to identify common interests and new opportunities. These links ensure that our research becomes embedded within the local clinical community and has allowed us to attract NIHR funds (e.g. A home-based training for patients with visual field deficits, £194659) in developing research into neurological rehabilitation.

In order to facilitate this expansion of industry links in the department, the Faculty of Science is now providing matched support for PhD studentships where external sources are able to provide half the necessary funds. This has already allowed us to develop three studentships (P&G, NHS, NC3Rs/GSK) and is helping to foster further new opportunities (e.g. Centifanti links with the police to develop key research priorities for the AC&H group).

c. People, including:

i.Staffing strategy and staff development

Staffing strategy: In line with our research strategy we seek to recruit staff that fit our research priorities in that they integrate fully with at least one of the core research groups (C&CN, DP or NL&M) and are able to link those groups with developing research areas in other research groups (SEE and AC&H). We have also continued our successful strategy of recruiting young staff that complement and expand our research base. For example, one recent appointment (Schultz) brings key MRI skills which expand the capabilities of DUNiC (such as DTI). In addition his work integrates C&CN with the developing research focus on emotion in SEE. Another recent appointment (Connolly) brings an understanding of motor behaviour in both animals and people and has developed an international network (with members from USA, Canada and Japan) to develop research on optimal placement sites for neural prosthetics – work that is likely to have significant impact. This research programme aligns closely with high profile work in the department on visuo-motor integration and brings research fit with both the WRI and BSI.

In order to attract researchers with a significant international profile to Durham we are able to offer both excellent facilities and significant start-up costs. In this REF period, investment in new members of staff has included a single cell electrophysiology laboratory (including 20m^2 of newly refurbished laboratory space, a PhD studentship and 1 year of PDRA support: Lever), an anechoic chamber (£39k: Thaler), a motion capture facility (£50k: Cowie) and an additional EEG laboratory (£30k plus two PhD studentships: Schaefer). The combination of strong research reputation and exceptional resourcing has allowed us to attract a highly international staff (approximately 1/3rd of academic staff are from outside the UK, including those from Germany, Brazil, Canada, USA and New Zealand). These international staff bring with them research links with international institutions which allows us to develop highly collaborative work including expertise which is not present in Durham (e.g. Dr. Thaler's work on echolocation benefits from collaborations and access to patients developed through her time in laboratories in both Germany and Canada, which are now well linked to Durham Psychology).

Staff development: In 2008 we highlighted that with a young staff we aimed to ensure high quality mentoring and staff development to allow these people to reach their maximum potential in the field. We have continued with this strategy and we have fostered an enthusiastic and vibrant research community in the department as a result. This mentoring period has been successful, with new staff maintaining a prolific research programme whilst entering early academic posts. Achievements of staff are rewarded with excellent opportunity for promotion with 20% of staff receiving promotion over the REF period. To achieve this excellent record, the department has implemented the Concordat to Support the Career Development of Researchers, and new staff are enrolled in University training courses including a PG Cert in Academic Practice which covers the

skills needed to be a successful PI including applying for and running successful grant funded projects. The department also ensures that all staff are supported by a development budget (with needs identified through a thorough process of annual review with senior colleagues). All staff are required to discuss their personal research plans annually with senior members of their research groups, and all new staff have access to both a research and a teaching mentor from senior staff in the department to ensure there are multiple opportunities for development needs to be identified and implemented. Where possible, development needs for multiple staff are dealt with through in-house training. For example, DUNiC annually addresses needs of the centre's members and provides training on analysis techniques for fMRI, whilst the department's summer school in Matlab programming (in combination with CRS visual laboratory equipment) is available to all members of the department (including PG students).

Equality and Diversity: Durham is committed to supporting equality and diversity at all levels. As well as our highly international staff (see above), Durham Psychology is a department with an approximately 50:50 male/female split at all levels of academic appointment. Our approach to the support of women in science has recently earned the department a Silver Award from Athena SWAN (one of only 6 UK Psychology Departments to hold such an award), building on the University's Bronze Award. In addition, the University is recognised both as a Stonewall Diversity Champion and by Jobcentre Plus through the award of the Two Ticks symbol.

ii.Research students

Our research facilities, investment in studentships and high profile international staff allow us to attract excellent research students to Durham. To ensure that students contribute to the research focus of the department, all applications are ranked within the appropriate research groupings, with the best students being interviewed for selection by a cross-department panel. These strong candidates are funded through a range of sources which over this REF period have included scholarships from the Department of Psychology (8), annual competitions within the University (5), ESRC studentships University's DTC (5) as well as studentships supported by other external bodies (such as NC3Rs, Proctor & Gamble, the NHS, regional development bodies etc 5). As a direct result, we have a vibrant PG community across both sites with students housed together around their research questions, encouraging collaboration and different approaches to common problems. Students' generic research skills are enhanced through the department PG committee which provides funds to support research costs and guarantees attendance at a national and an international conference over the course of their studies. An annual PG conference for all PGR students is also organised to which we are able to invite plenary lecturers from outside of Durham and fund a prize for best poster. In addition to support within the department, PGR students have access to a centrally provided development programme aimed at developing wider skills, particularly those which enhance employability. The Durham Doctoral Training Programme has recently been recognised by two prestigious awards. Our programme was awarded the Times Higher Education Award for Outstanding Support for Early Career Researchers in October 2009. In May 2010 we received the Gold Global Learning Impact Award of the IMS Global Learning Impact Consortium for our on-line training modules, which were produced in partnership with Epigeum Ltd, an e-learning company.

These processes to recruit the best PhD students and provide them with excellent resources to carry out their research projects have produced an increase in the number of PhD authored outputs over the REF period. In particular, students are encouraged to submit their thesis as a series of published papers, and this emphasis on PG students producing high quality research outputs over the course of their studies has been a driving force behind the success of our PG students moving on to research careers at other institutions both at home (e.g. Oxford, St. Andrews, Nottingham) and abroad (e.g. Leuven, Vienna).

This commitment to recognising the strengths of our PG students and investing in them fits with our overall strategy of staff development and support. It also feeds directly into our UG research-led teaching approach in which all second year students have the opportunity to spend several hours a week working directly with members of staff on established research projects, gaining experience in a variety of research and techniques within the department. Our successful MSc programmes also give students an opportunity to experience different research techniques in different laboratories before their PhD studies. This approach has allowed us to ensure that the strongest students and/or postdoctoral fellows who are immersed in our research culture can be supported and brought through to academic roles in the department (e.g. Lane and Boothroyd who

were both undergraduates and PDRAs, and Lane a PhD student, in Durham before their appointment to lectureships).

d. Income, infrastructure and facilities

In line with the department's strategy, we have been able to focus resources on our three core research areas (and particularly where that investment allows existing research strengths to build our newly developing research groups). Investing heavily in these areas, we have been able to build a particular strength in the facilities available to staff and students. We are now able to provide excellent facilities to carry out research across a full range of areas and with the ability to build additional resources where demand requires.

The University has made a major investment in a new fMRI facility, purchasing our 3T Siemens Trim Treo fMRI magnet (£1.5M University investment). The facility is housed within the local James Cook University Hospital in Middlesbrough in a facility of 50m^2, where staff have access to expert radiographer support. The facility is jointly managed with the hospital as it is used half time for clinical work, helping us build our growing links to the NHS and run in a cost-effective and sustainable manner. To ensure success of this investment in the scanner itself, there has been provision of scanning costs (including £20k Wellcome Trust VIP training funds, supplemented by £32k p.a. from the University) and additional investment in equipment (such as the high quality fMRI compatible visual display). This investment has already produced increased links between the NHS and the department, with a co-funded PhD student being recruited on a project covering overlapping research interests (on the localisation of language centres in individuals in order to direct neurosurgical approaches).

Over this same period, a substantial investment has been made in the animal facilities available to the department. The department has grown the number of staff in the NL&M research group to ensure the group is able to carry out work more closely linked to BBSRC research priorities. In line with our research strategy, we have achieved this investment by supporting these new appointments with equipment and research assistance. As in other research areas, we have invested in a broad range of techniques to answer key questions in the field. As a result over the REF period we have installed a watermaze (£50k), created a new single cell electrophysiology laboratory (£40k) and invested in the refurbishment of over 30m^2 of behavioural testing facility, including producing the department's first facilities for the behavioural testing of transgenic mice. This investment in the department's work on behavioural neuroscience has already led to the generation of >£400k in grant income from BBSRC and NC3Rs.

In addition to these major investments, we have also been able to expand our range of research equipment critical to our three core research groups. This includes a clinical grade TMS facility (£50k), shielded EEG facility including new Neuroscan EEG recording set-up (£125k), additional TMS and EEG equipment (>£40k), a suite of Biopac physiological recording equipment (£20k) and 8 eye trackers (>£100k). In addition we have invested in a simulated fMRI scanner with identical peripheral equipment to that of the Tim Trio, (e.g. response buttons, eye-tracker, visual display) at a total cost of £74k. This facility allows us to carry out pilot experiments in identical conditions to those in the fMRI centre. This facility also allows us to acclimatise sensitive populations (such as patient groups) to the environment of an fMRI study before using the fMRI centre itself – reducing costs and drop-out from studies. In order to accommodate this significant investment in equipment, we have been able to expand our laboratory space in Durham city by approx 100m^2, and at Queen's campus by an additional 20m^2. This important expansion not only houses new research infrastructure, but also allows us to provide dedicated space for the CVVC for the first time. This refurbished space is windowless, providing excellent conditions for visual experiments and houses facilities including EEG and eye trackers. This expansion sits alongside existing resources, such as EEG laboratories, TMS set-ups, animal behavioural testing suites, and developmental observation facilities.

In order to maintain these outstanding research facilities in the long term, we have technical support including 3 specialist IT technicians able to provide not just support of equipment, but also key programming knowledge which has directly contributed to research outputs (e.g. 5 research outputs have explicitly acknowledged the contribution of technical support staff in the department). The department is also able to maintain a significant mechanical workshop facility with a full time technician. This facility is able to provide high quality equipment made to spec, allowing the department to build novel behavioural equipment (e.g. a range of equipment to support the new fMRI facility and LSSU, including manufacture of animal mazes which have been instrumental in

securing external funds – NC3Rs studentship). On top of this departmental support, the university provides an IT estate in which research can prosper with a secure network environment for all areas of the University alongside our own local research networks.

e. Collaboration and contribution to the discipline or research base

The strategy of focusing on building specific research strength with ample opportunity to cross disciplinary boundaries has provided a collaborative approach to research within the department. As described above, the department has energetic collaborations within the University's Research Institutes, Research Centres and across departments as well as among groups within the department. This external collaboration includes joint PhD students supervised by Psychology with other departments, including Anthropology and the School of Applied Social Sciences.

Outside Durham University, the department maintains a series of high profile collaborations. These include work on pre-natal facial movements (Reissland with Lancaster University), Spatial memory (McGregor with Lancaster University), Memory in mouse models of Alzheimer's disease (Eacott & Easton with Manchester University) and large scale collaborative projects such as the Wellcome Trust funded Hearing the Voice project based in Durham but with partners at Liverpool, Groningen and Macquarie Universities. In addition, the department has very strong links with the NHS which includes co-management of the new fMRI facility (see above) but also links for infant and patient populations. The NHS has supported a PhD student within this REF period, and through our growing research links are currently looking to expand this successful co-supervision model with the department. This partnership has been critical for the development of projects such as NIHR funded work on rehabilitation.

In addition to this extensive collaborative work, the department's staff continue to have significant involvement in the national and international research community, despite the department's relatively junior staff profile. Members of the department are involved with national funding bodies, including core members of BBSRC funding committees (Easton – committee A), NC3Rs studentship panel (Easton) and the ESRC peer review college (Rosenthal), in addition to widespread reviewing of grants by staff. In addition, staff have experience of participating in international funding bodies, including the Irish Research Council (Hausmann, Reissland). Ten staff have editorial responsibilities on one or more of 16 international journals including Neuropsychologia, JEP:HPP, Neuroscience and Biobehavioural Reviews, Journal of Autism and Developmental Disorders, Aggressive Behavior and Infant and Child Development. In addition a number of staff are guest editors for special issue volumes of journals including Learning and Motivation (Easton & Eacott), Infant and Child Development (Reissland) and Emotion Review (Atkinson).

Our staff also have significant involvement with a range of international and national learned societies, including committee membership of the European Society for Child Development (Reissland), Treasurer Elect of the Society for the Scientific Study of Psychopathy (Centifanti), Treasurer and committee member of BPS Developmental Section (Riby). Many staff have chaired international conference sessions including the International Conference on Memory, Eacott; European Conference on Developmental Psychology, Reissland and APA annual meeting, McGregor. These activities sit alongside over 40 invited talks at conferences including the European Society for Neuropsychology (Cavina-Pratesia) and the Annual Meeting of the Centre for Consciousness Studies, Tucson (Thaler) and over 35 free communications and over 70 poster presentations at various international conferences, highlighting the growing recognition of the department's research.

In addition, over this REF period several members of the department have been recognised for the contribution of their work to the field, including Fellowships of the Royal Society to Prof. Milner and Prof. Goodale (honorary Professor), award for the best clinical research paper by a young investigator by the International Society for Autism Reseach (Lind) and the ESRC & Longview's Neville Butler Memorial Trust Prize for longitudinal research (Centifanti). This recognition sits alongside several staff members successfully communicating their research through books, including substantially revised second editions of two renowned books (Sight Unseen, Milner and A Mind of Her Own, Campbell) and others including Pieces of Light (Fernyhough) which was recently shortlisted for both the Royal Society Winton Prize for Science Books and the Society of Biology Book Awards, as well as being identified as a Science Book of the Year by both New Scientist and the Sunday Times.