

## Environment template (REF5)

<b>Institution:</b> University of Essex
<b>Unit of Assessment:</b> 4 - Psychology, Psychiatry and Neuroscience
<p><b>a. Overview</b></p> <p>The Department's staff work across three groups, each with critical mass and research excellence: Cognitive &amp; Sensory Neuroscience, Social &amp; Health Psychology and Cognitive &amp; Developmental Psychology. Since 2008 the quality of research in each of these themes has developed and new strengths have emerged. Each group has an intellectually vigorous community comprising researchers at all levels of seniority, state of the art facilities, and a programme of meetings. Our physical environment is designed to encourage and support individuals in crossing conventional disciplinary boundaries to collaborate in research. The UoA is a member of the Faculty of Science and Health whilst having strong links with the world leading Faculty of Social Sciences. The University facilitates interdisciplinary research via Essex Biomedical Sciences Institute (EBSI), and the Institute for Social and Economic Research (ISER).</p>
<p><b>b. Research strategy</b></p> <p><b>Objectives during the assessment period:</b> Our strategic objective for 2008-2013 was to further develop Essex as a recognised centre of research excellence. This objective has been realised by the <b>achievement of three key strategic elements:</b> 1) investment in research infrastructure, 2) recruitment and retention of talented researchers, and 3) fostering an environment that facilitates excellent research.</p> <p><b>1. Investment in infrastructure.</b> Since 2008 we have received substantial investment in facilities of the highest quality from the University and external agencies, resulting in two significant achievements:</p> <ul style="list-style-type: none"> <li>▪ A new £2.4m <b>research building</b>, opened in 2009, gave a 40% increase in space devoted to research (770m<sup>2</sup>). The facility contains well equipped laboratories, office space for PhD students and post docs, as well as research meeting rooms and social spaces that foster opportunities for innovation, dissemination, training and collaboration between and within groups.</li> <li>▪ A <b>£1m centre of excellence</b> in Electroencephalography (EEG) and Transcranial Magnetic Stimulation (TMS) in the <b>Centre for Brain Science (CBS)</b>, with multi-method equipment.</li> </ul> <p><b>2. Recruitment and retention of excellent researchers.</b> The Department has made a major investment in new staff to lead and develop the CBS, supported by ECRs and specialist technical staff. Across research groups we have increased the diversity and depth of the skill base with appointments of established scholars (Hibbard, Romei), internal promotions (Callan, Matthews, Paulmann, Rakow) balanced by ECR appointments (Dent, Foulsham, Gillmeister, Holmboe, Hughes, Rieger, Rigato, Weinstein). The <b>quality of appointments</b> is evidenced by outstanding publication quality and grant capture. Staff appointed to the UoA during the assessment period have already captured 7 project grants, 4 by ECRs, from sources including ESRC and Leverhulme.</p> <ul style="list-style-type: none"> <li>▪ We hosted <b>independent research Fellows</b> funded by the British Academy, ESRC, Korean Research Foundation, Foundation Fyssen, and Leverhulme Trust during the period.</li> <li>▪ The numbers of PhDs awarded was doubled from 16 in 2008 to 32.2 in 2012.</li> <li>▪ Our staff have published their work in <b>leading journals</b> in <i>each</i> area included in our UoA as well as in world-leading general journals. More details are given in the sections below.</li> <li>▪ Research grant income has increased by 50% per annum, compared to the previous RAE period. <b>External funding</b> of over £4.2m (£3.32m of which was spent through Essex) was obtained from diverse sources including research councils (ESRC, EPSRC, BBSRC), response mode funding from government departments, major charities, the <i>EU</i>, overseas sources including <i>NSF</i> and <i>NIH</i>, and non-academic contractors.</li> </ul> <p><b>3. Fostering an environment that facilitates excellent research.</b> Investments in equipment, PhD studentships, technical support and on-going personal development for all staff ensures a vital and sustainable centre of excellence that maps on to research-led education:</p> <ul style="list-style-type: none"> <li>▪ Essex University gained exclusive <b>ESRC Doctoral Training Centre</b> status in 2010.</li> <li>▪ A £592k investment in Department-funded <b>PhD Scholarships</b> during 2008-13, augmented by a University wide programme for postgraduate training (PROFICIO).</li> <li>▪ University funds facilitate <b>interdisciplinary collaborations</b> across Faculties and with external collaborators: <i>Ageing and Assisted Living Network</i>, <i>Konstanz-Essex Fund</i>, <i>Knowledge Transfer</i></li> </ul>

*Fund, Social Science Interdisciplinary Research Fund.* University investment in a large new dedicated *Social Science Laboratory (EssexLab)* facilitates experimental research across the social sciences. Staff in the UoA have strong links within the Science Faculty (Biological Sciences, Health and Human Sciences, Computer Science) and across Faculties (Language and Linguistics, Sociology, ISER): UoA staff also engage with University centres that facilitate knowledge exchange and translational potential such as the National Institute for Health Research Design Service for the East of England and the Essex Biomedical Sciences Institute.

- A **research strategy committee** comprising senior and junior members of each research group and Ethics and Impact Officers meets termly to identify and promote funding opportunities. The committee reviews colleagues' research grant proposals, operates a Research Promotion Fund to support feasibility and pilot studies, and considers applications for Research Leave under the University's generous provision. Annual staff appraisal conducted by the Head of Department, augmented by annual review of research by the PVC (Research) sustains research priorities.

#### **Achieving our Strategic Goals to 2020.**

Our **core departmental plans** from 2014 forward are to:

- Develop policy that **maximises research intensity** (consistent with the University's strategic plan and research KPIs), ensuring that a maximum number of research active staff from every group have excellent quality publications at the next REF, promotes increased citation of our research output, and increased capture of research income.
- Building on our state-of-the-art infrastructure, **develop our niche centre of excellence** in the CBS, building a world-wide reputation in multi-method approaches to the study of brain function and human behaviour, evidenced by income, outputs and research student training.
- **Enhance the translational potential of the Department's research** via response mode funding, involvement of end users in funding applications and projects and through engagement with RCUK grand challenges. The UoA staff will work with the University's Research and Enterprise Office (REO) to develop Knowledge Transfer Partnerships with local public and private sector companies and with University centres that facilitate translational potential such as the Essex Biomedical Sciences Institute. A number of current projects offer a good deal of promise for the generation of future research impact; for example, a £1.7m from EPSRC (DANCER) project on sustainable energy use, a £400k ESRC project on the experience of cultural transition, and two CRUK projects (£400k) on aspects of colorectal screening.
- Implement an **improved probationary staff development programme**.
- **Increase research student recruitment.** Our goal is to increase the number of funded PhD students supervised by all research active staff. We will seek to renew the Essex ESRC DTC and augment our funding capacity via bids under consideration at EPSRC and BBSRC. The UoA will continue to support a Scholarship Programme and we will work with REO to develop postgraduate training to increase their awareness of the needs of research end-users.
- All groups will **complete recently funded research not yet producing outcomes.** For example in the **Cognitive and Sensory Neuroscience Group** a £369k BBSRC project investigates neural models of binocular stereopsis and 2 cross disciplinary collaborations are funded by Leverhulme: a £180k investigation of bilingualism (cognition-neuroscience), and a £189k neural study of motivational processes in emotional prosody (social-neuroscience). In the **Social and Health Group** 3 ESRC projects investigated automaticity in illness regulation (£100k), relative deprivation (£100k) and cultural transitions (£400k) and a Leverhulme grant (£123k) will examine status consumption in relative deprivation. In the **Cognitive and Developmental Group** a BA fellowship (Holmboe, £300k) concerns development of executive function and a €1.9m EU FP7 project (RECALL) involves collaboration between computer scientists and psychologists to study the role of mobile technology in memory enhancement.

#### **Research Groupings Rationale, Activities, Achievements and Plans**

##### **Cognitive and Sensory Neuroscience Group**

- Cognitive and Sensory Neuroscience has been boosted by two major strategic investments: [Centre for Brain Science](#), and by excellent new senior (Hibbard, Romei) and junior (Gillmeister, Hughes, Rigato) appointments and promotions (Paulmann). The Centre has emerged as a uniquely specialised facility for research using neurostimulation (TMS, tDCS), neuroimaging (EEG, NIRS) and advanced online combination of these techniques. Multi-method approaches to the study of brain function and its relation to human behaviour have developed in the last decade prompting a paradigm shift in cognitive neuroscience. The centre provides state of the

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art multi-method technology for competitive, cutting-edge investigation.

- The Group works on a number of interdisciplinary research topics including language, action control, multisensory Interactions, visual cognition, brain oscillations, sensory and rhythmic entrainment in healthy and clinical populations. Romei has combined TMS and EEG to demonstrate that it is possible to manipulate brain oscillations in desired directions, thus gaining causal inferences on brain oscillatory functions. Gillmeister shows that spatial representation of touch is strongly affected by multisensory information about one's body (vision of body parts, body posture) and the environment (objects held by the hands). Hughes has made a significant contribution to our understanding of how action shapes perception of the world around us.
- International research exchange has been actively promoted, and the Centre regularly receives visiting researchers. Investment in this group has improved quality and quantity of publications, with over 160 publications in international peer-reviewed journals including *Neuron*, *PNAS*, *Current Biology*, *Trends in Cognitive Science*, *Journal of Neuroscience*, *Psychological Bulletin*, *Journal of Cognitive Neuroscience*, *Neuroimage*, *Neuropsychologia*. Research income from the period has come from Wellcome Trust, BBSRC, British Academy, ERC, EPSRC, MTHR, NIHR, and ESTC. During the next five years, members of the group will develop novel paradigms by means of neurostimulation techniques (e.g. Cortico-cortical paired associative stimulation, dual coil rhythmic TMS, dual tACS) and concurrent EEG measurements able to causally test the functional connectivity between remote but interconnected areas of the brain. The intermediate goal is to provide research with new tools able to (i) causally probe brain network (oscillatory) functions, (ii) manipulate functional connectivity and (iii) promote brain plasticity. The ultimate goal is to gain deeper knowledge about the brain network architecture which will in turn drive future clinical applications aimed at restoring brain functional connectivity.

#### **Social and Health Psychology Group**

- Social and Health Psychology, whilst already established in 2008, has been strategically developed by excellent appointments with interests broadly in self-regulation processes. Promotion of Callan to Senior Lecturer and Rakow to Reader, together with the arrival of Weinstein and Rieger, has ensured continued strength and depth. The Group has weekly research meetings that include postdoctoral researchers and postgraduate students.
- Callan and Cozzolino work on the psychology of liberty and justice. Callan has directed projects funded by the ESRC, Leverhulme and the Ontario Problem Gambling Research Centre, and explained how personal relative deprivation is linked to problem gambling. Orbell and Rakow work on different aspects of decision-making, with the latter focusing on optimal strategies for decision-making, and the former on self-regulation and its implications for health-related message framing and behaviour change. Rakow leads a Leverhulme-funded project. Orbell has directed an ESRC-funded project on automatic processes in illness regulation and is Col on 3 current CRUK-funded projects in health-related behaviour. Weinstein has examined how non-supportive societal norms and relationships impact human motivation and well-being in daily life, highlighting wellness outcomes of stigma and urbanisation/industrial development. Rieger uses innovative methodologies to study self-identity with broader relevance for interpersonal perceptions and the development of sex differences.
- Members of the Social and Health Psychology Group have held 5 ESRC awards since 2008 and awards from the BPS, Leverhulme, EOARD, British Academy, CRUK, NIHR, NIH and NSF (USA). The Group has consistently published in leading social psychology journals, including 7 papers in *JPSP*, 4 in *HP*, and 6 in *PSPB*. Collaborations with Social Science departments at Essex (Sociology, ISER, Economics, Business School), have led the University to invest in a dedicated Social Science laboratory (EssexLab) adding 32 testing rooms to the social labs in the Department; whose facilities will be tailored specifically to collaborative research in areas such as health, economic and consumer behaviour, and strategic decision-making. Projects for the next 5 years include important interdisciplinary collaborations. Weinstein's Leverhulme grant investigates motivational prosody in collaboration with Paulmann. She is Col on a series of collaborative projects in conjunction with NGOs including World Wildlife Fund, Scope, and the RSPB. With Matthews, Callan has a Leverhulme grant to explore status consumption.

#### **Cognitive and Developmental Psychology Group**

- Excellent new appointments augment a core of experienced researchers whose main fields are memory, language, typical and atypical child development and attention and strengthen the Cognitive and Developmental Psychology Group. Group members collaborate together and with

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- other disciplines and have regular 'Journal Clubs' to discuss new findings in their fields.
- Matthews has developed a model to explain how judgements of time perception are affected by changes in tone sequences and in the speed of moving visual stimuli. He has been promoted to Senior Lecturer. Dent has used converging methodologies to characterise visual selective attention based on salient spatio-temporal differences. Foulsham has examined the role of eye movements in the visual recognition of natural scenes and shown that visual attention to an image of a person can be different from that to a real person. Hanley has successfully applied Dell's model of spoken word production to explain individual differences in children's ability to produce words on tasks such as picture naming. Roberson has continued her cross-cultural research in Northern Namibia and established that the same mechanisms appear to underpin categorical perception of colour, face identity, and facial expressions of emotion. Simpson has shown that response pre-potency in Stroop-like tasks is caused by membership of the response set. Temple has shown that children with Turners syndrome show both exceptional lexical skills and executive language deficits. Ward's work on recall has brought the field closer to a theoretical integration of the free recall and serial recall literatures.
  - In collaboration with computer scientists Ward has obtained a €1.8m EU FP7 Future and Emerging Technologies award to explore how technology can enhance human memory. The Group consistently publishes quality articles in cognitive journals and has attracted funding from the British Academy, EPS, EPSRC, ESRC, NIHR, Leverhulme Trust, MRC, Royal Society, EU, and Wellcome Trust and a number of smaller charities during the assessment period. Responsiveness to a range of priorities and initiatives and to interdisciplinary projects is evidenced by: a recent £1.3m EPSRC award integrating engineering and psychology to examine the psychology of energy reduction (DANCER project); a collaboration funded by the Docklands Light Railway has led to improvements in the usability and design of transport maps. Future planned projects include building a research group investigating visual perception and attention across multiple levels of realism; images, video, virtual and real environments.

**c. People, including:**

**i. Staffing strategy and staff development**

The Psychology UoA regards selection of staff as well as support for all academics throughout their careers as crucial to sustaining the high quality of our research and research productivity.

**Recruitment** has been strategically targeted across our areas of research excellence to ensure each group sustains critical mass and an effective balance of senior and junior staff. During the period high priority was given to recruiting talented research leaders in our cognitive and sensory neuroscience group. Research is given priority in appraisal, permanency, and promotion. New staff receive a generous start up budget, an induction from the Head of Department (HoD), and a clear account of staffing policies is provided in the Academic Staff Handbook.

**Arrangements for integrating and developing new junior colleagues:** Essex has a three year probation period for those appointed to their first lectureship and each has a mentor from amongst the senior staff within their research group who advises on publication, grant applications, career development and managing research alongside teaching and administrative responsibilities.

Probationary staff have reduced teaching loads and preferential access to funds from the Research Promotion Fund (RPF). All staff who have joined the Department since 2008 have received at least one RPF award. New colleagues are encouraged to participate in our internal seminar programme, to disseminate and learn about colleagues' work and are integrated into regular meetings within each research group. Particular attention is given to research performance of new staff during probation. The Department's Staffing Committee ensures that colleagues receive appropriate advice regarding criteria for promotion and reviews the progress of probationers, their transition to permanency, and the promotion of staff to Senior Lecturers and Readers.

**Arrangements for developing and supporting staff throughout their careers:** All staff are appraised each year by the HoD. A key component of the appraisal is a rigorous assessment of research achievements and progress. Staff are asked to set objectives for the next year, and review whether last year's objectives were met. The PVC (Research) also monitors the research performance and plans of all research active staff annually, with Faculty Executive Deans, HoDs and Research Directors. Staff are encouraged to enlist on the University training courses which include preferential access to the well-established Essex Summer School in Social Science Data Analysis, and research, supervision, careers and staff development skills. The Department

contributes to the University's level 8 research skills programme, for example, by organising specialist training sessions in neuroscience equipment. The Department financially supports an external speaker programme that operates throughout the academic year and provides resources to transport and accommodate speakers, and the cost of dinners with department staff members. Seminar dinners often form the basis of integrating new colleagues.

**Career Development, Equality and Diversity:** Principal Investigators of grants are responsible for the personal and research career development of any researchers employed on the grant. In accordance with the *Concordat to Support the Career Development of Researchers*, they are responsible for the annual appraisal of researchers, ensuring that the researcher is suitably trained, adequately resourced and equipped, and they foster the career development of the researcher through regular meetings, co-authoring of manuscripts for publication, and facilitating networking at research meetings and conferences. In all staff policy matters, the Department is fully compliant with the equalities and diversities policies of the University. The University facilitates flexible working, has a set of harassment advisors and trains all staff making appointments in equality and diversity issues. The University has Athena Swann bronze medal status and is preparing to apply for silver medal status. A professor in the department is a member of the University Athena Swann Steering Group.

**Arrangements for operating at optimum research capacity:** It is policy that all staff have the necessary time to undertake their research, in line with our strategy to ensure maximum possible research intensity. The Psychology Department workloads model shows that during the REF period academic staff devoted 56% of time to research. The University also operates a **generous system of research leave** that entitles all research active staff to one term free from teaching and administration duties for every six terms that have been worked. This policy is rigorously implemented by the Department of Psychology. During the REF period, 12 staff were granted research leave. The PVC (Research) is responsible for approving research leave proposals, and monitoring outcomes. It is also policy that staff receive the necessary resources to undertake their research. All staff receive a large individual office (average = 16m<sup>2</sup>), a personal computer that is upgraded every few years, and equipment necessary to undertake their research. In addition, all staff receive a **personal allowance** of approximately £1,500 pa for research expenses (participant payment, conference travel, specialist training, etc.) and additional bids for up to £4,000 can be made to the RPF to collect pilot data on a new project or collect additional data for an existing project. During the REF period a total of £115,311 has been allocated, benefitting 18 different people. The Research Committee provides guidance on the generation of research proposals for grant applications. The University's REO provides procedural advice and costing. Staff are incentivised to submit proposals by credit to the workloads model and to their personal allowance. Grant holders also receive a 10% share of indirect costs. It is University policy that **match-funding for equipment** costs in RCUK grant awards will *always* be made available from University funds.

## ii. Research students

**Effective and Sustainable Doctoral Research Training:** The University's Graduate School works with Faculties to set and monitor research strategy for its doctoral students. The Department Director of Postgraduate Recruitment and Research Student Tutor are responsible for monitoring supervision and progression arrangements. The UoA has a thriving PhD community. The University of Essex is one of only 12 UK universities with an **exclusive ESRC DTC**. The UoA is a member of this DTC and has membership of the award panel. In addition to RC funding, Psychology PhD students are funded by charities, health authorities, and overseas governments. The University has invested £1m per annum in studentships and the Department has committed more than £600,000 to postgraduate research training during the past 5 years. Together, these funding sources provide a platform for interdisciplinary engagement and non-HEI partnerships. The University Alumni Office provides match funding to external sources. All doctoral students are allocated two supervisors, with junior staff supervisors supported by a senior colleague. A **supervisory board** reviews students twice a year during their studies. The University's **Proficio programme**, developed within sequent bids for DTC status, offers high quality level 8 training that builds specific skills in attaining, analysing and disseminating research data, and generic skills in, for example, ethics, project management, communication and impact. Proficio short courses are commissioned and evaluated by the Graduate School. Students are given £1,000 to spend on advanced training. Students also have free access to the Essex

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Summer School in Social Science Data Analysis and often take courses in structural equation modelling. At Departmental level all students attend our **ESRC-approved MSc Research Methods modules**. Our commitment to funding and training is reflected in an excellent rate of completion. In the period between 2008 and 2012, 112 PhD students submitted their thesis within four years and passed their viva with minor corrections. These exceptional results are achieved by effective supervision, and by provision of a culture that sustains and integrates PhD students within the Department.

**Strong and Integrated Research Student Culture:** Each PhD student has dedicated desk space and a new personal computer. Students are allocated a personal budget to meet research costs and to encourage attendance at scientific meetings. Social events in the Department include subsidised external speaker dinners and weekly coffee meetings, to encourage staff-student interaction. A Departmental Postgraduate Conference ensures that students give at least one presentation each year of their studies and most students give presentations at international meetings in the last two years of study. At University level, doctoral research culture is sustained in a number of ways. The Graduate school runs regular doctoral student events, including an annual cohort conference attended by senior University Officers. Since 2008, our Psychology PhD students have published in leading international journals (including *Cognition*, *Cognitive Neuropsychology*, *JEP*, *Health Psychology*, *Memory & Cognition*, *NeuroImage*, *Psychological Science*). They have proceeded to lectureships, and to post-doctoral posts at prestigious universities in the UK and abroad.

**Future Strategy:** Our goal is to sustain and to increase our number of funded PhD students. Institutional and inter-institutional bids are underway to BBSRC and EPSRC to complement our ESRC DTC. The University will continue its commitment to funding. We will also continue to work with our Development and Alumni Office and REO to identify sources of collaborative funding with external users and will integrate impact into the training of these future researchers. The University's REO offers distinct services to doctoral students including a postgraduate consultancy service allowing students to gain engagement with employers. A number of students have engaged effectively with the development of technology based upon their research, for example, LeCluse's PhD research has contributed to the development of a new 'app' that provides effective hearing aid to users. The Department will maintain its outstanding record in PhD completion.

#### d. Income, infrastructure and facilities

A core component of the Department's research strategy has been to increase collaborative and interdisciplinary research. Successful partnerships internally across research groups and Faculties, and externally both nationally and internationally have enabled 88% of all staff to conduct externally funded research over the REF period. **Our external research income has increased by 50% per annum compared to the last RAE period.** There has also been a significant **40% expansion of the Department's research infrastructure and postgraduate training facilities** at a total cost of £2,380,199. Research funding has been obtained from research councils and the public sector (British Academy, BBSRC, DoH, ESRC, Essex County Council, EPSRC, NIHR, Technology Strategy Board, Tendring District Council), international agencies (European Office of Aerospace Research Development, EU, NIH, US National Science Foundation), independent charities and fellowships (Cancer Research UK, Leverhulme Trust, Royal Society, Wellcome Trust, World Wildlife Fund) and commercial development and industry (British Aerospace, Docklands Light Railway, Givaudan UK, Phonak, London Underground, Unilever). In addition to awards spent during the period, staff in the department are PIs and Co-Is on awards totalling £4.5m that are yet to produce outcomes or are not yet spent.

The opening of the **Centre for Brain Science (CBS)** in 2009 provided the Department with new infrastructure for a centre of excellence in EEG research, especially for the combination of EEG with TMS. Much of the substantial additional funding already achieved by the CBS has been allocated to equipment. The facility now has eight EEG systems, two of the latest Transcranial Magnetic Stimulation (TMS) systems, and two Transcranial Direct Current Stimulators (tDCS), making it possible to run single pulse, paired-pulse, repetitive trains and dual coil protocols. Neuronavigation is provided by a stereotactic image guidance system that facilitates the positioning of TMS coils over a subject's brain. Additional resources include two 24-channels near infrared (NIRS) systems, optometric trial lenses; monochromator; photometers and a range of clinical optometric test equipment. The **Cognitive and Developmental Group** has also grown

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since 2008 and their infrastructure and facilities have been expanded and upgraded with further SRIF and RCIF investment. New members of the group specialise in attention, decision-making, time perception and autism and the Department now has 9 eye-tracking systems (including head-mounted; free-standing and in-screen systems), 22" precision colour monitors for threshold measurement and calibration facilities for both screen presented and film perception, a virtual reality suite equipped with a Virtualis VR system, video editing suites, and five additional systems for physiological measurements (including pulse, temperature, GSR, blood pressure, etc.) of infants, children and adults. Six portable touch screens funded by London Underground for the creation of underground map directions during the Olympics are now used in two dedicated developmental laboratories, also equipped with video recording and Tobii eye-tracking systems. There are also four soundproof booths. A fully equipped neuropsychological assessment room is available for testing neuropsychological patients (adults and children), with a specialist test library that has doubled since 2008. PhD students have the opportunity to use all the equipment and, where appropriate, to receive training in psychometric assessment e.g. ADOS (Autism Diagnosis System). The enhanced infrastructure has underpinned a variety of externally-funded studies. The NSF funds specialist equipment and travel expenses for field trips investigating cultural differences in categorisation. Group members are also involved in some CBS projects. Additional facilities for the **Social and Health Psychology Group** include an Observation suite with one-way mirror, testing room and observation room equipped with video recording facilities; a group testing suite consisting of multiple neighbouring cubicles, whose computers can be interlinked to allow real-time group behavioural studies; 8 specialist memory/attention/ cognition labs equipped with computers capable of high-speed stimulus presentation with fast refresh-rate monitors and 27 general-purpose experimental cubicles.

The department has a large and enthusiastic **participant panel** (over 1850 students, members of University staff and members of the local community), for which a database is held centrally. Other participant populations are drawn from affiliates of the University of the Third Age, local schools and nurseries, special schools and support organisations, and regional hospitals.

**Policy and Practice in relation to Research Governance:** One senior and one junior colleague represent each research group on the Department's Research Strategy Committee (RSC). The Committee addresses strategic research planning, individual staff research plans, publication and dissemination, funding and resource allocation (from the University Research Promotion Fund as well as from the departmental budget), and postgraduate integration and research support. With the Head of Department, and a departmental REF sub-committee, it monitors and supports the research activity of all staff. The Research Director attends the Faculty Research Directors' (FRD) meeting each term, and sits on the University Strategic Planning Group. Two UoA professors sit on the University Research Committee.

#### e. Collaboration or contribution to the discipline or research base

The Psychology UoA shows a strong commitment to the discipline through its numerous scholarly publications and training of PhD students. We are committed to inter-institutional and international collaboration, mindful of the different disciplinary and institutional strengths upon which we can draw. We promote the discipline to beneficiaries, and members of the department make substantial contributions to peer review and to the work of funding bodies. **We have effective mechanisms to promote collaborative research with the academic community and with research users.** Section (c) describes the Department's generous policy of research leave, personal budgets, external speaker and conference support. Our publications evidence effective international research collaboration. Translational research is promoted by University centres such as EBS, ISER and NIHR and by University funds such as The Essex Ageing and Assisted Living Network. Our REO and RSC disseminate information to promote our responsiveness to national and international priorities and initiatives and to KTPs.

#### Effective international research collaborations

- Members of all 3 groups have effective international collaborations that have yielded publications and research grants. Examples in the Cognitive and Sensory Neuroscience Group include: **Romei's** work with Pascual-Leone, Boston, USA; **Paulmann's** work with Kotz, Max Planck Institute, Leipzig, and **Hughes** work on intentional binding with Waszak, Centre National de la Recherche Scientifique, Paris. In the Social Psychology Group examples include: **Callan's** work on gambling with Olson, Western Ontario; **Weinstein's** work on self-determination with Ryan, and Deci at Rochester, USA and **Rakow's** work on complex decision-making with Newell,

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NSW, Australia. In the Cognitive and Developmental Group examples include: **Roberson's** work on the affective vision hypothesis with Barrett, Northeastern University, Boston, USA; **Foulsham's** work on attention with Kingstone, UBColumbia, Canada. Staff have secured travel grants to support collaborations from sources such as the EPS and German Academic Exchange Service.

- We have also **hosted overseas visitors**. Examples: Delattre (Foundation Fyssen post doctoral fellowship); Prof. Qiang Liu, Dalian University, (ESRC/Chinese NSF international exchange), So (Hong Kong), Jaschinski (Dortmund); Pak (Korean Research Foundation Fellowship; Law (US/Hong Kong); van den Bussche (Belgium).

#### Interdisciplinary research and collaborations with external bodies and end users

- The UoA has been active in many projects involving end-users. Examples of Response-mode projects include **Ward's** RECALL project, funded by EU FP7 with computer scientists; DoH and NAEDI projects including **Orbell's** work on psychological aspects of health screening. The Ageing and Assisted Living Fund currently supports three Department research projects: a project with computer scientists to develop technology to assist people with Parkinson's disease; a project involving the NHS in an RCT for treatment of migraine; and a study of language and ageing.
- Senior staff collaborate with probationers and share links to external bodies. Our research users include: **public organisations** such as the NHS and WHO; **commercial research and technology development organisations**; for example, the US Defence Advanced Projects Research Agency, the European Office of Aerospace R & D, and the Docklands Light Railway; **trade associations and professional societies** such as the National Radiation Protection Board; and **charities** such as Age UK, World Wildlife Fund, RSPB, Great Ormond Street Hospital Trust, RNID, British Dyslexia Association, Children's Heart Federation, as well as **private sector companies** where research underpins the production or distribution of products and services such as Cerium Visual Technologies and Crossbow Education.
- We have representation on a number of user organisations. For example: **Roberson** is a member of the Parkinson's UK Research Support Network; **Orbell** is a member of the National Cancer Research Network Primary Care Clinical Sciences Development Group; and **Temple** has served as non-executive Director of Colchester Hospital University NHS Foundation Trust.

#### Participation in peer review

- During the period, members of staff have been very active in serving on **external policy review and grant awarding panels**. Twelve staff served as members of the ESRC College of Assessors and as Assessor of ESRC-MRC Research Fellowships. Staff were also panel members on the Portuguese Foundation for Science and Technology Scientific Council for Social Sciences (**Orbell**), the Romanian Science Foundation Rapporteur Panel (**Roberson**), and as Chair of Trustees, The Edwin Doubleday Fund (**Temple**).
- All staff undertake regular **Grant Application Reviewing** for organisations in the **UK** (ESRC, Wellcome Trust, Leverhulme, BBSRC, CRUK, MRC, EPSRC, NHS Executive, Royal Society), **Europe** (European Science Foundation, EU FP7 and ORA, Council for the Humanities of the Netherlands, Netherlands Organization for Scientific Research, Israel Science Foundation, FWO Belgium), the **USA** (NSF, NIH) and **Australasia** (Genesis Oncology Trust of New Zealand, Australian Research Council, NHMRC Australia).
- During the period we have had **editorial board membership** of 18 journals including; *Journal of Behavioural Decision Making*; *JEPGeneral*; *Journal of Cognitive Science*; *Memory and Cognition*; *Cognitive Neuropsychology*; *BioMed Research International*; *Neuropsychologia*; *Archives of Sexual Behavior*. All staff do **peer review for leading journals** in their discipline.

#### Contributions to the leadership and development of the discipline and the research base

- Examples of **awards and keynotes**: **Romei** (Consolider CogNeuro Seminar Series, Spain, 2012; TMS Symposium, Helsinki, Finland 2013), **Robertson** (keynote at Annual Convention of the Japanese Psychological Association, Kyoto, 2014), **Orbell** received the BPS 2012 Award for Outstanding contribution to research in health psychology.
- Examples of **conference organising and learned society roles**: **Hanley** (Trustee & Treasurer, Experimental Psychology Society, BPS Research Board), **Hughes** (BPS Consciousness and Experiential Psychology section Treasurer, representative on BPS Research Board and Conference chair), **Callan** (Organising committee, International Society for Justice Research 2010), **Rakow** (Organising committee, European Association for Decision Making SPUDM 23).