

Environment template (REF5)

<p>Institution: University of East Anglia</p>
<p>Unit of assessment: 4 Psychology, Psychiatry and Neuroscience</p>
<p>a. Overview</p> <p>Psychology (the focus of this submission) at UEA has been through a period of rapid change and development since RAE2008. The majority of staff submitted in 2008 (12 out of 14 FTEs) were clinical psychologists in the Faculty of Medicine and Health Sciences, with the addition of two psychologists from the School of Social Work and Psychosocial Sciences. Following a strategic review of psychology at UEA, driven both by the RAE2008 results and the buoyancy of the undergraduate degree programme in psychology (accredited by the BPS in 2008), the University decided to form a new School of Psychology – the first new School of Psychology in a research-intensive university for over 20 years. The new School, situated within the Faculty of Social Sciences, has been accorded the highest priority for new investment within the Faculty, and is now leading the coordination of psychology across UEA.</p> <p>In this submission all but two of the staff (Hodgekins and Pangiotaki from the Clinical Psychology Group in the Faculty of Medicine and Health Sciences) are submitted from the new School of Psychology. All of these staff have been appointed after RAE2008, and 80% since the new school was officially launched in September 2012.</p> <p>Research in psychology is organised into three clusters at UEA as follows:</p> <ol style="list-style-type: none"> 1. Cognition and Perception Group (School of Psychology, Faculty of Social Sciences) 2. Clinical Psychology Group (Faculty of Medicine and Health Sciences) 3. Social and Developmental Psychology Group (School of Psychology, Faculty of Social Sciences)
<p>b. Research strategy</p> <p>The strategic review of psychology at UEA, completed in 2011, recommended that a new School of Psychology be established based in the Faculty of Social Sciences. The new School was officially launched in 2012, commencing with the recruitment of Coventry to the position of inaugural Head. Psychologists in the former School of Social Work and Psychosocial Sciences moved into the new school, but the majority of staff in the School have more recently been appointed. Clinical Psychology remained in the Faculty of Medicine and Health Sciences but has been reconfigured, led by the appointment of Laidlaw as Head of the Group.</p> <p>The formation of the new School of Psychology afforded the opportunity to build research strengths strategically from the start. Psychologists at UEA situated in the Clinical Psychology Group within the Faculty of Medicine and Health Sciences have been at the leading edge of translational medicine, developing, testing (in Randomised Control Trials (RCTs)) and implementing treatment regimes for mental health, with associated policy impacts. The primary goal for the new School of Psychology was to develop the theoretical depth, methodological diversity and technical capacity required to be at the cutting edge of psychological science, complementing the existing strengths in translational medicine. To do so, a two-fold strategy was developed: i) To build core strengths in psychological science commensurate with the challenges faced by the discipline, and ii) To link these core strengths to multidisciplinary areas where UEA is already internationally leading. Congruent with the second goal, psychology at UEA aims to build on the facilities and research strengths that are afforded by the Norwich Research Park – a major collaboration between UEA, the Norfolk and Norwich University Hospital, independent world-renowned research institutes (Institute of Food Research; John Innes Centre; The Genome Analysis Centre – all strategically funded by the BBSRC), and the Sainsbury Laboratory linked to the Gatsby Charitable Foundation. This represents one of the biggest clusters of research strength in the biosciences in Europe.</p> <p>The overarching goal for psychology at UEA is to develop sustained, world-leading research excellence in psychological science within the interdisciplinary ethos that the Norwich Research Park affords.</p>

Research groups

The **Cognition and Perception Group**, a newly established group, comprises Coventry (Professor), Bayliss (Senior Lecturer), Engelhardt, Griffiths, Renoult, Rossit, Smith, and Sperandio (Lecturers). The core interest in the group is the interplay between high-level cognition and lower level vision and action processes in both typical and atypical populations. Major discoveries in this group include the following: Sperandio's work shows that high level constraints affect object constancy (*Nature Neuroscience*); Smith has shown that top-down processes even affect the processing of low level object features (*PNAS*); Coventry's recent work includes the finding that motion processing for static images (MT+ activation) is driven by object knowledge and language processes, with hemispheric specialisation (*Psychological Science*); Bayliss has shown that ownership affects the visuomotor actions we perform when interacting with objects (*Cognition*).

Work with atypical populations includes large-scale studies led by Engelhardt examining the interaction between language abilities and lower-level executive function (e.g. working memory deficits) in adolescents and adults with neurodevelopmental disorders. Rossit's programme of research examines vision and action deficits in stroke patients, using cutting edge behavioural-lesion mapping techniques. Bayliss uses gaze-contingent eye-tracking techniques to examine choice behaviour and social understanding in Autistic Spectrum Disorders.

There is already evidence of international funding activity in this group. Coventry secured a 4.15 million Euro Marie Curie Initial Training Network grant (2013-2016) that is examining the mapping between language and perception across the lifespan in typical and atypical populations. This grant is a collaboration with universities and companies across Europe, and involves members of the Cognition and Perception Group and some staff in the Faculty of Medicine and Health Sciences. Bayliss has a new grant commencing (2013-2015) investigating the development of the concept of ownership in children, funded by the Australian Research Council in collaboration with colleagues in Queensland (AU\$255,000).

Sperandio joined UEA from Goodale's lab in Western Ontario (Canada) where Smith and Rossit also completed postdoctoral positions, and they continue to collaborate with Goodale, with collaborative funding bids in preparation. Research in the group takes advantage of multimethods and complementary skill sets, including expertise in fMRI and MEG (Smith, Sperandio), clinical neuropsychology (Rossitt), eye tracking (Engelhardt, Coventry), EEG/ERP (Renoult, Bayliss), mathematical and computational modelling (Smith, Coventry) as well as experimental methods.

The Cognition and Perception Group plays a key strategic role in the development of psychological science at UEA, providing direct linkage to the Norfolk and Norwich University Hospital through collaboration with a cluster of staff in the Faculty of Medicine and Health Sciences with related interests. This includes the development of an Acquired Brain Injury Rehabilitation Alliance – a collaboration between the Faculty of Medicine and Health Sciences and the School of Psychology at UEA with the University of Cambridge. A new 3T GE MRI scanner at the hospital (a 2-day a week research scanner), jointly funded by the hospital and University, has been mobilized for fMRI research use with the appointments of medical physicists and radiologists in the Faculty of Medicine and Health Sciences and at the adjoining Norfolk and Norwich University Hospital.

The **Clinical Psychology Group** (based in the Faculty of Medicine and Health Sciences) has the responsibility for the Doctorate in Clinical Psychology programme serving the regions of Norfolk, Suffolk and Cambridgeshire. Staff in the clinical group maintain contracts with the NHS trust, as well as fulfilling their research and teaching obligations. Given the translational nature of much of the research, staff in this group have been submitted to other units of assessment (UOAs 1-3). Hodgekins and Panagiotaki (Lecturers) represent the clinical group in this submission.

The main focus for the Clinical Psychology Group is to undertake studies that underpin the development and evaluation of psychological interventions so as to address the personal, economic and social impacts of severe mental illness. Psychological theory informs the

research which ranges from focused hypothesis testing using experimental methods in the laboratory, to confirming or rejecting hypotheses about the influence of key factors in cohort studies in both clinical and non-clinical populations, to the development of new interventions in single case studies, open trials, and RCTs consistent with the MRC guidance on development of complex interventions.

Fowler and Hodgekins' research during the census period builds on a 15-year track-record at UEA leading large multi-site RCTs developing and evaluating psychological interventions for people with psychosis and associated evaluations of early psychosis services. UEA has a recognised strength in this area, and has been a key partner in leading MRC, Wellcome and HTA-funded UK trials in this field.

Research in clinical psychology at UEA draws from direct collaboration with local NHS Trusts, and the on-site Norfolk and Norwich University Hospital in particular. Fowler is clinical academic lead for youth and early intervention services for Norfolk and Suffolk Mental Health Foundation Trust – a role that facilitates the inherently translational nature of the research. During this REF period the Group has held large-scale grants from the MRC and other national sources, and has attracted funding from the National Institute for Health Research (NIHR), including Research for Patient Benefit Funding.

The **Social and Developmental Psychology Group** within the new School of Psychology builds on the origins of the discipline within the Faculty of Social Sciences at UEA through the former School of Social Work and Psychosocial Sciences. The Faculty hosts the Centre for Research on Children and Families (CRCF), which comprises a body of staff in the Schools of Social Work and Psychology, with a focus on policy development and application. Staff in this centre have also been submitted to another unit of assessment (UOA22).

The appointment of new developmental psychologists, Doherty (Senior Lecturer) and Walsh (Lecturer), will further strengthen developmental psychology input to the CRCF. Doherty is a cognitive developmentalist, with expertise in theory of mind, and visual perception in development and across cultures. His recent research includes a comprehensive account of the development of ambiguous figure perception (*Monographs of the Society for Research in Child Development*). Walsh brings expertise in brain plasticity and developmental psychopathology. His research has shown that environmental adversities interact with 5-HTTLPR and differentially impact upon amygdala and cortical reactivity (*NeuroImage*). Panagiotaki is a developmental (and clinical) psychologist, with interests in children's moral judgements. Her findings indicate that young children show more sophisticated understanding of the roles of intention and negligence in moral judgments than has been typically assumed (*Journal of Experimental Child Psychology*).

Social psychology at UEA is represented by Seger and Meleady (Lecturers). Common to their research is a focus on the role of simulation in social processes. Seger examines the emotions experienced by individuals and groups, with results showing that emotions felt as part of a group can be subtly primed, and that salient distinctions between groups affect one's ability to estimate the emotions of outgroup members (*Journal of Experimental Social Psychology*). Meleady has championed the role of simulated group discussion, showing that imagined group discussion can elicit effective cooperative behaviour, with important implications for socially responsible behaviour (*Journal of Personality and Social Psychology*).

Research Mechanisms and Strategy

Each of the three research groups meets fortnightly, chaired by the senior researcher (Coventry, Laidlaw, Doherty). These meetings provide a focus to plan the research of the group as a whole (including the scheduling of studies), as well as providing a forum for the discussion of grant ideas, presentation of on-going work, and planning of group activities (including impact planning).

Research is monitored at institutional and local levels through the UEA on-line research planning process and through a mentoring scheme. Local funding for research is determined at school level, with decisions on pump priming influenced both by the individual's case and the group case for strategic priorities. Each group contributes a list of external seminar speakers

for the School of Psychology seminar series, and typically speakers will spend additional time with the group during their visits.

Two core research priorities for Psychology at UEA are to build critical mass strengths in core areas of psychological science, building upon the research groupings formed, and to situate these strengths within the interdisciplinary ethos at UEA. This entails several key strategic priorities, both for the short and long term. As a new School of Psychology, the staff base will be developed as student numbers increase. Key senior appointments will help create the balance of senior to junior faculty commensurate with leading psychological science units internationally. The Cognition and Perception Group will further strengthen its collaboration with the Norfolk and Norwich University Hospital through the creation of a new interdisciplinary research centre in social neuroscience, with the appointment of a senior Professor as Conjoint Research Centre Director, together with a cluster of associated appointments funded across schools. As the Cognition and Perception Group develops, in tandem with the new research centre, it will also be necessary to further enhance cognitive neuroscience facilities at UEA through the purchase of a second brain scanner.

The Clinical Psychology Group, based in the Faculty of Medicine and Health Sciences, has undergone a reduction in research staff in recent years, and is now re-building its research strength through targeted recruitment. Already a cluster of researchers in the area of ageing and dementia is emerging in this group (Laidlaw and Fox). Future appointments will benefit from synergy with the theoretically and methodologically grounded work conducted in the new School of Psychology (particularly in the Cognition and Perception Group), and appointments bridging these groups will bolster the basic science in the clinical group on the one hand, while facilitating the future application and impact of the research in the Cognition and Perception Group on the other hand. The appointment of Rossit is an example of a bridge between groups, which is already reaping benefits (e.g. the new Acquired Brain Injury Rehabilitation Alliance formed with the University of Cambridge).

The Social and Developmental Group will develop into two separate groupings as staff numbers reach critical mass. Senior appointments in experimental social psychology, and in lifespan psychology with a focus on multimethods (from behaviour, to gene, to application) are anticipated, with linkage of the latter to the Centre for Research on Children and Families.

Major developments will include the creation of new multidisciplinary groups where psychologists situated within the School of Psychology work alongside internationally-leading scientists at UEA. A series of joint appointments will be made following the precedent of the Conjoint Research Centre Director (above). For example, a post in the area of nutrition and cognition/nutritional neuroscience, would afford direct links with the Institute of Food Research (BBSRC-funded), where the food laboratory provision is already outstanding. The model of psychologists situated in multidisciplinary clusters is working well already with the creation of an Understanding and Communicating Climate Change group, merging scientists from the world-leading Tyndall Centre and Environmental Sciences with psychologists and social scientists from the School of International Development. This group already supports a new collaborative PhD studentship (funded in collaboration with the NSF-funded Spatial Learning and Intelligence Centre in the US), and appointments in this area are also planned.

c. People

i. Staffing strategy and staff development At UEA there is a distinction between two types of academic posts – Academic Teaching and Research (ATR) positions and Academic Teaching and Scholarship (ATS) positions. This bifurcation means that ATR staff have reduced teaching and administrative loads giving more time for research activity. UEA has also adopted a high quality threshold of publication for ATR appointments consonant with REF expectations, and this has led to an increase in the quality of applications for positions. All probationary staff are also given lighter teaching loads, and in addition ATR staff are assigned a research mentor and an impact adviser to facilitate rapid development. This is particularly important for staff from overseas less familiar with competitive funding streams available in the EU and UK contexts. Shortly after commencing, a one-to-one meeting is scheduled with a funding advisor from the Research and Enterprise Office, who assists with the bespoke matching of research

interests to appropriate funding schemes.

UEA holds a bronze Athena Swan award, and the School of Psychology will apply for accreditation status in 2014. The balance of staff at all levels within the School accords with Athena Swan standards, and maintaining equality and diversity will be a guiding principle as the School of Psychology continues to expand.

Staff development includes financial support for both junior and more experienced staff. Each year staff bid to the School Research Infrastructure Fund, which provides support for participant payments, conference attendance, and pilot projects for external funding bids. A study leave scheme for all staff facilitates both the production of large-scale outputs and the possibility to work with collaborators internationally for focussed periods of activity. Funding is also available for Gold-standard open access publication, in line with RCUK requirements. Several promotion rounds per year afford rapid progression for high-performing staff (for example Bayliss was promoted to Senior Lecturer not long after his initial appointment).

The use of online research plans, required by the University, allows for continuous target setting and review. The plans are discussed with the Head of School (Coventry) and Research Director (Bayliss), and strategy within the three research clusters is also reviewed at research group meetings. It is expected that ATR staff submit a minimum of one external grant proposal of suitable value per annum. There is peer review and mentoring at all stages in the research process, from preparing proposals and ethics applications through to developing research skills, dissemination and publication.

The University has a Research Staff Working Group, chaired by a Pro Vice Chancellor, which oversees the implementation of the Concordat for the Career Development of Research Staff. A network of research staff coordinators facilitates implementation within Schools.

There is a lively series of external seminars hosted by the School of Psychology, and a parallel series in the Clinical Psychology Group, as well as lab group meetings and postgraduate meetings. In addition, the new School has organized a series of special public lecture events labelled "Psychology and the Future" that pairs leading psychological scientists with well-known people in other fields to examine the role psychology might play in the broader development of science and society.

ii. Research students The postgraduate research community in the new School of Psychology is vibrant and expanding rapidly, with increased PhD enrolments annually (new enrolments from 2008-2013: 2, 5, 6, 6 - with 8 students enrolled in the first year of the School). The School and Faculty fund a number of PhD studentships every year. Since the creation of the new School, PhD funding has been targeted towards clusters of researchers and individuals producing the best quality work to build critical mass in certain areas. The Faculty has also funded international collaborative studentships. For example, psychologists are leading the Understanding and Communicating Climate Change initiative that funds a PhD student collaboratively with the NSF-funded Spatial Intelligence and Learning Centre in the US. In the Clinical Psychology Group students enrol on the Professional ClinDPsy course (c.20 new enrolments per annum; students returned across several UOAs), which involves a research thesis as well as clinical training.

We have an active research culture to support our research students, at School, Faculty and University levels through an extensive training programme of Personal and Professional Development. All students are required to undertake training in quantitative and qualitative research methods, as well as attending events, where appropriate, in specialist centres outside the University, linking with ESRC DTCs and other research groups. An Annual PGR Showcase event promotes engagement opportunities for PGRs to present their research, and café conversations at the Forum (a public building in Norwich city centre) exposes their work to a wider audience. The interdisciplinary ethos at UEA means that there are synergies across Schools and Faculties. Students across the Faculty of Social Sciences enjoy a close working relationship, sharing offices, and participating in fortnightly research workshops, which challenge students to learn about other disciplines and how they inform their own. Co-

supervision across Schools and Faculties is common and formal regular monitoring is conducted at School and Faculty levels. The formation of the new Eastern Academic Research Consortium (the 'Eastern ARC') with the Universities of Essex and Kent will afford further collective training opportunities as well as the commitment to a number of collaborative funded studentships across the region.

Students attend research group meetings, which gives them a sense of research strategy more broadly, a sense of the importance to publish, how to work in a team, and opportunities to contribute to other on-going projects in the group (dependent on progress with their own research programmes). An important part of these meetings (particularly in the Clinical Psychology Group) is early training in ethical procedures and protocols and how to write ethics applications, thus ensuring that ethical issues are engaged with at the outset of a PhD. All students are encouraged to present their work at national and international conferences, and to network more widely.

d. Income, infrastructure and facilities

As the School of Psychology is new, naturally the majority of the income in the period has come from the Clinical Psychology Group in the Faculty of Medicine and Health Sciences. In the main this income comprises the UEA share of large, multi-centre trial funding, with a total grant value of over £9 million during the census period from external competitive sources (distributed across several UOAs). Sources include the ESRC, AHRC, EPSRC, MRC, NERC and charities and governmental bodies. Since the census date, new grants awarded include a 4.15 million euro Marie Curie Initial Training Network grant (Coventry), an Australian Research Council collaborative grant (Bayliss), and a RCUK CREATE grant (Fleming) with colleagues in the Centre for Behavioural and Experimental Social Sciences (a Faculty-wide Research Centre).

As a strategy for the new School of Psychology, any overheads from grant income have been directed into pump priming for research. This supports a team of Experimental Officers appointed to provide research assistance/support to staff, as well as coordinating the participation pool and external participant panel, avoiding time lags and bottlenecks with data collection. Since 2011 the infrastructure for research administration at UEA has been centralised, bringing together a range of expertise e.g. research contracting, financial management and data protection. This has created an effective system for processing and managing proposals and the conduct of research.

In relation to facilities, UEA has invested heavily in the new School of Psychology, with substantial capital and infrastructure support, with an expenditure of over £800,000 in equipment and laboratory development in 2012/13 alone. The provision of new laboratory space includes a large participant waiting room, off which are situated suites of laboratories. Large laboratories with bespoke dividers contain combinations of computers with CRT and TFT screens (including large touch screens) with button boxes, providing a facility for group testing (all computers installed with E-Prime and other bespoke experiment generator software). A new Vision and Action suite of labs is divided into a psychophysics lab, an fMRI analyses room, and a large space (with movable soundproof dividing wall) housing state-of-the-art motion tracking equipment, eye tracking facilities, and fully immersive virtual reality equipment with built in eye trackers. These facilities have two adjoining observation rooms.

Another suite of laboratories house state-of-the-art MRI-compatible EEG/ERP facilities. There is also TMS/rTMS, and a range of psychophysiological measurement tools (e.g. EMG, GSR). Rather than invest in brain imaging facilities in house, the University co-funded a new 3T GE scanner at the hospital that has been mobilized for conjoint eye tracking, EEG monitoring, and motion sensing, with auditory, visual and real stimuli. The latter is particularly important for studies involving reaching and grasping of real objects (such as studies of ownership).

A developmental laboratory houses an observation room, cameras on tracks for recording, and child-friendly desks with computers on them at the correct (adjustable) heights for testing multiple age groups. There are also rooms housing sound-proof individual pods (and a sound attenuated chamber), dedicated eye tracking facilities (Eyelink 1000; Tobii TX300) and well as general purpose interview rooms. In addition to the laboratory facilities in house, the situation

in the Norwich Research Park allows access to other facilities, such as a suite of food laboratories at the Institute of Food Research, which will be used by targeted joint appointments in this area.

Research is facilitated with a dedicated participant panel comprised of the general public, in addition to utilizing the student population on campus as participants (for course credit). Mechanisms for patient access come via direct links with the adjoining Norwich and Norfolk University Hospital, and in collaboration with the School of Medicine and Health Sciences, where many colleagues have joint appointments with the NHS Trust. A School of Psychology Ethics committee is responsible for vetting ethics applications and dealing with governance issues, facilitated through sharing expertise with colleagues in the Faculty of Medicine and Health Sciences (where ethics applications for clinical populations are processed).

e. Collaboration and contribution to the discipline or research base

Psychologists across all three research groups have networks of collaborators nationally and internationally, both within and across disciplines. In the Cognition and Perception Group Sperandio, Smith and Rossit collaborate closely with the Mind and Brain Institute (Canada), Coventry has ongoing collaborations with the DFG-SFB-TR8 Spatial Cognition Research Centre and is a visiting professor (DFG-funded) in Freiburg and Bremen Universities (Germany). He also collaborates with universities in Norway (NTNU), Denmark (Aarhus), and the USA (Washington University). Engelhardt collaborates with Fernanda Ferreira (North Carolina, USA), Bayliss is a co-investigator on grants held at the University of Queensland, Australia, and Renault collaborates with the Rotman Institute (Canada). In the Clinical Psychology Group, Fowler and Hodgekins collaborate with Kings, Cambridge, Manchester and Birmingham in multi-site trials. The Social and Developmental Group enjoy collaboration with colleagues in the UK, the USA and Japan (e.g. Seger collaborates with Eliot Smith, Indiana University; Meleady works with Richard Crisp, Sheffield University; Walsh collaborates with the Department of Psychiatry, University of Cambridge and the MRC Cognition and Brain Sciences Unit; Doherty works with Tomoko Matsui, Tokyo Gakugei University).

Staff in psychology at UEA are well represented on external funding and policy body committees, including the ESRC RIGT panel (Coventry), the ESRC college (Coventry, Biggart), and staff within the period have reviewed funding applications for bodies, including the ESRC, EPSRC, MRC, NIHR, NSF (USA), NIH (USA), Canadian Research Council, DFG (Germany), Australian Research Council, NIHR, and many charitable organisations (e.g. Leverhulme Trust, Nuffield Foundation).

Recent examples of keynote addresses include the *Conference on Interdisciplinarity in Cognitive Science Research* in Moscow, 2012 (Coventry), the *Gaze and Joint Attention in Human Interaction Symposium, Cognitive Science Society Annual Conference* in Berlin, 2013 (Bayliss), and the *40th Annual Congress of the European Association for Behavioural and Cognitive Therapies* in Italy, 2010 (Fowler). Among conferences organised, Coventry and Engelhardt co-chaired the *Embodied and Situated Language Processing* conference in 2012 – the first time the event had been hosted in the UK (funded by an ESRC grant awarded to Coventry in 2010).

Editorial activities among the staff include Associate Editorship of Journals (Bayliss, *QJEP*) Editorial Boards (e.g. Bayliss, *Visual Cognition*; Coventry, *Spatial Cognition and Computation*), edited published volumes (e.g. Coventry, *Spatial Language and Dialogue*, OUP) and special issues of journals. Staff in the submission have reviewed journal articles for over 150 different learned journals during the period, and have presented at over 200 different international conferences. Staff have also been active examining PhD theses internationally, including thesis examinations in Norway, Denmark, France, Italy, Australia, as well as across the UK.

Prizes awarded during the period span seniority, from the award of the BPS Most Outstanding Doctoral Research Prize (2013) to Rossit, to awards to Sperandio, including the Franco Purghe prize from the Italian Association for Psychology (2008), to the award of a Fellowship of the BPS to Coventry for “internationally leading work on the mapping between language and perception.”