

Institution: Brunel University
Unit of Assessment: 4 - Psychology, Psychiatry and Neuroscience
<p>a. Overview</p> <p>Psychology at Brunel is broad in scope, covering a range of topics and methodological approaches using multiple, complementary, levels of analysis. These range from cognitive neuroscientists and neuropsychologists investigating the neural correlates and substrates of perceptual/cognitive processes, to evolutionary psychologists studying the origins/adaptive value of traits, cross-cultural psychologists examining group level processes, and translational research on health/well-being. The Department of Psychology is one of the largest in the School of Social Sciences having undergone substantial growth prior to RAE 2008 through major investment and strategic appointments. Since 2008, we have consolidated our research strengths, enhanced our international profile, made significant improvements to our infrastructure, and significantly increased levels of external funding (>£2 million 2008-13 with a further £1.6 million held collaboratively with other institutions). Our vibrant research community has published over 300 peer-reviewed journal articles since 2008 and developed extensive collaborative/interdisciplinary networks. Our research activities are structured around 3 University Research Centres (URCs) – the Centre for Cognition & Neuroimaging (CCNI), Centre for Culture & Evolutionary Psychology (CCEP) and Centre for the Study of Health & Well-being (CSHW). All staff/PhD students belong to one these URCs and our submission also includes a key member of CCNI (Gilhooly) doing psychological research in the School of Health Sciences & Social Care.</p>
<p>b. Research strategy</p> <p>As emphasised in Brunel's Strategic Plan (2008-12) our academics strive not only to push the boundaries of knowledge and understanding, but also to benefit society at large. Great value is placed on both fundamental research and translational research with the potential to enhance human health and well-being. For Psychology, following substantial growth prior to RAE 2008, a major strategic aim for 2008-13 was to improve the quality of our research environment and infrastructure. Consequently, a key objective was to increase levels of external funding and this was achieved with income rising from £592,067 (2001-07) to over £2 million (2008-13), supplemented by £1.6 million in grants held collaboratively with other institutions. Increasing emphasis on experimental approaches has been accompanied by reorganisation and expansion of our laboratory facilities, and significant upgrades to our neuroimaging and other equipment. A key focus of our 2008-13 research strategy was to further develop and strengthen our existing URCs as the structures that focus our research activities. CCNI and CCEP were already well established with our strengths in Vision, Cognition & Neuroimaging, Cross-Cultural Psychology and Evolutionary Psychology recognised in RAE 2008. Through strategic recruitment when vacancies have arisen we have consolidated these strengths bringing in methodological expertise relevant to our existing/new infrastructure (e.g. fMRI, DTI, EEG, TMS & eye-tracking).</p> <p>Significant changes 2008-13 The activities of the existing Centre for the Study of Health & Illness (CSHI) were reviewed and, in accordance with Brunel's emphasis on research with direct benefits to society and the ESRC <i>Influencing behaviour and informing interventions</i> strategic priority, in 2009 we established CSHW (developed from CSHI with a broader remit to cover psychological issues relating to health, well-being and health promotion). In 2008, in line with our commitment to research-led teaching, CCNI already provided a Functional Neuroimaging MSc, and since then, we have introduced new MSc programmes in Evolutionary Psychology & Health Psychology, enhancing the international profiles of CCEP & CSHW respectively. The Centre for the Study of Expertise (CSE), led by Prof. Fernand Gobet for most of 2008-13, has, following his departure (2013), developed a more interdisciplinary focus under the leadership of Prof. Mark Williams (Sports Sciences). Psychology academics (Gilhooly, Wydell & M. Wright) remain closely involved in CSE activities, but their work is reported here through their CCNI affiliations.</p> <p>Research Centres: Activities & Key Research Achievements The Centre for Cognition & Neuroimaging (CCNI) brings together cognitive neuroscientists (Garrido, Orgs, Szameitat Williams, M. Wright, Wydell), neuropsychologists (Parton, Russell), cognitive psychologists (Gilhooly, B. Wright) and researchers in Sport Sciences and Biosciences to carry out cutting edge research on cognitive/perceptual processes and their neural substrates. Funders include the ESRC, Leverhulme Trust, British Academy, Royal Society, BIAL and Mind Science Foundation. Key research areas include vision and visual attention, face/emotion processing,</p>

expertise/reasoning, language processing, cognitive ageing, dementia and stroke. Research methods include EEG, TMS, and fMRI using our 3T MRI scanner owned jointly through the cross-HEI Combined Universities Brain Imaging Centre (CUBIC). *Vision & Visual Attention (inc. face/emotion processing)*: Parton's work (*PNAS*, 2008; *J Neurophysiol*, 2011) on gamma flicker and attentional selection has significantly advanced understanding of mechanisms mediating visual attention while Williams' study of static representations of speed and their neural correlates in area MT/V5 (*Neuroreport*, 2009) highlighted the intricate top-down influences on visual cortical activity. This links closely with Orgs' work (*Psych Sci*, 2011; *Visual Cog*, 2011) suggesting that specific top-down processes are involved in generating continuous percepts of biological motion. Garrido's study of mirror-touch synesthetes suggested a role for sensorimotor simulation in facial affect, but not identity, recognition (*J Neurosci*, 2011), her highly cited TMS research showed that nonvisual cortical areas contribute to early stages of expression processing (*J Neurosci*, 2008), and her study of developmental prosopagnosics using voxel-based morphometry identified reduced grey matter volume in regions known to respond selectively to faces, providing new evidence of their role in face recognition (*Brain*, 2009). Sagiv & Williams' paper reporting the first neuroimaging case study of personification in synaesthesia (*J Neuropsychol*, 2011) won the journal's best paper prize for 2011 (in conjunction with the British Neuropsychological Society & BPS Division of Neuropsychology). *Cognitive ageing, dementia & stroke*: Russell completed important research elucidating the nature of visual deficits after stroke (*Brain*, 2010; *Cortex*, 2013) including an intriguing study yielding the first experimental evidence that reward can modulate attentional impairments following brain damage (*J Neurol Neurosurg Psychiat*, 2013). Also with important implications for neurorehabilitation, Szameitat found that for hemiparetic stroke patients motor imagery, rather than passive movement or movement observation, may be the most effective way to activate the sensorimotor system without overt behaviour (*Neuroimage*, 2012) and that constraint-induced movement therapy leads to significant improvements in motor function following damage to the corticospinal tract inferred using diffusion-tensor imaging (*Neurorehab Neural Re*, 2010). At Brunel, Bunce completed an important series of studies examining the role of apolipoprotein E in cognitive aging (*Am J Geriatr Psychiatry*, 2012; *Neuropsychologia*, 2011; *Neuropsychology*, 2012). *Expertise & reasoning*: Gobet demonstrated the importance of specialization, rather than general expertise, in problem solving (*Cog Sci*, 2009) and, through computational modelling, showed that it may not be necessary to invoke improvements in working memory to explain some forms of cognitive development (*Cog Sci*, 2008). M. Wright's work on the neuroscience of expertise has used fMRI to identify cortical areas involved in predicting opponent actions in sports such as badminton and soccer (*Neurosci Lett*, 2011; *J Sport Exerc Psychol*, 2013). Moreover, using fMRI he has shed light on the neural basis of expert-novice differences in these skills (*Neuroreport*, 2010) and also, using EEG, of pattern-recognition expertise in chess players (*Psychophysiology*, 2013). B. Wright has conducted a comprehensive review offering new perspectives on the development of transitive reasoning (*Dev Rev*, 2012). *Language*: Wydell has continued to advance understanding of the neural substrates of bilingual specific language impairment (e.g. *Cortex*, 2009) and dyslexia (e.g. *Neuropsychologia*, 2010) in addition to publishing two dyslexia screening tests, DTWRP: Diagnostic Test for Word Reading Processes (2012) and STRAW-II: Screening Test of Reading and Writing for Japanese Children (2013). The **Centre for Culture & Evolutionary Psychology (CCEP)** brings together one of the largest groups of evolutionary psychologists in the UK (Clark, Pound, Price, Scott, Schützwohl) and social/cross-cultural psychologists (Gaines, Goodwin, Imada, Marshall) to consider psychology and behaviour at a range of levels, from individual biology and personality, through group/social processes to the broader culture. With funders including the ESRC, DFID, MRC, British Academy, and USAF cultural variation and the evolutionary origins of psychological phenomena are examined using various experimental and other quantitative approaches. Goodwin carried out timely, pioneering, highly cited work (some with CSHW & Gaines) on cultural variations in psychological and behavioural responses to the 2009 H1N1 pandemic (*BMC Infect Dis*, 2009; *Int J Behav Med*, 2011) and 2011 Tōhoku earthquake (*PLoS One*, 2012). Marshall has examined cultural variation in attachment and intimacy in romantic relationships (e.g. *Pers Relationship*, 2010; *J Soc Pers Relat*, 2008) and the emerging role of social media (*Pers Relationship*, 2012). Imada has studied mechanisms involved in the reproduction and transmission of cultural values (*Pers Soc Psy Bull*, 2012; *J Cross Cult Psychol*, 2012) while Gaines' secured significant funding as a CI for a major ESRC-DFID project on Wellbeing & Poverty Pathways in Zambia (2010-13). 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Evolutionary Psychology group has advanced understanding of cultural variation in mate preferences (Clark & Scott - *Evol Hum Behav*, 2008; *Proc Roy Soc B*, 2011) while Clark's Leverhulme Trust funded work on the role of facial movement in interpersonal attraction (e.g. *Arch Sexual Behav*, 2009; *Ethology*, 2010) has led to significant progress in a field previously heavily reliant on static facial stimuli. Similarly, Scott's work with Clark/Pound has led to a reappraisal of the significance of male facial masculinity for female mate choice (e.g. *PLoS One*, 2010; *Proc Roy Soc B*, 2011; *Behav Ecol*, 2012) while Pound's highly cited work on testosterone and facial appearance (*Proc Roy Soc B*, 2009) has had a major impact on the field. Led by Price, interdisciplinary collaborations with the School of Engineering & Design have led to novel findings of associations between body shape and psychological variables, and its role in interpersonal perception (*Evol Hum Behav*, 2012; *PLoS One*, 2012). Schützwohl has used innovative methods to study the adaptive significance of emotions including surprise (*Evol Hum Behav*, 2012) and jealousy (*Evol Hum Behav*, 2008). **Centre for the Study of Health & Well-being (CSHW)** research focuses on well-being, health promotion/intervention, and substance use. With funders including the ESRC, NIHR, EU, EUFIC, and FSA researchers in the department (Cheeta, Dibb, Dovey, Myers, Reynolds), Health Sciences & Social Care (Harries) and Information Systems & Computing (Barnett, until 2013) use various quantitative and qualitative methodological approaches, and have strong interdisciplinary links with academics in other fields and with healthcare practitioners, patients and health policy makers. Cheeta completed influential research highlighting the problem of under-identification of alcohol use disorders in general practice (*Addiction*, 2008) and a comprehensive series of studies on alcohol treatment services used to inform the UK Government's National Alcohol Strategy (e.g. *J Substance Use*, 2010). Dovey's research on child feeding disorders has refined screening methods (e.g. *Appetite*, 2013) and identified effective behavioural interventions (e.g. *Infant Child Adolesc Nutr*, 2012). His research showing that TV junk food advertisements increase child food intake led to a full ban in 2009, and his work on this critical public health issue continues (e.g. *Pub Health Nutr*, 2008; *Int J Pediatr Obes*, 2008). Dibb completed important translational research on user perceptions of electrical stimulation systems in stroke (*Neuromodulation*, 2011; *Disabil Rehabil Assist Technol*, 2011) and spinal cord injury (*Artificial Organs*, 2011) rehabilitation. Myers investigated potential interventions to improve adherence to physiotherapy/exercise programmes for cystic fibrosis (*J Cystic Fibrosis*, 2009) and (with Goodwin) determinants of adults' intention to vaccinate against pandemic H1N1 flu (*BMC Public Health*, 2011). Through the DoH funded UK Cognitive Behaviour Therapy in Methadone Maintenance Treatment multicentre RCT, Reynolds contributed to one of the first examinations of CBT efficacy in opioid dependence (*Drugs Educ Prev Pol*, 2012).

Responsiveness to national & international priorities Our URCs successfully respond to, and focus research on areas relevant to, governmental, national and international priorities. CSHW & CCEP research on zoonotic disease spread, pandemic influenza, terrorist threats, earthquakes, and migration is all relevant to the ESRC-led 'Global Uncertainties' RCUK cross-council theme. CCNI research on ageing, neuropathology, and children's literacy/language development and CSHW work on health promotion and drug-dependence all fit with the RCUK theme 'Lifelong health & wellbeing'. CCEP research on poverty and wellbeing in Zambia/India fits within the UK's Department for International Development goal of alleviating poverty in developing nations while CSHW work on alcoholism links to and informs the UK Government's National Alcohol Strategy.

Sustaining & developing our research culture Various policies help us implement our research strategy and ensure that our research environment remains strong, vibrant, and productive.

- In recruitment, we aim to hire outstanding researchers whose work complements one or more of our research centres. Candidates are expected to have a record of publishing high quality research commensurate with their experience level. When vacancies arise, replacement posts are used strategically, to consolidate areas of expertise and/or further develop priority areas.
- All staff are members of a research centre and these are sufficiently large and coherent in focus to provide opportunities for collaboration, peer-support and feedback on ongoing projects both through formal URC meetings and less formal mechanisms. URC achievements are monitored through annual reports and competitive funding for URC activities is available (e.g. seminar series). Further opportunities to discuss research, network and plan projects arise from Department/School seminar series, School away days, and School Research Conferences.
- Strong support for Early Career Researchers (ECRs) with awards of up to £15,000 available through the Brunel Research Initiative & Enterprise Fund (BRIEF) scheme. Mentorship and peer-

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support mechanisms help both ECRs and established academics develop and enhance their research programmes (see Staff Development for more information).

- The department provides personal research budgets (up to £1200 p.a.) for research and dissemination activities (e.g. workshop/conference attendance) and offers competitive awards, available to staff at all levels, supporting research with (i) summer student bursaries (£1600 each) for staff to employ students to work in their laboratories and (ii) small research grants scheme to pump-prime and support specific projects (up to £1500 each).
- Extensive support for drafting and submitting research grant applications, including specialised grant writing workshops run regularly by the School and University Research Support and Development Office (RSDO) and thorough expert peer reviewing of research proposals at department and School levels. ESRC grant applications are also reviewed by the University ESRC Strategy Committee. The RSDO Research Development Fund provides specialist support for research proposal development and pump-priming funds for innovative projects.

Future Research Strategy Key objectives in Brunel's Strategic Plan (2012-17) are to enhance further the quality and impact of our research, engaging in innovative and cross-disciplinary activities, in line with national and international priorities. In accordance with this and the School of Social Sciences (2012-15) Research Action Plan we intend to achieve these objectives by building on our existing research, knowledge transfer, and research student recruitment strengths using our established URCS and collaborative networks to focus our activities. (1) CCNI plans to build capacity and expertise in the new techniques available with the scanner upgrade (e.g. DTI, MRS) and also to capitalize on our strong cluster of expertise in vision (CCNI) and the role of vision in interpersonal perception (CCEP - Evolutionary) we aim to develop more extensive collaborations across levels of analysis, sharing methodological and theoretical expertise (e.g. eye-tracking). (2) In 2011, the ESRC/BPS/AHPD/EPS International Benchmarking Review of UK Psychology identified both Evolutionary Psychology and the integration of CBT/behavioural change/experimental psychopathology with cognitive neuroscience as '*vital new directions for psychological science to pursue*'. With our existing strengths in these areas, relevant expertise and infrastructure we are well positioned to make advances. E.g. current CSHW members study CBT/psychopathology and our CCNI scanner upgrade permits MRS. (3) In Cross-Cultural Psychology we aim to build new international partnerships, further develop our strong links with user groups, NGOs and government agencies, and use innovative techniques to address issues of broad societal concern including cultural factors in infectious disease, migration, large scale trauma, and the role of social media. (4) To increase direct and indirect benefits of our research to society, public policy, and quality of life we envisage building on our translational research expertise – particularly in the areas of ageing/neurodegeneration (CCNI), and health and well-being (CSHW). To facilitate this, we will build on our extensive contacts with NHS services, charities and support groups, continue to organise knowledge transfer and engagement events for users and policy makers, and through BIAS (Brunel Institute for Ageing Studies) develop further our work on cognitive gerontology in collaboration with Health Sciences & Social Care.

c. People, including:

i. Staffing strategy and staff development

Staffing strategy We strive to recruit researchers who have demonstrated the ability to carry out world-leading research and to create an environment in which they are able to continue to do so, allowing them realise their potential as part of a research community with shared interests and complementary expertise. When vacancies arise, replacement posts are used strategically to maintain and consolidate our expertise and/or to further develop priority areas. Our strengths in Cognition & Neuroimaging, Cross-Cultural Psychology and Evolutionary Psychology were noted in RAE 2008 and since then we have consolidated these with the appointments of Garrido, Orgs & Szameitat (Cognitive Neuroscience), Clark & Scott (Evolutionary), Marshall & Imada (Cross-Cultural) and with Gilhooly (Cognition) joining CCNI. We have also developed further our research on health-related behaviours with the appointments of Dibb & Dovey. Evidence of our commitment to recruiting the highest calibre ECRs, and international outlook, comes from the postdoctoral positions held by our recent appointees prior to joining us: Institute of Cognitive Neuroscience (Orgs), Harvard (Garrido), ESRC Fellowships at Bristol (Clark & Scott), NIMH funded at U. Minnesota (Imada) and SSHRC Canada funded at U. Western Ontario (Marshall). Evidence of our success in developing the careers of academics comes from several who spent time here in junior positions during 2008-13 before moving to senior positions at other institutions - Graham

(Southampton), Johnston (Swansea), Kuhn (Goldsmiths), & Uther (HoD, Winchester).

Equality and diversity (E & D) are supported through various mechanisms including workload adjustments and funding of direct support staff for academics with disabilities, flexible working arrangements for staff with childcare responsibilities, central support for maternity leave (i.e. teaching replacement funds) and encouragement for staff on maternity leave to use 'keeping-in-touch' days to attend conferences to keep up with developments in their fields (using their departmental research/conference allowance). Brunel has an Athena SWAN Bronze Award for its efforts to promote the equal representation of women in science-related subjects and we plan to seek an Athena SWAN Silver Award for Psychology after enhancing our policies, practices and procedures. E & D training is compulsory for all staff, and those involved in interview panels are required to complete Recruitment & Selection training which covers relevant E & D issues. In 2013, we hosted a 'Women in Neuroscience' seminar series to highlight the achievements of outstanding female neuroscientists (e.g. Prof Barbara Sahakian) and inspire a new generation.

Staff Development Academic staff research programmes are supported, and development needs met, at all career stages, through mechanisms at the departmental, school and university levels.

Early career support & development: All new staff are assigned a mentor (a senior Psychology academic) and given reduced teaching and administrative loads to help them establish their research programmes. Those who carry out experimental work are assigned laboratory space normally shared with colleagues using related methodologies. Start-up funds are allocated to new recruits and further funding is available through the competitive BRIEF award scheme. These awards (up to £15,000) are pump-priming funds for new staff below Senior Lecturer level, within 3 years of their appointment, to enable them to start research projects and submit strong external funding applications. During 2008-13, BRIEF awards were made to Garrido, Imada, Johnston, Kuhn, Marshall, Russell & Scott. Evidence for the scheme's success comes from the fact that a highly cited output in our REF submission (Pound et al, 2009) arose from a BRIEF award. The Staff Development Unit provides a Professional Development in Academic Practice (PDAP) programme for probationary academics, involving workshops designed to enhance not only teaching and support for student learning, but also to help ECRs develop their research profile and integrate these different strands in accordance with the importance Brunel attaches to research-led teaching. **Mid-career support & development:** The University promotion process actively rewards research excellence and, as part of the process, the university organises workshops, led by the University Equality Champion, to support women intending to apply for promotion. The promotion system is subject to an annual Equality Impact Assessment, to drive improvements in the equity of the process. To sustain its research-intensive culture Brunel runs a competitive research leave scheme to allow academic staff to concentrate (for up to 1 year) on a programme of work leading to specific, identifiable and measurable outcomes (i.e. research outputs and/or funding applications). During 2008-13 leave was awarded to Dibb, Gaines, Gobet, Goodwin, Pound, Schützwahl, Uther, B. Wright & Wydell. There are also opportunities for School allocated research leave when a strong case can be made. **Support & development across levels:** For Lecturers/Senior Lecturers achievements in research (and other domains) are appraised annually by a member of the Professoriate enabling them to agree targets for the coming year and to reflect on their work, career development needs and how they might enhance their professional practice. The Brunel Staff Development programme provides a comprehensive range of workshops for academics at all levels, including sessions and training days covering topics such as Research Ethics, PhD Supervision, Managing Research Staff, Influence & Impact for Researchers, Working with External Collaborators, and Preparing for Promotion. A department initiative during 2008-13 was the establishment of a peer support network with staff paired for mutual research support, advice and feedback on project plans, grant applications and manuscript preparation. **Senior Academics:** The department's peer-support network benefits senior as well as junior academics, and Readers/Professors have their achievements appraised annually and agree targets, with the Head of School. Senior Academics also benefit from the Research Leave and Staff Development opportunities outlined above. Staff Development offers a 6 month Leadership Development Programme (ASPIRE) to develop leadership competencies in academics appointed to management roles. **Research Staff:** In recognition of its commitment to the recommendations of the Concordat to Support the Career Development of Researchers the University received the European Commission's 'HR Excellence in Research' award in 2011. The University has a publicly accessible Concordat Action Plan and a Concordat Working Group. The Graduate Schools offers

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its *Researcher Development Programme* to research staff and clear evidence of our strengths in developing the careers of junior researchers is provided by recent successes for our postdoctoral researchers and PhD graduates in securing further excellent positions in UK Psychology departments - P. Chassy (Liverpool Hope), A. Giannakopoulou (Beds), L. Fern-Pollack (UWL) - and overseas Y. Russell (Evolution of Cooperation Group, University of Göttingen), M. Schiller (Institute for Artificial Intelligence, University of Ulm).

ii. Research students

PhD students are well integrated into the department and closely involved in many aspects of our research activities with the URCs giving them the opportunity to benefit from close association with staff and students working in related areas. We currently have 34 PhD students with 25 completions during 2008-13. They have office space in the department, are expected to attend departmental and URC research seminars, to give presentations at annual Psychology and School Research conferences, and many gain valuable experience through teaching assistantships. All students have 2nd supervisors who play an active role in mentorship. Progress is monitored through formal biannual reviews and a confirmation event (with viva) after 1 year. Through these mechanisms, the department encourages submission of theses within 3 years. In 2012, the School PhD Training Programme was extensively revised and all 5 departments now collaborate to offer a series of high quality 'Master Classes' run by leading researchers from across the School. These cover a range of methodological and conceptual issues and allow students to develop their research knowledge and skills in an interdisciplinary environment and advance their professional development. In addition to receiving externally funded (e.g. ESRC) studentships the School maintains a vibrant PhD student community with School funded studentships (10 in 2011/12), multiple induction events each year (Oct/Jan) and personal research funds (£300 p.a. for FT; £150 for PT students). At University level, the Graduate School acts as a hub for research students, providing inductions, advice and support, and a range of facilities accessible 24/7. Moreover, it runs a *Researcher Development Programme* consisting of workshops and seminars to help research students develop personal and professional skills. The University Library also provides a training programme to help PG students develop their scholarship skills. A multi-disciplinary Brunel University Research Student Poster Conference is held annually with over 150 students contributing posters (170 participants in 2011-12). Vice-Chancellor's Prizes supporting conference attendance are competitively awarded, (£500 each – up to 32 per year) while the university fully supports excellent research students through its Isambard Scholarship Scheme (5 awarded to Psychology 2008-13).

d. Income, infrastructure and facilities

Research Income External funding awards during 2008-13 totalled more than £2 million across URCs (CCNI: £979k; CCEP: £180k; CSHW: £858k) with major funding sources including the ESRC (£556k), European Commission (£472k), British Academy (£260k), European Food Information Council (£160k), NIHR (£154k), Australian National University (£147k), US Airforce (£53k) and Leverhulme Trust (£43k). Other awards totalling £173k came from sources including FUNDAÇÃO Bial, DEFRA, Mind Science Foundation, MRC, and The Royal Society. In addition, £1.6 million in grants were held by our staff in collaboration with colleagues at other institutions.

Research Infrastructure & Facilities Departmental offices and laboratories are in the Gaskell and adjacent Marie Jahoda buildings with academics clustered according to research interests. PhD students and visiting academics have dedicated office space and computing facilities and there are high quality research, technical, and computing laboratories (≈6000ft²) including 10 experimental cubicles (1005ft²) with PCs and software (e.g. Eprime, MatLab) for participant testing and observation, a research-teaching laboratory with 24 PCs (706ft²), a computing cluster for MRI/EEG data processing (605ft²), and CCNI/CCEP/CSHW research labs (≈1700ft²). **Technical Support:** In the School an academic resource manager (1 FTE), technicians (3 FTE) and computing officers (2 FTE) provide general IT, AV, hardware/software support along with specialist support for staff and PhD student research (including specialist equipment design & construction). As a member of the cross-HEI Combined Universities Brain Imaging Centre (CUBIC), Brunel jointly owns and operates a **3T Siemens MAGNETOM TIM Trio MRI scanner** (with Royal Holloway, Surrey & Roehampton) installed in a purpose-built lab suite and run with the support of a specialist MRI technician (1 FTE). Established in 2003, through a £1.5 million SRIF investment, this research-dedicated system has recently (2012) undergone a £400,000 upgrade and now offers high resolution, real time fMRI, MR

spectroscopy (3D Chemical Shift Imaging), and diffusion tensor imaging (DTI) for 3D white matter tractography. These new capabilities, particularly MRS, will enable us to respond to the call for research integrating CBT, behavioural change, and experimental psychopathology with cognitive neuroscience made in the ESRC/BPS/AHPD/EPS International Benchmarking Review of UK Psychology (2011). At Brunel, a dedicated **EEG laboratory** (288ft²) houses 32- and 64-channel (MRI compatible) Neuroscan EEG systems, there is a dedicated **visual psychophysics laboratory** equipped with display systems and a VSG 2/5 stimulus generator (Cambridge Research Systems) and powerful **eye-tracking facilities** (Eye Link 1000: SR Research Ltd) were installed in a further laboratory in 2011. Through collaborative arrangements with CCNI member Dr Alex Nowicky (School of Health Sciences & Social Care), researchers in Psychology have access to a **Magstim BiStim² TMS** and **tDCS** systems for brain stimulation/modulation research. Through links with the School of Engineering & Design we have access to an **NX12 [TC]² 3D Body Scanner** for anthropometric measurements and Brunel's BITLab £2 million virtual reality centre, with facilities for motion capture and animation. **Other departmental facilities** include an extensive collection of AV, laboratory and computing hardware resources, psychometric test library, specialist equipment and laboratories for participant photography/video, and infant research. An undergraduate research participation pool (pedagogically integrated with the curriculum) aids study recruitment.

Central Resources Brunel's Computer Centre provides comprehensive high quality networked software/data services to support research. Brunel University library holds approximately 570,000 books and a comprehensive collection of academic print (6,604) and electronic (27,878) journals and other resources. Specific provision for Psychology is enhanced through a subject liaison librarian. The Brunel Research Database (BRAD) facilitates publication records management while Brunel University Research Archive (BURA) provides a showcase for the University's research publications making the full-text freely available online where possible. An Open Access (OA) Publishing Fund ensures that articles are available to the widest possible readership.

Research Management & Governance In the School, a Research Manager, Research Administrator, and Finance Officer support PIs with grant budgets, project management, financial administration and outcome dissemination. The university subscribes, and conforms, to the Universities UK concordat to support research integrity. Research ethics review is undertaken by a Psychology Research Ethics Committee and where appropriate the Brunel University Research Ethics Committee (e.g. externally funded projects, those involving NHS patients or collection of human tissue). In addition, CCNI reviews proposed fMRI projects to ensure best use is made of available scanner time. In 2011, Senate approved a Research Data Management Vision statement to guide the development of data management and access policies in years to come.

e. Collaboration or contribution to the discipline or research base

Collaborative Research As emphasised in Brunel's Strategic Plan (2008-12), collaboration within the university, with other HEIs, the public sector, charities, national institutions and with countries worldwide is an essential element of our research activity. Building a vibrant, creative and collaborative research community is one of our strategic imperatives and accordingly this is strongly encouraged through effective mechanisms such as cross-HEI (e.g. CUBIC) and interdisciplinary School away days, research leave programmes, departmental research allowances funding conference/workshop attendance and dissemination activities, and annual School of Social Sciences Research Conferences. At University level, annual 'Buzz' events provide opportunities for Brunel's researchers to network, develop new skills and initiate innovative cross-disciplinary research. Formal structures promote interdisciplinary and cross-HEI collaborations: e.g. University Research Centres (CCNI, CCEP, CSHW), the Combined Universities Brain Imaging Centre (CUBIC), and the Brunel Institute for Ageing Studies (BIAS) which fosters strong links with the School of Social Sciences & Health Care. In addition, CSHW & CCNI researchers have developed productive NHS collaborations with, e.g. the Respiratory Support & Sleep Centre, Papworth Hospital; Portsmouth Community PCT; Southampton University Hospitals NHS Trust; Respiratory Centre, Queen Alexandra Hospital, Portsmouth; Hertfordshire Partnership NHS Foundation Trust; Neurology, Imperial College Healthcare NHS Trust. Within Brunel, in addition to close links with Sports Sciences fostered by CCNI and engagement with Sociology & Anthropology within the School of Social Sciences, CCEP members collaborate closely with Engineering & Design. Effective promotion of collaborative research has led to staff involvement in major cross-

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HEI funded projects including: Bunce (CI) AU\$1.16million *Australian NHMRC* funded 'PATH Through Life Wave 4' study investigating cognitive decline, dementia and implications for mental health services with collaborators at Australian universities (National & New South Wales). Clark (CI) £151k *Leverhulme Trust* project (2010-12) 'Dynamic beauty: studying social impressions with realistic stimuli' with U. Bristol collaborators. Gaines (CI) £500k *ESRC-DFID* project (2010-13) on Wellbeing & Poverty Pathways with S. White (Bath). Gobet - joint *ESRC* grants with U. Liverpool, and a *Leverhulme* grant with Nottingham Trent & Liverpool. Marshall (CI) CAD\$89k *SSHRC-Canada* project, with collaborators at U. Western Ontario, investigating how attachment styles predict consumer behaviour. Russell (CI) £150k *Leverhulme Trust* project (2010-13) with J. Russell & N. Clayton (Cambridge) investigating 'Early precursors to episodic memory'. Wydell investigated the role of granularity and transparency in reading as Co-PI on a £100k *ESRC* cross-cultural project (2009-11) with P. Riddell (Reading) and using a computer simulation model as CI on a £25k project (2010-13) funded by the *Japanese Society for Promotion of Science* with M. Ijuin (Tokyo Met. Institute of Gerontology). **Editorial & Peer-Review Activities** Academics are encouraged to contribute to the discipline through editorial and peer-review activities. Journal editorships include *BMC Psychology*; *BPS Division of Health Psychology Update*; *Evolutionary Psychology*; *J Soc Pers Relat* while editorial board memberships include *Evol Psychol*; *Frontiers Cog Sci*; *Frontiers Evol Psychol*; *Health & Medicine*; *ISRN Education*; *J. Soc Pers Relat*, *Behavioral Sciences of Terrorism & Political Aggression*; *Pers Relationships*; *Psicologia del Desarrollo*; *World J Clin Infect Dis*. There is also strong involvement in the funding body peer-review process including memberships of the BPS Research Board, ESRC Peer Review College, MRC Neurosciences & Mental Health Board, German Council for Science & Humanities Expert Evaluation Panel, peer review for bodies such as the ESRC and MRC, and academic society award committees. **Fellowships & Awards** have included an ESRC Research Fellowship (Gobet), Leverhulme Research Fellowship (Bunce). Awards have included British Academy Overseas Conference, EPS Bursary, and Royal Society International Travel Awards. Goodwin has held visiting professorships at Universities of Tokyo, Victoria (NZ), & Yamaguchi and Wydell at Tsukuba.

Knowledge Transfer & User Engagement Multidisciplinary conferences, events and activities have helped to maximize our research impact, both within and outside the academic community through facilitating user/public engagement and knowledge transfer. Key events at Brunel have included a 2011 CSE Workshop on *Problem Gambling: Theory and (Best) Practice* and the 2010 CCEP *Evolutionary Approaches to Health & Disease* conference (for ESRC Darwin's Medicine Seminar Series) both of which brought together researchers, clinicians, practitioners and decision makers. **CCNI** is regularly involved (2011/12/13) in organising *Brain Awareness Week* events (*Dana Foundation* initiative to increase the public profile of brain research) and BIAS science week public engagement events. **CCEP** held successful international seminar series on the *Speed of Cultural & Evolutionary Change* (2010-11) and *Evolution of Moral Cultures* (2012-13) with speakers such as Steven Pinker, while various staff have participated in our popular annual Brunel Public Lecture Series. Away from Brunel, our staff participated in a range of user/public engagement and knowledge transfer activities. **CSHW**: Reynolds worked with the creative sector as CI and Consultant/Advisor for a Wellcome Trust (£30k) multimedia project exploring dreams with a children's community theatre (Theatre Studio West). **CCEP**: Goodwin addressed the RCUK cross-council theme '*Global Uncertainties*' in presentations to senior Metropolitan Police officers at New Scotland Yard, gave an invited address on '*Psychological Antecedents and Consequences of Terrorism Threat*' at the NATO Centre for Excellence, Ankara (2009) and collaborated with TfL, British Airways, DEFRA, & HIV prevention agencies. CCEP members have also developed links with the financial services sector. Price writes a column for banking journal *Global Custodian*, in 2010 was a Plenary speaker at the Financial Services Knowledge Transfer Network (FS-KTN) '*Risk and Behaviour*' Conference, lead organizer for a FS-KTN workshop on evolutionary psychology and speaker at a Centre for Financial Services Innovation Roundtable. Pound also spoke at the last two events and in 2009 was an invited member of a Wellcome Trust panel that developed a public engagement programme for the bicentenary of Darwin's birth (inc. educational materials for UK schools). In 2011, Clark was an invited speaker at a Natural History Museum Sexual Nature exhibition launch event while in 2010 Gaines participated in a knowledge transfer event sponsored by Hodi (Zambian NGO supported by Oxfam Hong Kong).