Institution: University of Strathclyde

Unit of Assessment: 4 Psychology, Psychiatry and Neuroscience

a. Overview

This UoA 4 submission comprises the Psychology research from the School of Psychological Sciences and Health at Strathclyde. The overall goal of Psychology at Strathclyde is to conduct fundamental, theoretically-driven research focused on three broad areas: Cognition, Developmental and Educational Psychology, and Health Psychology and Behaviour Change. We aim to be outward-facing in relation to how our research can be exploited for the good of society. We concentrate our research in our areas of established strength and we take advantage of opportunities to develop interdisciplinary work with colleagues in research groupings within the School and University more generally.

b. Research strategy

Our core goals are to be internationally recognised for the contribution we make to the development of psychology as a science; for the work we do with external partners to address significant problems in society where psychology has a key contribution to make; and for producing graduate students able to apply their learning to the real world.

As well as pursuing excellence in research in our own discipline we also participate in interdisciplinary research clusters with colleagues in public health, psychiatry, neuroscience and education. Through these interdisciplinary collaborations, we can apply psychological theory and knowledge in innovative ways to a wider range of societal problems in health and development.

To implement this strategy since 2008 we have:

1. Focused our research strengths into three areas
2. Embedded these areas in larger interdisciplinary clusters
3. Made strategic appointments and engaged staff in development opportunities
4. Taken advantage of the University's innovative career pathway structure
5. Diversified our doctoral programmes and enhanced support to our doctoral students
6. Provided targeted technical and financial support for key laboratories
7. Built our international collaborations.

Our goals and resulting changes since RAE2008 have been: a restructuring of our work into three research groupings (Cognition, Developmental and Educational Psychology, and Health and Behaviour Change); seven new appointments to grow these three research areas; new cognition, oculomotor, memory, driving simulator and psycholinguistic laboratories that align with these groupings; alignment with the University's newly prioritised research themes allowing us to take advantage of collaborative funding initiatives; and applying translational processes to ensure our continued success in maximising the impact of our work.

Focusing on key areas and developing interdisciplinary clusters

Following RAE2008, we made the strategic decision to re-shape our research profile. The Road User Behaviour and Applied Social Psychology groups were integrated into a new Health Psychology and Behaviour Change group, and a series of new appointments were made to strengthen these three redefined research groupings.

The recent restructuring of the Faculty provided a valuable opportunity to align our Psychology research groups with larger, interdisciplinary clusters. In line with our research strategy, we proposed the creation of a School of Psychological Sciences and Health that brought together Psychology with the cognate disciplines of Counselling, Speech and Language Therapy, and Physical Activity for Health. This has stimulated our interdisciplinary reach, strengthening collaborative research, for example, on specific language impairment with colleagues in Speech and Language Therapy, and on bullying in schools with colleagues in Counselling. Also, our interests in ageing and stroke research dovetail with health psychology and behavioural change expertise in Physical Activity for Health, and Speech and Language Therapy. Our research groups now feed into three University- and Faculty-wide interdisciplinary clusters developed during the current REF period: the Centre for Neuroscience at Strathclyde, Health Technologies

at Strathclyde, and the Technology and Innovation Centre. These interactions have enhanced the significance of our research in addressing real-world needs and supported growth in our external engagements with research partners from both the public and private sectors.

Research groupings

Cognition. This group has grown considerably since RAE2008. We now have significant research strengths in the areas of memory, attention, ageing and psycholinguistics. Collectively, the group shares expertise in understanding cognitive impairment in clinical conditions including: depression (Butler, Rhodes, Saunders); autism (Fukumura, Saunders); schizotypy (Saunders) and patients with neurological conditions (Butler, Grealy, McGeown). Cognitive ageing has continued to be a focus of our work with studies on oculomotor control (Butler), inhibition (Grealy) and memory (McGeown). The members of this group are also part of the Centre for Neuroscience at the University of Strathclyde (CENSUS). This centre focuses on developing drugs, diagnostics, devices and interventions for the treatment of brain disorders and currently has 48 academics, 27 PhD students and 12 research fellows. CENSUS has enabled our researchers to build new partnerships with the NHS (Rhodes, Saunders and Grealy) and industry (Butler), and to join collaborative projects on stroke and ageing (Butler and Grealy), schizotypy (Saunders), autism (Fukumura, Saunders) and chromosomal disorders (Rhodes). Group members have attracted funding from the ESRC, EC FP7, Scottish Funding Council, Chief Scientist's Office, Dunhill Medical Trust, Royal Society of Edinburgh and Leverhulme Trust.

Developmental and Educational Psychology. The Developmental and Educational group has advanced its work on several themes since RAE2008. These include the social contexts of bullying and aggression, particularly the cognitive and psychosocial mediators of the effects of peer victimisation, and inter-ethnic relations (Hunter, Durkin). Hunter (with colleagues at Keele) is currently investigating the relationship between children's humour styles and processes of peer victimisation. Specific Language Impairment (SLI) continues to be a major interest, with studies on interventions (Boyle and colleagues from Speech and Language Therapy, Newcastle and Edinburgh), and on adolescents with SLI (Durkin, in collaboration with the Manchester Language Study). We are also investigating the cognitive benefits of physical activity in children (Boyle and colleagues from Physical Activity & Health) and executive functions and reading (Boyle). The arrival of Rhodes added a substantial new strand to our work on developmental disorders, focussing on neuropsychological functioning and memory in children with ADHD and Williams syndrome. Funding comes from the British Academy, BUPA Foundation, Carnegie Foundation and ESRC. Our research has impacted on NHS diagnostic and treatment strategies, such as the discovery of neuropsychological predictors of both clinical improvement in ADHD and stimulant treatment response (Rhodes) and effective language interventions (Boyle). The importance of this activity and the strength of the Cognition group in applying research to understanding conditions characterised by cognitive impairment has led to University Research Cluster funding (led by Rhodes) to facilitate the development of new national and international collaborative grant applications and knowledge exchange activities.

Health Psychology and Behaviour Change. The objectives of the Health Psychology and Behaviour Change Group are to develop and test theory, to translate theory into evidence-based interventions to improve health and wellbeing, and to deliver behavioural science into Government. As a result, the group has received funding from Government departments (Chief Scientist's Office, Health Directorates (Edinburgh), Transport (Westminster), research councils (ESRC, MRC-HSRC), the NHS and the third sector (Arthritis Research UK, Royal Society of Edinburgh). The members of the group contribute to two larger multidisciplinary groupings: the Stroke at Strathclyde Research Group and the Scottish Rehabilitation Research Network, both of which are part of the Health Technologies at Strathclyde initiative. The majority of researchers aligned to Health Technologies at Strathclyde have been returned to UoA3, but three researchers in this UoA4 submission (Dixon, Rasmussen and Elliott) also work in this area. Their work progresses theory in the areas of disability and chronic health conditions (Dixon), suicide and self-harm (Rasmussen), and health risk behaviours (Elliott). The ability of the group to test theory and develop theory-based interventions is supported by a methods programme. The methods programme has two components: the development and testing of theory based measures of health outcomes (Dixon) and personality constructs (Rasmussen), and the development of

experimental n-of-1 studies to test theory and behaviour change interventions (Dixon and Rasmussen). The behaviour change intervention programme has focussed on nationally significant interventions to improve road safety behaviours (Elliott) and to reduce repeated self-harm behaviour (Rasmussen).

Five year plan (2014-2019)

A key driver for our five year plan is the University's vision to transform its research, teaching and knowledge exchange to deliver useful learning for the technological age. Within Psychology our core strength is, and will continue to be, to conduct fundamental research and where appropriate to use the outcomes of this research to inform interventions, innovations and technological advances in response to national and international priorities. Over the last ten years, we achieved this with research output from the Road User Group, the Centre for Applied Social Psychology and the Centre for Research on Interactive Learning. This can be seen in our Impact Case Studies, which provide evidence of Strathclyde Psychology's long history of successful engagement with industry and public service users in applying its research to real-world problems. Our five year plan is now to apply the same principles and processes that we used successfully with the Road User Group and the Centre for Applied Social Psychology, to research and innovations in the areas of healthcare and education as well as industry. We are committed to a range of approaches to enhance our core strength and this capacity building will continue over the next five years. Our plans are to:

1. Extend our multi-disciplinary research activities through collaborations with the Centre for Neuroscience, Health Technologies at Strathclyde, and the Technology and Innovation Centre.
2. Extend the impact of our work by strengthening and supporting our translational activity.
3. Maintain a focused research agenda by making further strategic appointments to our three areas of research strength.
4. Develop new Masters programmes that will feed into our doctoral programmes.
5. Develop infrastructure through the planned re-location of the School in 2018.

Our methods for informing decision-making and monitoring progress within the School are the University's annual Accountability and Development Review and annual Research Audit, and the quinquennial external review.

c. People

In the last five years we adopted clear strategies for recruiting new staff, developing existing staff and students, and broadening our portfolio of post-graduate courses.

Recruitment strategy

Since 2008, we have made strategic appointments to each of the University of Strathclyde's three career pathways (academic, teaching, and knowledge exchange) with the goals of strengthening and focusing our research into three key areas, providing excellence in research-led teaching, and maximising future impact opportunities. Specifically we:

1. Targeted the appointment of outstanding early career academic staff who already had strong publications at the time of appointment and clear potential to develop excellent research programmes.
2. Developed support mechanisms to release academic staff time for research.
3. Targeted the appointment of a senior staff member on the knowledge exchange pathway to facilitate our planned developments in translational research.
4. Secured the posts of dedicated Psychology technicians to support our growing specialist laboratory requirements.

Overall, we appointed six people on the academic research pathway and one senior person to the knowledge exchange pathway. These appointments aligned with our three research areas with Fukumura, McGeown and Saunders in the area of Cognition; Rhodes in Developmental and Educational Psychology, and Adair (Knowledge Exchange), Dixon and Rasmussen in the area of Health Psychology and Behaviour Change. Two of these positions were new University strategic appointments to invest in building excellence in research and knowledge exchange; the remainder have resulted from staff departures, offering us timely opportunities to make strategic appointments in accordance with our research plan. We also secured three permanent posts for teaching specialists to reduce the teaching loads of academic research staff, and three

technicians dedicated to support our laboratory work.

Staff Development

Our staff development programme has centred on providing support and training and a sabbatical system. The effectiveness of our strategy is demonstrated by the promotions of a large number of staff since 2008 (Butler, Elliott, Hunter, Rasmussen and Rhodes to Senior Lecturer; Dixon to Reader), most them within a short time of joining the institution as early career researchers. Boyle and Grealy have also been promoted to Professor.

We have two main mechanisms for support and training: University-wide development initiatives and an Accountability and Development Review (ADR), which is an annual individualised planning and review process. The purpose of the ADR is to review the past year's achievements and plan objectives and development needs for the next. Staff set their research, teaching, knowledge exchange and internationalisation targets, aligned to both their personal promotion aspirations and the Faculty and School's strategic objectives. Agreed targets are then approved by the Head of School. Senior staff are trained to act as reviewers and this provides them with managerial opportunities as well as sharing the responsibility for staff development across the School.

The University-wide development initiatives, established through utilisation of the Research Councils' Roberts funding and now institutionally supported, are designed to help researchers enhance their leadership skills and their competencies in achieving high-quality public engagement. Our early career staff have taken advantage of this through the provision of a Researcher Development Programme. This offers a range of opportunities such as the Enterprise Academy (Institute of Leadership and Management accredited programme), the Engaging Researcher course and a set of online tools and one-to-one advice sessions. Additionally, within the School early career staff are closely mentored during their probationary period and are encouraged to participate in prestigious externally funded initiatives, such as the Royal Society of Edinburgh's Scottish Crucible leadership and development programme. Two staff members (Rhodes and Rasmussen) participated in the Crucible programme while on probation, and Rhodes has subsequently been elected to the Royal Society of Edinburgh's Young Academy and now sits on the University-wide advisory application appraisal board to facilitate applications of other junior staff members.

Established staff are also well supported through two online tools (My CPD and Strathclyde Researcher Career Pathway) and a mentoring scheme. All staff have also benefited from the Strathclyde Programme in Research Leadership launched in 2012. This has five themes: advanced researchers skills, knowledge exchange, leading research and KE teams, managing resources, and a masterclass series. Our Research Development Programme provision is mapped to the UK's Researcher Development Framework and Statement. This framework has been used to implement the Concordat to Support the Career Development of Researchers and to retain our European Commission's HR Excellence in Research Award.

Equality and Diversity

The School of Psychological Sciences and Health is committed to ensuring equality and diversity. We give particular support to staff with family needs by allowing them flexible working arrangements, and in 2011 the University was awarded the Athena Swan Bronze Award in recognition of its work on eliminating gender bias and developing an inclusive culture that values all staff. The University has clear policies and procedures that ensure appointments and promotions are based on transparent criteria. This includes a pre-interview assessment for individuals who confirm that they have a disability. In addition, the University was formally reaffirmed in 2008 by Investors in People. To achieve this standard, organisations must demonstrate, amongst other things, that the management team is committed to the development of all the staff in the organisation.

Research Students

Since 2008, we have expanded and grown our post-graduate community. We have two taught Masters programmes that feed into our doctoral programmes, and we launched a new research doctorate in Educational Psychology in 2008. This is a research degree for practitioner educational psychologists, with the purpose of allowing them to develop their research skills and carry out doctoral research into an issue of concern to the public sector. Since 2008, fourteen students have registered and eight have already completed.

In 2010, the Faculty established a Graduate School to facilitate the recruitment, monitoring and support of our research students. The Graduate School provides a Faculty-wide doctoral training programme for core generic and transferrable skills, an integrated structure of governance and management, and a standardised review process with on-line monitoring. It also provides PhD students with funds for equipment and conferences. Additionally, the School also has its own Post-Graduate Research Student Coordinator who assists with the post-graduate seminar series, acts as a convenor for vivas, monitors progress and acts as a counsellor. All PhD students undergo six monthly reviews with their supervisory teams and an independent reviewer. In terms of training, our PhD students gain 60 credits in recognition of the work-related development activities they engage in during their course. At least 80% of our PGRs will have been trained by the transferrable skills part of our Researcher Development Programme by 2015. Initiated in 2012 this programme has clear objectives for PGR students being offered opportunities for international development and engaging with external agencies relevant to their research. Within the School we also provide each doctoral student with approximately 20 hours of training on facilitating problem-based learning, providing on-line support and giving feedback on written work. This prepares our students to undertake up to 30 hours of paid work per year, acting as facilitators or assessors on our undergraduate programme. We support our students in running their own seminar series and encourage them to participate in the Scottish Universities Psychology Postgraduate Research Training programme for which we host one of the training events. All our PGRs have dedicated office and lab space and the Graduate School has a state of the art facility that also houses the Graduate School Support Team. Our doctoral students have excellent employment prospects; from this current cohort of PhD students, three now hold lectureships and six have post-doctoral research posts.

Between 2008 and 2013, our PhD programme has been highly successful in attracting 10 externally funded scholarships (including a CASE studentship) and 19 competitive University scholarships. All PhD students have two supervisors and early career staff always work alongside an experienced co-supervisor during their probation period. The more recent trends in the number of completed PhD students reflects the number of early career staff appointed who have only recently started to take on primary supervisory roles, and we currently have 21 PhD students registered who are due to complete by 2015.

d. Income, infrastructure and facilities

Income. Psychology's main external research income since 2008 has been awarded by UK central government bodies. These include the Chief Scientist Office Scotland, the UK Department of Transport, NHS Health Scotland, Greater Glasgow NHS and the Scottish Government. We also received grant awards from research councils, ESRC and EPSRC, and from charities such as Alcohol Focus Scotland, BUPA Foundation, and the Dunhill Medical Trust. Our plan is to diversify our income stream in two ways: (1) by applying to a variety of sources for research income, and in particular we aim to attract international funding, rather than rely on UK funding sources. We have already achieved initial success with this strategy through the recent competitive award of EU FP7 funding; and (2) by increasing our interdisciplinary collaborations. We have had good success in attracting pump-priming funding to build collaborative development projects. Through competitive bids, Psychology staff were awarded £207,203 from Faculty strategic funds, EPSRC Bridging the Gap grants, and the Scottish Funding Council Innovation Vouchers Scheme. We pursue interdisciplinary collaborations not only for access to other income streams, but also because we see this as leading to genuinely innovative research insights.

Infrastructure and facilities. With the addition of new staff members, we have provided additional laboratory facilities to support their research. Psychology now has two cognition laboratories, three oculomotor labs, a driving simulator lab, a perception and action lab, a memory lab, two developmental labs, two psychophysiology labs, and a psycholinguistic lab. There are also 13 research cubicles for small equipment, an editing suite, and a technical workshop. In 2018, the School will be re-located within the University and provided with a suite of purpose-built labs.

In terms of equipment investment, since 2008 researchers in the Cognition grouping have acquired five state-of-the-art eye-trackers; two SR Eyelink 2000 systems, two Dikablis systems and an SR EyeLink 2 system. To develop our work on accident prevention we have also invested

in a STI-SIM Drive Model 400 programmable driving simulator. This is an immersive, interactive, fixed-based driving simulator, housed in the Driving Research Laboratory. It has a three-screen, high resolution display, providing 210 degree visual field-of-view. It has auditory and steering wheel feedback, and fully operational driving controls. This allows our researchers to design roadway environments and hazardous situations that would not be possible to stage in the real world. It can also be used in conjunction with our eye-tracker in order to assess drivers' allocation of visual attention and gaze. It is used to test psychological models of behaviour and to test behaviour change interventions. Members of the Health and Behaviour Change group are also benefiting from our investment in developing Virtual Reality systems that are linked to our Qualysis motion capture system. This is allowing us to develop integrated cognitive and exercise rehabilitation programmes for people with brain injuries. The researchers in our Developmental and Educational Psychology grouping have also received additional strategic funding. For example, the addition of the CANTAB neuropsychological test battery has contributed to our work on executive functioning and memory in clinical disorders.

We have three full-time highly qualified technical staff dedicated to support our research requirements. They contribute to the research teams by designing and building equipment and carrying out software programming and signal processing. In addition, one of our technical team has developed an on-line tailored project management response system to track and monitor progress on Psychology technical support requests to ensure efficient use of staff resource.

Psychology staff will also benefit from Strathclyde's new Technology and Innovation Centre. This new build (£89M) has been enabled by investment from Scottish Enterprise and the Scottish Funding Council, and includes a £59M investment by the University. It will provide academic and research staff with an environment designed to support collaboration with external stakeholders such as industry and policy agencies. A key element of University strategy here is to focus on research which is outward facing and addresses real-world needs, while retaining academic and disciplinary excellence to underpin this approach. It encourages collaboration and cross-disciplinarity, both internally and externally, and Psychology staff are already engaged in building collaborations through this Centre.

As well as physical resources, we have developed a strategic planning infrastructure to improve our competitiveness in attracting external funding. We have a School Research Committee which monitors the performance targets for grant funding. Research targets are supported through our mentoring scheme and also through each individual's annual Accountability and Development Review meeting. Successes are rewarded through our Research Incentive Scheme whereby staff receive additional research funding. Other infrastructure opportunities that Psychology staff make use of include the annual University Research Day, which is an excellent forum for presenting research, sharing findings, pitching for internal funding through a Dragon's Den type activity, and finding cross-disciplinary collaborators. Similarly, 'Engage with Strathclyde' week provides an opportunity to present our research and to engage with external stakeholders. A cross-faculty cognitive impairment research cluster has recently been set up, led by Rhodes (Psychology) and supported by Faculty funding, to stimulate innovative cross-discipline research in this field.

Our research funding activities are further enhanced by a Faculty Research and Knowledge Exchange team and a central University support service. The Faculty team works closely with the University's central support staff in highlighting funding opportunities, in costing and submitting funding proposals, recruiting short-term staff for research contracts, and developing research networks both internally and externally. This team also assists with the planning and running of dissemination events to academic and non-academic users, such as conferences and seminar series, and supports the development and the delivery of research based CPD and consultancy. A robust ethics process is also managed through this team, as well as discovery events highlighting Faculty, University and external schemes and resources available to support research and KE. The Planning and Resources part of the Faculty team administers all financial matters related to a project once research and knowledge exchange contracts have been awarded. These Faculty teams ensure consistent, high quality administrative support to academic and research staff, and have proved highly beneficial to Psychology.

e. Collaboration or contribution to the discipline or research base

Our staff have contributed to the discipline and research base by sitting on editorial and grant funding boards, through their memberships of advisory boards and societies and through

conference activities and collaborations.

Collaborations. Each of our research groupings benefits from collaborations with visiting professors. Currently Professor Yann Coello (University of Lille) and Dr Louise McHugh (University College Dublin) collaborate with the Cognition group; Professor Steve Houghton (University of Western Australia) and Professor Ian Rivers (Brunel University) with the Developmental and Educational Psychology group, and Professors Derek and Marie Johnston (Aberdeen University) with the Health Psychology and Behaviour Change group. Additionally, we collaborate with academics in: University of Central Florida, Harvard Medical School and Beth Israel Deaconess Medical Center, The City University of New York, University of California Santa Cruz, and the University of Georgia in the USA; University of Cordoba, University of Seville and University of Jaen in Spain; University of Bahrain; University of Turku, Finland; University of Western Australia and the University of Sydney; University of Auckland, New Zealand, Universitaria-Ospedaliera Policlinico, Università di Padova, the San Camillo Research Hospital and the University of Modena in Italy; University College Dublin.

Journal Editorial Boards. Amongst the editorial roles staff have undertaken since RAE2008 are: editor of First Language (Durkin), and associate editors for the British Journal of Health Psychology (Dixon), Applied Cognitive Psychology (Saunders) and the Journal of Experimental Psychopathology (Saunders). Staff were also editorial board members for the British Journal of Educational Psychology (Boyle), the Australian Developmental and Educational Psychologist (Boyle), Infant and Child Development, Media Psychology, and Sex Roles (Durkin).

Grant funding boards. Staff have also held positions on grant funding boards including; Cancer Research UK's Population Research Panel and New Investigators Panel, and the NIHR Health Service and Delivery Research Programme Board (Dixon). The ESRC Peer Review College (Saunders) and the Hong Kong Medical and Health Research Fund (Grealy).

Collaboration with external bodies. We have also contributed to national and international advisory boards. For example, Boyle is a member of the Scottish Government's Workforce Planning and National Steering Groups for Educational Psychologists. Dixon was a member of the Guideline Development Committee for the Scottish Intercollegiate Guideline Network. Durkin is an executive committee member of the International Association for the Study of Child Language. Elliott is an advisor to the Central Government Department of Transport and to the road safety charity Brake and to the Royal Society for the Prevention of Accidents. Grealy is a professional advisor for the Stroke Association, and Hunter is an advisor to the Canadian charity Kids Help Phone and an advisor to the advocacy agency Stop Youth Bullying. Rhodes is a steering group member of the Royal Society of Edinburgh's Young Academy of Scotland, and Rasmussen, Hunter and Dixon are members of NHS-Health Scotland's Project Advisory Group for Children and Young People's Health, Behaviour, Development and Change.
Examples of our contributions to Societies include: Boyle who is an International Affiliate of the International School Psychology Association and Dixon who is the chair of the BPS Division of Health Psychology (Scotland). Durkin is a Fellow of the British Psychological Society and an Academician of the Academy of Social Sciences. Rhodes was the lead organiser of the BPS Developmental Section Conference at Strathclyde and is the lead psychologist advising the British Psychological Society (BPS) Press Office. She authored the BPS's submission to the Leveson Inquiry in 2011 and she was elected as a member of the BPS Standing Conference Committee.

Awards and prestigious invitations. Boyle was the winner of the 2011 Journal Article Prize for his paper published in the International Journal of Language and Communication Disorders. Rhodes was elected as a member of the Royal Society of Edinburgh Young Academy of Scotland in 2011-2012. Durkin and colleagues won the 2012 Editors' Award for the Language section of the Journal of Speech, Language, and Hearing Research.