

<p>Institution: Kingston University</p> <p>Unit of Assessment: 4: Psychology, Psychiatry and Neuroscience</p> <p>a. Overview</p> <p>The Unit's research, which is undertaken in the Department of Psychology, Criminology and Sociology, has been consolidated, since 2008, into its most sustainable areas and is now focused in three core research groups:</p> <ul style="list-style-type: none"> • Developmental Psychology; • Cognition & Perception; • Health & Psychopathology. <p>Each group is led by a senior researcher and the Unit as a whole is managed by a chair-level appointment (Terry). With the appointment of Lyons in 2013, the Unit plans to develop a new research group in Social Psychology. As well as the formal Research Groups, the Unit also incorporates research laboratories which comprise different numbers of staff, postgraduate students, research assistants and external researchers; the most significant in terms of staff numbers are the Eye Movements and Cognition lab (iMCL; includes Van Herwegen, Back, Mannan) and Villejoubert's Risk and Uncertainty lab (GRULaK, includes Kusev and Purser).</p> <p>b. Research strategy</p> <p>The strategic goals in the period 2008 to 2013 have been to: (1) strengthen and expand research of international standard; (2) expand the reach of the Unit's research from local to national and international users; (3) develop and support the research careers of ECRs; (4) increase substantially the number of staff who submit grant applications; (5) increase the number of PhD students in the Unit and provide appropriate subject-specific skills-training; (6) improve the research environment significantly in terms of infrastructure, collaboration and external engagement.</p> <p>The effectiveness of the strategy over the census period is indicated by the progress made against these goals. Thus, since 2008, the University has invested extensively to support the Unit's research, including £100k for new equipment in the last year alone (further details below). The goal of generating more external income is now being realised as, due to recent awards, income has approximately doubled in 2012/13 compared to the previous year, which itself was significantly higher than the previous years. Portions of awards during the census period that will translate to income exceeded £800k. The Unit has significantly increased its number of research students over the census period (from 2 to 20 in 2013-14) and introduced subject-specific training in research skills for research students.</p> <p>The strategic goal of developing and supporting the research careers of ECRs has been of particular importance, and has yielded success. The Unit recognised early in the cycle that a priority for establishing a reputation for excellent research would be to recruit and retain outstanding ECRs to areas of research strength and to provide the necessary resources and mentorship to ensure that their research careers flourish. As an indicator of effective ECR support (more details below) the Unit has retained and is submitting all of the ECRs appointed over the last five years: Mannan, Purser, Van Herwegen and Vyas. Finally, the successful implementation of the strategy is indicated by the quality of the research outputs that have been produced over the census period. The average impact factor of the journals in which the Unit's outputs are published is 3.59 in 2014 compared with 2.42 in 2008.</p> <p>From 2008 onwards, it has been acknowledged that resources were needed to pump-prime</p>
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research that was not externally-supported in order to yield more substantial research papers (e.g., incorporating multiple experiments) and as pilot work for grant applications; to this end, University funds have been made available through a competitive bidding process to support ongoing research that will lead to specifiable outputs. Graduates (or part-time PhD students) have been employed as research assistants (RAs). This serves to enhance the research skills and employability of our graduates and postgraduate students and help to build a broader community of researchers.

Each Research Group has an internal peer-review mechanism to scrutinise all proposals for external funding prior to submission. In 2009 and 2010, University funds were used to support half-semester sabbaticals exclusively for the preparation of grant proposals: one of these led directly to an ESRC award of £261,619 in 2011 and another led to the award of a first grant to **Back** in 2011 (British Academy, £5,687). University funds were also used to support a visit by **Samara** to Qatar, which ultimately led to a grant award of \$952,436 (\$285,290 to **Samara** as PI) from the Qatar National Research Foundation (2013). Researchers who have a teaching commitment have been helped to free up consolidated time for research, and a sabbatical scheme to support half-year sabbaticals for 2-3 staff per annum will be in place from 2014.

In the next five years, **Lyons** will lead the development of a new multi-disciplinary research group (with university support and investment) to draw together researchers (e.g. **Samara, Terry**) and others who work on the impacts of adversity on the individual and on communities, and the strategies employed to counteract adversity. The work will link with active researchers based in other departments who work in the areas of behaviour change and behavioural economics. The appointment of a new professorship and an ECR in Psychology (Social Cognition) to support the work of the research group and to facilitate its growth will be made. Over the next five years, the new group will also serve as a focus to extend and reinforce the Unit's research links with and impacts on the community, which have generated research income and impact, as described in REF3a and illustrated by one of the case studies in REF3b.

c. People, including:

i. Staffing strategy and staff development

The Unit's staffing strategy throughout the census period has been to build on areas of sustainable research: all academic appointments during the census period have been from research units which performed well in RAE 2008. The Unit first focussed on recruiting staff with research interests in developmental psychology: **Back** (University of Birmingham), **Samara** (University of Warwick), **Van Herwegen** (Kings College London).

After strengthening the staff base in developmental psychology, the next area for growth was identified as cognitive psychology, partly to facilitate future Knowledge Transfer Partnership opportunities. To this end, since 2008 the following were recruited: **Villejoubert** (Université de Toulouse) and **Kusev** (City University), who have complementary research interests in judgment and decision-making, and **Mannan** (Oxford University). The latter's experience in eyetracking research was identified as a resource that would benefit several staff, including **Back**, **Van Herwegen** and **Villejoubert** amongst others. The recent appointment of **Purser** (Institute of Education) spans both developmental and cognitive psychology. (**Purser** was also appointed because of past collaborative links with **Van Herwegen** at the Institute of Education.)

More recently, the Unit has acted to strengthen activity in the Health & Psychopathology Research Group by appointing **Vyas** (US National Institutes of Health). Building research excellence in that area is consistent with the University's strategy of increased involvement with the broader "health economy" and reflects the success of staff in that group in obtaining external research funds

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(receiving grants during the census period from the Department of Health, ESRC, Alcohol Research UK, ERAB and the Fetal Medicine Foundation). It will also help to reinforce links with other units (e.g. two Leverhulme bids, **Terry**). Finally, to support **Lyons** as an incoming researcher, an appointment has been made of a postdoctoral research fellow (July 2013) whose primary role is to develop collaborative proposals for external research funding.

The Unit now has a high proportion of ECRs (about one-third), which ensures its sustainability, and all new staff have been trained in strong research departments. In order that their research careers flourish at Kingston, “start-up” funds are provided to ensure that they can establish active research laboratories immediately. This has included an investment of over £30k in EEG equipment for ECR **Vyas**, £49k in eyetracking equipment for ECR **Van Herwegen**, and £21k to upgrade an eyetracker for ECR **Mannan** (details in d).

The University provides research training sessions for ECRs, and they are mentored locally by a Reader or Professor in the Unit, usually the Head of Research Group. The Director of Research also meets with them every three months during probation. All ECRs and staff appointed since 2008 have been supported to attend international and national conferences every year and to acquire any specific training that they have requested: for example, psychometric testing (**Villejoubert**), clinical testing for autistic spectrum disorders (**Back**), visits to NIH in the US (**Vyas**), and meetings to establish research collaborations with partners in the Middle East (**Samara**). In 2014 the Unit will appoint two visiting professorships, chosen specifically to provide mentoring for ECRs and to support ECR funding applications. The career development of our postdoctoral research fellows is provided by mentoring from **Terry**.

ii. Research students

In 2008, the Unit’s first PhD student was due to graduate (PhD awarded January 2008). There are currently 20 PhD students registered in the Unit. Three others have recently completed: two graduated in the census period, one submitted September 2013. A major recruitment effort since 2009, including annual Research Student Open Evenings, plus the expansion of our taught postgraduate programmes, have contributed to an increase in applications.

Grants awarded in 2011-13 by the Leverhulme Trust (**Villejoubert**), ERAB (**Terry**), Qatar National Research Foundation (**Samara** and **Terry**), the Williams Syndrome Foundation (**Van Herwegen**), as well as by the Fetal Medicine Foundation, contribute to the support of six current PhD students, and one other student is funded by an overseas government (Palestinian Territories, **Samara**). All students have at least 2i degrees in Psychology or another science, and the majority have Masters degrees. Two currently receive University support (one with matched-funding from ERAB). Self-funding PhD students are given priority to work as RAs on projects supported by the pump-priming fund and to teach undergraduate seminars for payment. In addition to doctoral research students, three postgraduate students have successfully completed research-only MSc by Research programmes during the census period. Financial support is provided for all PhD students to attend at least one national and one international conference during their period of registration.

Research training is delivered at three levels: Level 1, compulsory generic research training at University level for all students (e.g. information retrieval, intellectual property); Level 2, local training, primarily supporting doctoral-level writing and presentational skills; Level 3, also locally, subject-specific research training. The last comprises a Psychology-specific taught doctoral programme. This covers Research Skills in Psychology and Research Design and Analysis.

Van Herwegen was appointed as a Research Student Officer from 2011 to manage the day-to-day concerns of PhD students and to oversee and monitor training. Students attend (and speak at) the

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Research Group meetings and the series of talks by external researchers, and the RSO organizes a separate student-only seminar series. The DoR formally manages research student admissions and policy issues and represents Psychology on the Research Degrees Committee.

Since 2008, the Unit has regularly hosted visiting overseas research students for 3-6 month periods. Institutions that have sent researchers include: Université de Toulouse, France; University of Osnabrück, Germany; University of Trieste, Italy; Sapienza University, Rome, Italy; University of Helsinki, Finland; National Aviation University, Ukraine; University of Oldenburg, Germany. The University provided financial support for their research while at KU. Karoline Mikus from the University of Mannheim, Germany (2013) conducted research at KU via the European Mobility Da Vinci Exchange programme.

d. Income, infrastructure and facilities

Income

Increasing income from external funders has been a key focus of the Unit over the census period. Awards in the five-year period preceding 2008 totalled less than £54k; awards in the current census period exceed £1.3 million, with over £800k due to Kingston, albeit that most research expenditure will occur from 2013 onwards. The spread of applications across staff has also increased: 3 staff applied for grants in the two years preceding 2008 versus 11 staff in 2011-13.

Since 2008, research funding has been awarded by the ESRC, Leverhulme Trust, the Nuffield Foundation, the British Academy, Alcohol Research UK, the European Foundation for Alcohol Research (ERAB), the Qatari National Research Fund, the Department of Health, the Fetal Medicine Foundation, and Sanofi-Pasteur (France).

Infrastructure and facilities

Six new generic research laboratories were installed in 2009, configured to support the research of our ECRs in particular. A large, new laboratory suite containing 26 networked PCs also became available in 2009 for booking.

One older laboratory was upgraded to support eyetracking experiments with an Eyelink II eyetracker. In 2013, it was updated to an Eyelink 1000 at a cost of £21k to support ECR **Mannan** specifically.

In 2010, a second laboratory was converted to host a Tobii T-120 eyetracker, a £25k investment to support ECR **Van Herwegen** (as well as **Back**).

In 2012, research demand by **Van Herwegen** and **Back** led to the investment of an additional £24k in Tobii Smart Glasses IR and software for off-site eyetracking studies.

In 2008, another laboratory was converted to serve as a dedicated psychopharmacology laboratory, including a CANTABeclipse touchscreen test battery (£10k for a 10-year licence), balance, refrigerator, sink etc (approx. £10k) to support **Terry**.

In 2013, £24.7k was invested in a XPDS-R3 Driving Simulator (XPI Research) for research on how drug interactions affect driving skills (**Terry**), the effects of eye movement problems in driving (ECR **Mannan**), and the kinds of decision-making process that influence driving (**Kusev**). A collaborative research programme with the University of Toulouse has been established to exchange research ideas related to the psychology of driving (they have a state-of-the-art, full-function driving simulator which can be used to extend the Unit's research where necessary).

In 2012, a £38k upgrade to the Unit's dedicated observation suite and monitoring room was completed, with state-of-the-art remote-access cameras and microphones installed and *Observer*

(Noldus) software to support work (in particular) by **Villejoubert, Back**, ECR **Van Herwegen**, and their PhD students.

In 2013, £35k was invested to set up the first phase of an EEG facility at Kingston to support the work of ECR **Vyas** and to extend the research of **Villejoubert** and collaborators on distributed cognition.

Since 2009, the Unit has subscribed to the *Sona Systems* web application to manage research participation by human volunteers across the Unit. Funds have also been provided to support and maintain a pool of 15 laptops configured with E-prime and Superlab for field work. Network licences for E-prime and Superlab were expanded to support 24 simultaneous users across the Unit's laboratories. University funding also supports Matlab (for ECR **Mannan**, as well as **Kusev**) and Qualtrix (primary users **Villejoubert** and **Terry**).

The Unit runs an annual volunteer research assistant scheme for undergraduates to contribute to staff research projects: it is managed by a member of staff as a recognised administrative role in the Unit and it recruits around 30 student RAs per year.

e. Collaboration or contribution to the discipline or research base

Contributions to the discipline

Significant theoretical and applied contributions by the Unit to the discipline during the REF census period include, by Research Group:

(1) Findings of direct relevance to the understanding and treatment of developmental disorders by **The Developmental Psychology Research Group**. For example, **Back's** work has challenged the view that Theory of Mind attributions are automatic and task-independent, with implications for our understanding and management of autistic spectrum disorders (e.g. Back & Apperly, 2010); **Purser** has shown that people with Down syndrome have a severely limited capacity of verbal short-term memory (e.g. Purser & Jarrold, 2013); **Van Herwegen** has demonstrated the importance of vocabulary for the emergence of figurative language, and how it differs in atypical groups (e.g. Naylor & Van Herwegen, 2012).

(2) Research by **The Cognition & Perception Research Group** has challenged important and established theoretical constructs, for example: **Kusev** has demonstrated key flaws in Prospect Theory, the leading economic utility theory, and has proposed alternative models of the mechanisms underlying choice (e.g. Kusev et al., 2009); **Villejoubert's** research has shown that hypothesis-testing strategies that are widely considered to be irrational are in fact predictable and may be viewed as rationally-motivated if the perceived relevance of initial information in the problem space is recognised (e.g. Villejoubert & Vallée-Tourangeau, 2013); **Mannan's** work has provided important guidance for future rehabilitation strategies in patients with homonymous hemianopia (e.g. Mannan et al., 2010).

(3) In the **Health & Psychopathology Research Group**, research by **Vyas** on early-onset schizophrenia has shown for the first time that white matter abnormalities in frontal brain regions depend on developmental trajectories at illness onset (e.g. Kyriakopoulos et al., 2009); **Samara** has provided the most detailed longitudinal account to date of the effects of extreme prematurity on later cognition and behavioural problems of infancy, with implications for intervention (e.g. Samara et al., 2010); **Terry's** work continues to reveal the importance of conditioning processes in drug abuse (e.g. Singh et al., 2011).

Conferences and seminars

In 2011 the Unit hosted the world-leading biennial conference of the Society for Prospective Utility

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and Decision Making (SPUDM, local organizer **Villejoubert**). One of the keynote speakers was Nobel-prize-winner Daniel Kahnemann. The conference attracted 278 delegates from 25 countries across the world and was an outstanding success.

On a smaller scale, in December 2012 the Unit hosted the 24th meeting of the British Oculomotor Group, with a record number of 50 delegates, and it also hosted for the second time (first in 2010) a meeting of the Distributed Cognition Group (30 delegates), supported by University funds.

In 2011, **Van Herwegen** received an award from the BPS to produce a research seminar series on “*Neurodevelopmental disorders: Exploring sensitive methods of assessment across development*”, convened at three universities across the UK. In 2013, the Unit hosted a BPS-sponsored international meeting (with University support) on *Citizenship and Social Exclusion: A Multidisciplinary Dialogue*, chaired by **Lyons** and her postdoctoral research fellow.

Staff regularly attend conferences in the UK and abroad, including chairing symposia at major international meetings such as the Society for Research in Child Development (**Back, Samara**), College on Problems of Drug Dependence (**Terry**), the International Society of Political Psychology (**Lyons**) and SPUDM (**Villejoubert**).

To further stimulate collaborative research, the Unit supports travel and subsistence for one member of staff each year to visit a research group or institution. For example, in 2011 **Samara** visited Qatar to develop the successful collaborative grant application to the QNRF and to identify other funding opportunities; this has led directly to a request to bid for a project on novel recreational therapies for children with behavioural problems in Qatar in 2014 (over £100k).

Collaborations

The Unit has an excellent record of collaboration with external researchers at other research-intensive universities and prestigious institutions; these have often led to journal articles and/or grant applications.

For example, ECR **Vyas** is also a Visiting Special Academic at the Child Psychiatry Branch, National Institute of Mental Health, NIH, USA, where she continues her research on the neurological bases of psychosis using MEG. **Vyas** was a Fullbright Fellow and a Lindemann Trust Scholar at NIH during the census period. In 2009, **Vyas** received the Young Scientist Award at the Ninth World Congress of Biological Psychiatry (Paris), and in 2008 she was awarded the Young Researcher Award at the Third International Conference on Schizophrenia (Chennai, India). Currently, in the UK, she is developing a collaboration with Prof Gary Green at the University of York Neuroimaging Centre (fMRI) and with Prof Basant Puri (Imperial College Medical School) on biological markers of psychosis.

Collaborations by ECR **Van Herwegen** which have led to publications include work with Prof Annette Karmiloff-Smith (co-authored paper in *Proceedings of the National Academy of Sciences*) and Prof Micheal Thomas (both at Birkbeck, University of London), Dr Dagmara Dimitriou (Institute of Education), Dr Gabriella Rundblad (King's College London) and successful grant applications with Dr Deborah Riby (Newcastle University) and Dr Emily Farran (Institute of Education).

ECR **Kusev** has published work through his continuing collaborations with Prof Peter Ayton at City University, and ECR **Purser** publishes in collaboration with Prof Chris Jarrold (University of Bristol). ECR **Mannan** has active collaborations leading to publications with Prof Christopher Kennard (Oxford University) and during the census period has been a contributor to successful grant applications to the Ministry of Defence, Wellcome Trust, Stroke Association and EPSRC via her work at Oxford University and Imperial College.

Samara's ongoing collaboration with Dr Dieter Wolke at the University of Warwick has led to a

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number of high-impact publications and extensive media interest (BBC TV, BBC Online, Daily Mail, Daily Express, Guardian online, Times online, Telegraph online, Press Association). **Back** works with Prof Ian Apperly (University of Birmingham) and Dr Deborah Riby (Newcastle University) on projects that have led to publications and grant applications, including a British Academy award as PI.

Senior staff have long-standing research collaborations with (for example) researchers at the University of Dundee, Queens University Belfast, the University of Bologna, the University of Lisbon (**Lyons**) and at the University of Birmingham and Harvard Medical School (**Terry**).

In 2013, the Unit hosted research visits from Dr Diana Bakalova (Bulgarian Academy of Science), Dr Daniel Heussen (University of Leuven) and Dr Renata Heilman (Babes-Bolyai University, Romania) in addition to hosting postgraduate research students from Germany, Italy, France, Finland and Ukraine (see c(ii) above).

Editorial and peer review appointments

The broader research reputation of the staff is reflected in their appointments to the editorial boards of top journals in Psychology: for example, **Terry** is an Assistant Editor of *Addiction*, **Villejoubert** is Associate Editor of *The European Review of Applied Psychology* and was Associate Editor for the *Journal of Economic Psychology* until 2012; she served as an Executive Board member for the *European Association for Decision-Making* (2004-2011). **Lyons** is a member of the Editorial Advisory Board of the *Journal of Gender and Social Issues*, **Kusev** is an Associate Editor of *Frontiers in Psychology (Cognition)* and was also editor-in-chief of a special edition in 2011.

Terry served as a member of the ESRC peer-review college 2010-12 and is currently a panel reviewer for the Belgian FNRS; **Lyons** serves as Chair of the IRCHSS Postdoctoral Fellowship International Assessment Board and is a member of the Committee for the Research Assessment of the Psychological and Education Sciences of Université Libre de Bruxelles (ULB). **Lyons** was chair of the BPS Social Psychology Section and Member of the BPS Research Board from 2009-2013; **Back** is a committee member of the BPS Developmental Psychology Section. **Vyas** is Associate Editor of *Frontiers in Neuropsychiatric Imaging and Stimulation*, and *Frontiers in Child and Neurodevelopmental Psychiatry*; she is also an editorial board member of the *World Journal of Psychiatry* and *Open Psychiatry*.