

<b>Institution: University of Bolton</b>
<b>Unit of Assessment: 04</b> Psychology, Psychiatry and Neuroscience
<p><b>a. Overview</b></p> <p>The Psychology Research Team (PRT) operates as a single discipline-based research group within the newly constituted Education and Psychology Subject Group. The PRT aims to develop research in strategically identified areas that feed into the undergraduate and postgraduate psychology curriculum. It also aims to contribute to a supportive research environment for academic staff and research students both within the broader subject group and within the university as a whole, for example through holding regular research workshops and seminars.</p>
<p><b>b. Research strategy</b></p> <p>In our RAE 2008 submission our research strategy for the present assessment period included consolidating the five main groupings that existed at that time (Economic Psychology and Decision Research, <i>Computing and Internet Research</i>, <i>Learning and Teaching</i>, <i>Applied Psychology</i>, and <i>Primate Behaviour</i>), developing new groupings of research, and supporting lecturing staff research as much as possible. During the assessment period the aforementioned five areas were reorganised to form a single group with the aim of encouraging greater synergy among staff. As set out in the future research strategy in our RAE 2008 submission, research which was formerly subsumed under <i>Learning and Teaching</i> has focussed upon e-learning and the bulk of our educational research now constitutes studies of the effects of various types of technology-enriched learning innovations that have been implemented over the assessment period (e.g. assessing students' understanding of statistical methods by asking them to use screen recorders to provide self-narrated video recording of their use of SPSS and their understanding of its output, and also the use of virtual environments such as Second Life to conduct lectures remotely). . Due to the retirement of key staff, <i>Primate Behaviour</i> research has been discontinued. However, recruitment of new staff (e.g. <i>Thornton</i>) during the assessment period has allowed us to develop a Forensic Psychology research strand. In September 2012 the university's commitment to strengthening psychological research was evidenced by the recruitment of Professor Jerome <i>Carson</i> (a former consultant clinical psychologist, and clinical academic at the Institute of Psychiatry). His main research interests lie in recovery from mental health problems, positive psychology and wellbeing, occupational stress, and quality of life. Though engaged in private practice for most of the period, he has produced a large number of non-empirical outputs considering clinical issues during the assessment period, which at this point make his research outputs more suitable for inclusion as part of the University of Bolton's submission under REF Unit 22 (Social Work and Social Policy). <i>Carson</i> has now taken on the role of Research Coordinator within the Psychology group. As members of research staff, <i>Carson</i>, Rob <i>Ranyard</i> (Professor of Psychology) and <i>Charlton</i> (Reader in Psychology) aim to provide as much support as possible for the development of the research activities of members of staff with greater teaching loads, and in particular early career researchers, who are particularly encouraged to submit journal articles.</p> <p>Our strategy for the 2014-2018 period is to maintain and expand collaborative links both with other research groups within the new Subject Group (which also includes the university's Institute of Educational Cybernetics in addition to Education), within the university more broadly, and with external researcher groups (see specific initiatives in the material below) with the aim of increasing both the number of research outputs and the number of external funding bids. In the last few months bids were submitted for the Nuffield/HEFCE/ESRC Quantitative Methods programme and to the Arts and Humanities Research Council. We made a successful application to the Dowager Countess Eleanor Peel Charity to fund a pilot study on the early detection of dementia using EEG (£10,000 to hourly paid lecturer and Honorary Research Fellow Richard Jagger and <i>Carson</i>). Applications by prospective research students have continued to increase from 6 at RAE 2008 to 11 currently and we plan to increase the number of research students with a new taught MSc Cognitive Behavioural Therapy course and a planned MSc Applied Psychology course providing possible sources of new students. The latter course would contain several modules which correspond with the research interests of research active staff.</p>

*Research activities and achievements over the assessment period, and research plans for the next five years*

During the assessment period a major strand of research has involved projects on topics such as consumer credit and payment protection insurance decisions, perceptions of price changes and inflation, the decision to carry an organ donor card, and experimental studies of decisions involving risk and uncertainty have taken place under the leadership of *Ranyard*. Here, research currently takes the form of three major strands which are summarised below.

*Decision, risk and uncertainty: Experimental Studies.* This research is grounded within a cognitive process and bounded rationality framework, seeking to identify both the cognitive mechanisms that can explain decision behaviour and the contexts within which they operate. A range of data sources are used, including the decision maker's information search behaviour and verbal reports. Our current studies seek to understand the mechanisms underlying violations of some of the key principles of rational choice, i.e. dominance and transitivity, focussing on the role of numeracy and emotion. Andrea Taylor, who was awarded her PhD in 2011, was subsequently appointed as Honorary Researcher to develop this project. She moved to the Centre for Decision Research, University of Leeds, in April 2013. Three papers from this project by *Taylor* and *Ranyard* (submitted to peer-reviewed journals) show how the extent to which decisions violate of the rational principle of dominance is related to emotion and numeracy. Proposals for external funding are being developed with colleagues at the University of Leeds.

*Personal and household financial decision making.* In one line of research, conversation-based process tracing methods have been used to develop an understanding of consumers' decision processes and risk management strategies. Previous studies have investigated credit decision processes and the way people deal with risks of product failure and of possible credit repayment difficulties at the time of initial purchase. Current work involves following up recent questionnaire-based experiments of consumer credit and payment protection insurance decisions, supported by the Co-operative Bank. Sandie McHugh was appointed Honorary Research Associate in January 2010, and subsequently as Research Fellow, to develop this project with Rob Ranyard, and to continue her role as Administration Officer for the International Association for Research into Economic Psychology (the School acted as the Administration Office for IAREP between March 2009 and June 2013). During the assessment period four papers were published in peer-reviewed journals by *Ranyard* and *McHugh*. These show, for example, how cost information and psychological factors influence credit repayment decisions. A further paper, on the effects of alternative anchors on credit card repayment decisions, is under review with the *Journal of Economic Behaviour and Organization*. A new study of credit decisions is underway and proposals for external funding are being developed in collaboration with the Centre for Decision Research, University of Leeds.

*Foundations of decision research.* As well as the above specific empirical investigations, contributions to the more fundamental theoretical and methodological issues in decision research, including: the evaluation of alternative fundamental approaches, namely positivist, naturalistic and critical realism; the development of fruitful process tracing methodology for the study of decision making, especially the use of verbal protocols and active information search; and the relation between cognitive appraisal and emotion in economic decision making (see the section on Collaboration and contribution to the discipline or research base for details of outputs in these areas).

Other current decision making projects falling outside the above major strands include two PhD studies: on children's social decision making, conducted by Paula Duxbury, supervised by Rob Ranyard, Jacqui Harrison and Sharon Preston (the latter two being members of teaching staff); and of people's decisions to violate health and safety rules, by David Walker, supervised by *Ranyard* and Christine Hodson, another member of teaching staff).

Within the PRT a number of other researchers are also active studying various applied issues; *Carson*, *Jagger*, Abigail Thornton (Lecturer) and Sharon Xuereb (Senior Lecturer). Prior to joining the PRT, *Carson* developed a number of innovative approaches to introducing the recovery model into mental health services, and co-authored a number of books and journal papers on the subject. Along with Michelle McNary, herself a service user, he produced the Recovery Film ([www.slam.nhs.uk/patients/recovery.aspx](http://www.slam.nhs.uk/patients/recovery.aspx)). He now intends to conduct action research into

recovery and is planning two projects looking at the effectiveness of live versus filmed presentations by people with lived experience and which of these is more effective in educating people about recovery. He also intends to conduct NHS research into the effectiveness of creativity in promoting individual recovery. *Carson* is keen to extend his previously published work applying research from positive psychology to clinical populations; along with colleagues in Blackburn from the voluntary sector and the NHS, he is looking to evaluate the DIY Happiness programme with women of South Asian origin. This programme was developed as part of the Well London project, and is an eight week programme to improve wellbeing using positive psychology. *Carson* also plans to conduct further research on occupational stress, taking it away from its traditional focus on pathology (e.g. burnout's relationship with stress) towards the study of more positive factors studies in positive psychology such as what lifts people at work and building resilience. Along with other colleagues, he is also working on an initiative to improve the teaching of quantitative methods in non-science based disciplines. Finally, *Carson* is working with *Jagger* on a project investigating electrophysiological indices as early predictors of dementia in the elderly and these two researchers have just obtained pilot funding for this research programme.

As mentioned previously, *Thornton* has interests in forensic psychology. She is an early career researcher having obtained her PhD in March 2012. She researches violent and non-violent offending in men and women, offending in women being an under-researched area. In particular her work during the REF period included the development of the Non-violent and Violent Offending Behavior Scale (NVOBS) and its subsequent use in studies of adaptive and maladaptive personality traits as predictors of violent and non-violent offending behaviour in men and women, and the prevalence of women's violent and non-violent offending behaviour. Another paper on attachment styles, self control and psychopathic traits as predictors of violent and non-violent offending behaviour in men and women will shortly be submitted. *Thornton's* future plans involve one study of stalking with Stefanie Ashton-Wigman (Sheffield Hallam University) investigating trauma and empathy as predictors of stalking, and, a second separate study investigating stalking, attachment and maintaining relationships with Laura Caulfield (Bath Spa University). Finally, she plans studies of males' and females' perceptions of women's reasons for perpetrating domestic violence with Nicola Graham-Kevan and John Archer (University of Central Lancashire) and relationships between anxiety and fear, and violent and non-violent offending.

*Xuereb* is also an early career researcher. She obtained her PhD from the University of Central Lancashire in April 2010 and became a full-time member of staff at Bolton in February 2010, but because of family commitments reduced to 0.8 in January 2011. She has long-standing research interests in distress and responsibility in offenders having published three papers in this area with co-authors from UCLAN during the assessment period. She is currently analysing data for a study investigating how distress and responsibility relate to seeking psychological treatment in offenders, and is collecting data from incarcerated sex offenders for a longitudinal study examining how responsibility for their offences relates to treatment outcomes. She has recently also become interested in undergraduate retention and has recently published one paper in this area and is currently working on a qualitative paper about the support that undergraduates seek and receive when considering early withdrawal from university. Within the next five years she plans to develop a psycho-education programme supporting undergraduates to maintain their engagement with their studies and to publish papers evaluating the success or otherwise of this programme.

Other researchers who are research active include Senior Lecturer Anne Maria Keane whose work is aimed at developing knowledge of the hierarchical organization of hand control and the cognitive-motor control link. She has found that both verbal processing and an early stage of hand movement share the same mechanism in the brain and that mechanism is the general motor programmer. *Keane's* future research intentions are to explore the general motor programmer further – looking at exactly what it is they share, the level of brain functioning that this common mechanism is required for, the types of cognitive processing it is necessary for, and the possibility that it is a mechanism that underpins other cognitive processing in the brain, thus throwing some light on general principles of brain functioning.

As mentioned above, The University of Bolton Computer and Cyberpsychology Research Unit (UBCCRU) operates as a subgroup within the PRT and currently consists of six people; three members of staff (Deborah Abdel Nabi, *Charlton* and Angela Tinwell) and three research students (Michael Green, Louise Lawrence and Carmel Smith). Research is interdisciplinary in nature, Tinwell being a games design lecturer in the university's Art, Design and Language Academic

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Subject Group. Research is conducted in three broad subject areas: Cyberpsychology, Individual Differences, and Technology Enriched Learning, and is supported by the University of Bolton and, where available, external sources.

With respect to individual differences, since RAE 2008 *Charlton* has continued his work distinguishing computer engagement and addiction (which is important in classifying behavioural addictions in general), first, with work on personality correlates validating the aforementioned distinction, and then using a resultant psychometric addiction scale to show the possible importance of religiosity as a buffer against Internet addictions and the possible importance of low parental attachment (but not peer attachment) in the development of Internet addictions (paper submitted to *Behavior & Information Technology*). As a result of this work *Abdel Nabi* and *Charlton* were invited to submit a chapter on virtual addictions for inclusion in the *Oxford Handbook of Virtuality*. A second strand of *Charlton's* work has advanced knowledge of the little studied topic of computer anger, two studies showing, among other things, that computer anger can be a considerable source of stress for a small number of people and that appraisal theories can be applied to computer anger in just the same way as they can be applied to instances of driving anger (paper submitted to *Behavior & Information Technology*). Continuing the theme of computer-related stress, *Charlton* is currently writing-up a study showing that computer end-users are a major source of psychological strain for IT personnel but not vice-versa and that the systemizing (S) - empathizing (E) cognitive style typologies might be responsible for this. Together with *Carson*, who has expertise in the area of occupational stress, *Charlton* plans to further this strand of research by seeking funding for a quantitative project exploring the roles of S and E as stressors in IT personnel and to use this knowledge to intervene in the stress process. In another stress-related project, *Charlton* is supervising Mike Green (research student), who is using his ongoing experience as Human Resources Director of the UK arm of an international company to study the roles of individual differences in S and E in e-mail-related stress processes.

UBCCRU's cyberpsychology research activities have increased in vigour since the last RAE. *Abdel Nabi* and, to a lesser extent, *Charlton* collaborating in research into the conditions under which virtual characters evoke the Uncanny Valley phenomenon (the situation where people experience a sense of the uncanny or bizarre when viewing inadequately animated virtual characters). The research focuses upon the conditions under which virtual characters evoke the Uncanny Valley phenomenon. The studies have shown that expression of certain emotions is prone to increase perceived uncanniness and that people associate uncanny characters with the traits normally associated with psychopathy. This has applications in both the computer game and movie industries in terms of developing empathetic and anti-pathetic characters according to designers' aims. Current projects involving *Abdel Nabi*, *Charlton* and *Tinwell* include an EMG study looking at the uncanny with Anton van Boxtel (Tilburg University, the Netherlands), Minet de Wied (Utrecht University, the Netherlands) and Robin Sloan (University of Abertay). Also, *Abdel Nabi* is conducting a project on relationship development in virtual environments with university funded research student Carmel Smith.

The Technology Enriched Learning strand of research has seen *Abdel Nabi* working with research student Louise Lawrence to develop software to teach emotion recognition to children on the autism spectrum by capitalising on such children's heightened systemizing abilities. Also, *Abdel Nabi* and former member of staff Paul Rogers successfully demonstrated the utility of students providing narrated computer screen recordings in the assessment and learning of data analysis.

**c. People, including:****i. Staffing strategy and staff development**

In January 2012, a new university structure was implemented with psychology and education being placed into a single Academic Group. The current psychology establishment consists of 13.6 members of staff on two lecturer grades (Senior Lecturer and Lecturer) and 2.3 full-time research posts (1.3 Professors with *Carson*, as full-time Professor and Psychology Research Team Leader, *Ranyard* as 0.3 Professor and *Charlton* as full-time Reader). The three aforementioned people supervise one Research Fellow (*McHugh*) and one Honorary Research Fellow (*Jagger*). The three senior researchers collaborate in research projects with members of teaching staff, and they are also available for consultation on any research problems that arise both within psychology and,

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where necessary, within the Academic Group more widely. The Research Team Leader ensures that the research training and development needs of psychology staff are addressed. He also coordinates research activities and the three senior researchers supervise the work of the Research Fellows. All academic staff can apply for support to present at conferences.

Research potential is a major criterion in appointing new staff. The Academic Group Leader manages staff timetables to recognise research active staffs' research activities and also takes into account the university equality and diversity policy which states that diversity and equality must be promoted in all aspects of the recruitment and career management of researchers.

In 2008 the University set up a working party in response to the Research Councils UK Concordat to Support the Career Development of Researchers. This resulted in the production and implementation of an action plan from January 2012 onwards to ensure adherence to the Concordat. The University offers a wide range of development opportunities for researchers through the services provided by its Learning Enhancement & Professional Development Unit and through project supervision which includes skills development relating to project management, dissemination, information management, research development, governance, enterprise, technical research skills and career management. The University also offers a Postgraduate certificate in Learning and Teaching in HE which is accredited by the Higher Education Academy and available to all research staff who wish to develop their career in teaching and learning and research.

**ii. Research students**

We currently have nine research students studying either for PhD directly or for PhD via MPhil. Two of these students are supervised at New York College Athens, a private Greek higher education institution with which Bolton has a strategic partnership. During the assessment period three students obtained a PhD degree and two students obtained an MPhil degree. Research students are supervised by a Director of Studies who is a specialist in their subject area and also have access to a second supervisor. Where it would be beneficial, research students are able to attend sessions of the Research Methods modules of the MSc Psychology / MRes courses which are mainly delivered by members of the PRT. During their first year, research students also benefit from university-wide research training sessions, which cover topics such as research skills, techniques and management, research ethics and standards of good research practice, teaching skills, data protection, Freedom of Information and Intellectual Property, research funding processes, networking for researchers, communicating research, academic and commercial exploitation of research results, personal effectiveness, and career management. Students are encouraged to present at the Annual University of Bolton Research and Innovation Conference and at an annual Postgraduate Research Day Conference which is organised by the students themselves. Both of these provide the chance for students to learn to present their research in a supportive environment. Students are also encouraged to attend and present at external research conferences. To facilitate interaction between students from different disciplines, research students from psychology, health and education study together at the new on-campus Bolton One facility which opened in February 2012 and is a £31 million health, leisure and research centre, built through a partnership between Bolton Council, NHS Bolton and the University of Bolton.

**d. Income, infrastructure and facilities**

Research facilities include three dedicated psychology laboratories; a Cognition Laboratory, a Psychophysiology Laboratory and an Observation Laboratory. The Cognition Laboratory has five cubicles with five networked PCs available for teaching and staff/student project work. All of the university general software is available via the network and in addition experiment generator software 'OpenSesame' and 'E-Prime' is available. Other equipment includes: serial response boxes for 'E-Prime', four two-field tachistoscopes, one projection tachistoscope, one three-field tachistoscope and one six-field binocular tachistoscope. The Psychophysiology Laboratory is purpose built for human psychophysiological work. Equipment includes two Biopac Student Lab Systems (one portable via Laptop), one Biopac MP100 system with GSR and ECG modules, a NeuroScan 32 channel topographic mapper with Nuamps, two sizes of 'Quikcap' head cap, Scan 4 software for acquisition, and STIM 2 software for the NeuroScan system. The STIM 2 software package integrates with the NeuroScan equipment, enabling a variety of audio and visual stimulus presentations to be set-up; the software also incorporates a comprehensive battery of pre-

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programmed neuropsychological tests. The Observation Laboratory is equipped with a one way mirror for human behaviour observation, and digital still and video cameras. 'The Observer' behaviour analysis system, video editing, and transcription tape recorders are also available. In addition to the three aforementioned rooms, researchers also have access to two IT/Computing laboratories each having 18 workstations. In addition to software available via the university network such as SPSS, Internet, Email, and Microsoft Office, other software is available within the Psychology department for example, AMOS, Qualtrix (a sophisticated research tool for survey and experimental research), and MAXQDA qualitative analysis software.

Income from RAE 2008 has largely been used to finance research student fees and bursaries. In particular, *Duxbury*, *Lawrence* and *Smith* have benefited from this money. Also, in December 2008 *Abdel Nabi* and *Rogers* were successful in obtaining funding of £4,450 from the Higher Education Academy Psychology Network for the project examining the utility of students providing narrated computer screen recordings in the assessment and learning of data analysis. As match funding for the grant, the university provided five sound proofed cubicles.

With respect to research governance, to accord with BPS requirements, all research projects are scrutinised by a committee of at least three academic psychologists. If necessary, applications for project approval can be referred to the ethics University Research Ethics Committee, which is a subcommittee of the university's senate. Members of research staff who are suspected of ethical or other research misconduct (e.g. falsification or fabrication of data, plagiarism, the abuse of confidentiality with respect to unpublished materials, or misappropriation of results or other resources) are dealt with by a multi-stage disciplinary process which judges people according to the university's Code of Policy and Procedures for Investigating and Resolving Allegations of Misconduct in Research which has as its core the seven principles identified by The Nolan Committee on Standards in Public Life as having relevance to best practice in the conduct of research: selflessness, integrity, objectivity, accountability, openness, honesty and leadership.

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

The PRT has established links with several national and international research centres in the areas of economic psychology and decision research, including the Centre for Decision Research, University of Leeds and the Department of Education and Cognitive Science, University of Trento, and a project investigating the role of numeracy and emotion in health risk perception and decision making is currently underway with *Andrea Taylor* and *Barbara Summers* (Decision Research Centre, University of Leeds). Additionally, as part of the *Foundations of Decision Research* strand of the team's work *Ranyard* co-edited a book entitled *A Handbook of Process Tracing Methods for Decision Research: A Critical Review and User's Guide* with *Michael Schulte-Mecklenbeck* (Swiss Federal Institute of Technology, and University of Basel) and *Anton Kühberger* (University of Salzburg). This book also included two chapters co-authored by *Ranyard*; one with his co-editors, and one with *Ola Svenson* (University of Stockholm). *Ranyard* also published a paper on the role of process data in the development and testing of process models of judgment and decision making with the co-editors of the above book in the journal *Judgment and Decision Making*.

During the assessment period two research workshops were hosted at Bolton. First, *Economic Psychology: New Methods and Findings* on March 26<sup>th</sup> 2010 (sponsored by the International Association for Research into Economic Psychology), see: <http://www.bolton.ac.uk/Conferences/EconomicPsychology/Home.aspx>. Second, between May 3<sup>rd</sup> and 5<sup>th</sup> 2012, the annual research workshop of the European Group for Process Tracing Studies of Decision Making (EGPROC) was hosted (sponsored by the European Association for Decision Making, see: [www.bolton.ac.uk/Conferences/EGPROC2012/Home.aspx](http://www.bolton.ac.uk/Conferences/EGPROC2012/Home.aspx)). *Ranyard* was also involved in the organization of a number of conferences: (a) Scientific Committee member of IAREP Annual Conference, Wroclaw, Poland, September, 2012; (b) Scientific Committee member of international conference on decision research (SPUDM-22, August 2009, Rovereto, Italy); (c) Joint-organiser of the symposium '*Process tracing methods: Comparisons and empirical results*' at the SPUDM-22 conference.

Staff members of UBCCRU have been successful in cultivating a large number of inter-departmental, national and international links. *Charlton* collaborated with *Patrick Soh*, *Kok-Wai Chew* (both Multimedia University, Malaysia) and *Peng Hwa Ang* (Nanyang Technological University, Singapore) on Internet addiction studies (a paper on relationships between parental and

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peer attachment and the development of Internet addictions being submitted to *Behaviour & Information Technology* in addition to one of the presently submitted outputs). Also, his study of personality correlates of addiction and engagement concluded his collaboration with Ian Danforth (formerly Whitman College, USA). *Charlton* has also collaborated with Arvid Kappas and Aleksandra Swiderska, (Jacobs University Bremen, Germany) on a study comparing cognitive appraisals leading to computing and driving anger. (paper submitted to *Behaviour & Information Technology*). In another area, *Abdel Nabi* collaborated with Mark Grimshaw and Tom Garner (both formerly in the university's Faculty of Arts and Media Technologies, and now at Aalborg University, Denmark) on a study investigating the fear value of preselected sound parameters in a survival horror game (published in the *Proceedings of the 5th Audio Mostly* conference).

To help develop the subject area of computing and cyberpsychology both nationally and internationally, UBCCRU members arranged and hosted two international conferences at Bolton (CyComP 2010 and 2012). This enabled us to promote and disseminate our research in a cost effective manner within academia and complement our dissemination activities targeted at the general public through newspaper, magazine and radio interviews. In addition *Charlton* was a member of the Programme Committees for Edutainment 2011 (Taipei, Taiwan, September 2011), DIGITEL2010 (Kaohsiung, Taiwan, April 2010), and DIGITEL2012 (Takamatsu, Japan, March 2012). Along with Janet Morahan-Martin (Bryant University, USA) *Charlton* was also invited to be a guest co-editor of a special 2012 Digital Pathologies in Education edition of the *Journal of Educational Computing Research*, 46(4).

Before arriving at Bolton *Carson* organized a number of conferences in the areas of wellbeing and recovery and plans to carry on these activities. He is also on the editorial boards of the journals *Mental Health and Social Inclusion*, the *British Journal of Mental Health Nursing* and *Groupwork*. Since coming to Bolton, *Carson* has established links with research colleagues in Hong Kong and China and is setting up a Positive Psychology research centre in the city of Zhaoqing with Chinese researchers. He will be supervising three Chinese PhD students. He has also developed PhD and research links with New York College in Athens, with whom the University of Bolton has a number of partnership arrangements.