

<p>Institution: Brunel University</p> <hr/> <p>Unit of Assessment: 25 Education</p> <hr/> <p>a. Overview</p> <p>Education is a distinct unit within the School of Sport and Education. Its research is characterized by a range of epistemologies and methodologies and is internationally focused, arising out of strong collaborative networks. Supported by effective leadership and an inclusive culture, Education has developed an active and innovative research environment in the post-RAE 2008 period where the aims have been to drive up the quality of research and to build a sustainable infrastructure for research and researcher-development. An external review of Education in 2010 further strengthened the research environment and led directly to the creation of a new post of Director of Research in Education (DoR), providing research leadership, supported by an Education Research Management Group (ERMG). We have: introduced a new strategy with clear lines of accountability; offered support to increase the proportion of staff with doctorates and those who publish in high-impact journals; expanded support systems for staff, particularly Early Career Researchers (ECRs); and broadened our engagement with policymakers and practitioners. Our contributions to knowledge in education fall into two broad areas reflected in our research groups: Pedagogy and Professional Practice (PPP) led by Koshy and Toplis; and Education, Identities and Social Inclusion (EISI), led by Mendick. All academic staff and doctoral students are a member of one of these two groups. They have regular, lively meetings, complemented by a monthly interdisciplinary Theory Reading Group based in Education, and a regular programme of seminars and support activities. These, along with a Newer Researchers Group, led by Jones, foster collegiality and grow research capacity.</p> <hr/> <p>b. Research strategy</p> <p><u>Evaluation of the strategies outlined as part of RAE2008 and subsequent changes:</u> Planning following the 2008 RAE produced a staffing strategy focused on new, senior appointments at the same time as developing existing staff through doctoral degrees and as ECRs. In 2010, a review of extant strategy included external consultation by Prof McCulloch (Institute of Education) and Prof Brown (King's). This led to the appointment of a Director of Research (DoR) to lead research activity in Education supported by the Education Research Management Group (ERMG). The ERMG meets twice a term, comprising: the DoR, research group leaders, Head of Education, Deputy Head of School (Research) and the Research Administrator. Key strategies from post-RAE 2008 were also sustained, namely: significant financial investment in Education staff, embedding Education in the wider interdisciplinary research culture at Brunel, developing national and international collaborations, focusing on impact through engaging directly with policy agendas and via research-led teaching, and developing theoretically and methodologically innovative work. We have also strengthened the support systems of mentoring and Research Groups that were put into place just prior to RAE2008. Our research groups have been reshaped in response to shifting agendas in research, policy and practice and staff movement. The <i>PPP Research Group</i> brings together two clusters of researchers who focus on Teacher Development and Curriculum Enhancement (TDCE) and Science, Technology and Mathematics (STEM) Education. Current groundbreaking research includes: a longitudinal international study on implementing inquiry-based science pedagogy in HE; an innovative multi-methods study of initial teacher education as academic work; collaborations with the Institute of Physics, the UKRC and the Royal Academy of Engineering to support practice in widening participation in STEM, and ethnographic research into emerging digital literacies and young people's fantasy cultures. The <i>EISI Research Group</i> focuses on the relationships between education, identities, and processes of inclusion and exclusion. Current ground-breaking research includes: studies of bullying that focus on homophobia, bystander behaviour and the role of new technologies; intersectional analyses of gender, ethnicity and class in educational leadership and young people's aspirations; research into professional identities within training and development; and work on inclusive practices in transitions into university. The Brunel Able Children's Education Centre (BACE), led by Koshy, works across both groups and is the only UK university-based research centre for talent development. Its research is central to Brunel University's strategy to increase under-represented groups' HE participation. Evidence of the success of our strategy is provided by 78% of all academic staff having doctorates;</p>
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improved quality of research across the whole subject area; editorial positions on high-impact journals; significant UK government visits (e.g. Dr Vince Cable, Sarah Brown); government grants for curriculum development (Green, Jones, Koshy); and our first ever ESRC (Mendick, Rivers) and AHRC (Ellis) income.

Objectives, activities and new initiatives post-submission: The current strategic goals for research are outlined in the 'Education Research Strategy 2011-2016' that aligns with the University's Strategic Plans 2008-12 and 2013-17 and the research strategy of the School of Sport and Education. The strategy specifies four main aims for the 5-year period: 1. to gain national and international recognition as a leader in the field of education; 2. to conduct research that is grounded in high-quality methodologies, underpinned by sound theory, and engaged with broad social science debates; 3. to have strong relevance to and impact on educational policy and practice; and 4. to develop a research community that is based on the principles of transparency, inclusivity, equity, fairness and collegiality. Detailed plans are given in relation to research structure, culture (including staff development and support), quality, income, impact and external profile and postgraduate research. This strategy is monitored internally, by the School and University Research Committees, informally by the ERMG, and, for the first 2 years, also externally by an Advisory Panel including Prof McCulloch, and Prof Sikes (Sheffield). A key imperative of this strategy is to move towards larger-scale research projects with a greater emphasis on interdisciplinarity. The DoR is accountable to the Deputy Head of School (Research) and the Head of School and is a member of the School Research Committee. This meets at least once a term, is chaired by the Deputy Head of School (Research) and provides strategic direction for the School as a whole. All staff within Education produce annual research plans covering publications, research bids, PGR supervision and knowledge transfer as part of their annual, university-wide appraisal process. Professors and readers are subject to a separate performance management system in which annual research and knowledge transfer targets are set and reviewed.

The two research groups have identified key development areas. For PPP, the main area is mathematics education. To support this we made the following appointments: Paul Ernest (Professorial Fellow), Mendick (Reader) and Hossain (Lecturer). Mathematical Knowledge for Teaching (MKT) is now an area of excellence. For example, Casey and Koshy used action research with teachers to improve attainment in mathematics, and Hossain and Mendick (with Prof Adler, King's) challenged orthodoxies within MKT. Current work from ECRs Huntley and Ineson on primary teachers' MKT is being extended in collaboration with international expert Prof Tim Rowland (UEA), and Ineson is developing a Nuffield bid in this area, supported by her participation in Brunel Grant Academy for ESRC Future Research Leaders. The appointment of Ellis as Professor also strengthened the expertise in teacher development, a focus of a number of PPP researchers, including ECRs. The *EISI Research Group* has been extended to cover 'identities', an important, emerging theme. Our staffing strategy has supported two key areas. First, appointments of Rivers as Professor, Mendick (Reader) and Harvey (Research Associate) have strengthened work on gender and sexuality. Second, appointments of Crook (Reader) and Mansaray (Lecturer) have strengthened work on professional identities, supporting three emerging scholars in this area: Nicholls (PhD awarded in 2010), Chappell and Gower (both scheduled to complete PhDs in 2014). A final emerging area is theory and methodology (supported by the monthly Theory Reading Group).

c. People, including:

i. Staffing strategy and staff development

Staffing policy: As above, we have used new appointments strategically to strengthen emerging areas of research interest among ECRs. We have also replaced staff leaving with academics with stronger research track records (e.g. in 2013, Ellis replacing Collins; Mansaray replacing Dismore). The University has invested in Education by funding two new senior posts (one chair, Ellis; one readership, Crook) and, as outlined above, the creation of a post of DoR, to bring a more strategic approach to managing research within Education. Ellis's appointment nurtures the strong existing interest among ECRs in the PPP group in initial teacher education and teachers' professional learning. Mansaray's appointment consolidates and extends existing interests among ECRs in the EISI group in poststructuralist approaches to identities and inclusion. Good researchers moving to promoted posts elsewhere have been helped to leave a legacy of long-term research plans that

can be taken forward. For example, Brooks' departure in 2012 left a legacy of two funded doctoral students, a funding council bid in collaboration with Mendick and a range of other activities (including a journal special issue) and a strengthened EISI Research Group, subsequently further developed by Mendick.

Promotion of equality of opportunity: The University was awarded the European Commission's 'HR Excellence in Research' badging in 2011 in recognition of its commitment to the recommendations of the Concordat to Support the Career Development of Researchers. The University has a Concordat Working Group that is responsible for implementing a Concordat Action Plan. A strong equality and diversity agenda permeates all work in Education. An Equality and Diversity Officer serves on the School's Research Committee and all staff attend equality and diversity training. All staff are provided with considerable support to develop their research, tailored to their career stage and individual needs in order to ensure equality of opportunity. The two research groups meet regularly and engage in a range of activities including: providing feedback on draft writing; discussing recently-published research; the organisation of seminars and conferences; and a programme of well-attended research support activities (e.g. on writing high-quality articles, formulating successful bids and developing collaborative research). In addition there is a programme of research seminars with a mix of internal and external speakers; a research mentoring scheme; a monthly Theory Reading Group; and regular staff development opportunities at the university-level (e.g. courses on communicating research through the media). There are generous, competitive university-wide Research Leave and Knowledge Transfer schemes, to which all staff can apply (five Education staff have benefited since 2008) as well as Brunel Research Initiative and Enterprise Fund (BRIEF) awards, targeted at ECRs who are developing an external grant application (one member of Education staff benefited since 2008). A stated aim for all professors and readers in their annual appraisal is to involve more junior staff within research bids. To facilitate research networking, lecturers and senior lecturers receive an annual conference allowance of £750. ECRs receive additional support through: a Newer Researchers' Group; a University internal funding scheme, which provides up to £15k for new research projects; and having priority within the School's internal staff competition for PhD studentships (e.g. in 2013 Ineson received an award).

Of 23 FTE staff, 19 are on full-time permanent contracts. Unusually for Education across the sector, more than half of the staff are under 50 years old, with the largest group (11) in the 40 – 49 age range. Two professors are nearing retirement and succession planning has included the appointment of a part-time professor (Biesta) who will work with the DoR to mentor mid-career researchers and to target suitable future appointees. 42% of professors and readers are female (56% are female across all grades) and 78% of all staff are white. A strategy for new appointments to Education has benefited from input from the University's Equality and Diversity Champion and from the University's Athena SWAN Research Awards for staff returning from maternity leave.

Mechanisms for maintaining research quality and integrity: To maintain the quality of research bids the University requires internal Education peer review of all bids by two colleagues and further peer review of research council bids by a panel of Brunel experts, as part of wider demand management processes coordinated by the Research Support and Development Office (RSDO). To maintain the quality of research outputs mentors provide feedback on journal articles and other publications and regular writing workshops within the two Research Groups offer additional feedback. The School has its own Research Ethics Committee whose members scrutinise all research proposals. This committee meets termly to review overarching issues and also provides feedback to staff on a range of ethical issues. In addition, the School runs an annual training day on research ethics (for staff and PGRs), which complements the ethics and data protection training offered by the University centrally. A Health and Safety Officer works with the School's Research Ethics Committee (e.g. with risk assessments).

ii. Research students

A strong and integrated PGR culture: Postgraduate Researchers are vital members of our research culture. They are provided with desk space and access to software and equipment to facilitate their research (e.g. NVivo, transcriber kits) and receive £750 that they can use to attend seminars and conferences over the duration of their study. Each PGR works with two supervisors and has their

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progress monitored through an annual review that requires them to set targets for the coming year and to reflect on previous targets through discussion with their supervisors and at least one other member of staff. All supervisors have a doctorate and all lead supervisors have supervised at least one student to completion. The pairing of more and less experienced supervisors supports the induction of ECRs into doctoral supervision. In addition, the University Staff Development Unit runs dedicated training sessions and the School has periodic in-house training. Research students are represented on the School's Research Committee and make contributions that are then acted upon by the research leaders within the School. A dedicated Research Administrator attends to research students' needs and provides day-to-day support.

Training and development for Education doctoral students is available at University and School levels. Each year, students are required to identify a tailored programme drawing on this offer. They are strongly encouraged to attend relevant research methods and employability training, run by the University's Graduate School. The School offers a wide-ranging doctoral research training programme - during evenings and half-terms to enable part-time students to participate - with a dedicated social sciences strand and incorporating opportunities for students to present to their peers. All staff who have a doctorate contribute to the doctoral training programme. In addition, the EdD maintains its own programme of activities designed to support students through their portfolio and thesis stages. An Education Staff Student Conference is held annually, at which doctoral students present their work alongside staff members. In 2012-13, nine students and six staff members presented in strands corresponding to the research groups. This support has enabled students to develop considerable academic networks and publications during their doctoral studies. Notably, Ludhra, a member of staff and doctoral student, has a growing publication record reflected in her REF submission and has secured BERA funding. The number of doctoral degrees (EdD and PhD) awarded for each year is as follows:

Programme\Year	2008/09	2009/10	2010/11	2011/12	2012/13	Total
EdD	3	1	4	2	2	12
PhD		3	7	2	3	15
Total awarded	3	4	11	4	5	27

Prestigious/competitive studentships: Each year, the School hosts an internal competition for staff, for bursaries for postgraduate researchers, with applications from ECRs given priority, as above. These are externally advertised and awarded on a competitive basis. Education typically receives two bursaries per year (each receiving fees and a stipend of over £10k per annum). Since these students are full-time in the School, including undertaking some teaching, they can play an active part in all activities including the research groups and so have an important role in strengthening our research culture. In addition, six PhD students are funded by competitive studentships awarded by overseas governments: Brunei, Kazakhstan, Kuwait, Nigeria (2) and Saudi Arabia.

d. Income, infrastructure and facilities

Strategies for generating grant income: We recognise the importance of research income for carrying out high-quality research that can have maximum impact on policy and practice. Our approach to generating income is based on: developing relationships with funders; mentoring staff new to bidding and quality assurance measures at the School and University levels. Senior staff are encouraged to work with junior staff through their targets. In addition, we have identified a member of Education staff (Mendick) responsible for promoting funding applications by identifying bid opportunities within our strategic areas and guiding ECRs through the process. ECRs Chappell, Ludhra and Ineson were supported by Mendick in their successful applications to the Brunel Grant Academy for ESRC Future Research Leaders. This scheme involved a series of workshops, feedback tutorials and mentoring from leading Brunel academics to facilitate the development of funding applications. Together this support has resulted in a number of successes: Mendick, Leslie and Toplis' research on the attitudes to physics of young people from ethnic minority backgrounds funded by the Institute of Physics (£10k, 2011-12) and first bids by Chappell (to the ESRC) and Zwodziak-Myers (to the European Union).

Brunel has responded to recent changes in the funding environment for educational research by

bringing in additional processes for peer review (outlined above), by preparing to meet additional requirements for research data management and by encouraging collaborative bids. The University continues to monitor changing funding council requirements including on data storage and availability and open-access publishing. The RSDO offer training and support to researchers in maximising research income including an internal competition for research awards (up to £15k) for junior staff; Research Leave and Knowledge Transfer (KT) secondment schemes open to all staff (Koshy received KT funding in 2011/12 and Rivers in 2010/11). Additionally, Rivers was granted research leave in 2012/13 and Ineson and Watts in 2009/10). Pump-priming funds for research activity has also been received; e.g. Mendick received funding to bring research users together leading to an ESRC bid submitted in 2012 and Jones was funded to carry out a pilot study across education, medicine and law in preparation for an ESRC bid in 2013. Research Leave is competitive and target-driven e.g. Jones used her one term of leave to undertake extensive literature searches, carry out 21 interviews with British Asian headteachers and apply for the pump priming award above.

Research funding: Within Education this University infrastructure has supported significant funding awards for staff, and a total income over the REF cycle of £845,800 (together with additional research consultancy). This includes Rivers' ESRC 'LGBT Lives' Seminar Series and Mendick's ESRC CelebYouth Open Competition award. In particular, significant funding streams for five members of staff have led directly to publications submitted to the REF. Koshy and Casey's research on the development of potential in children whose talents lie submerged due to social deprivation has been achieved through sustained specially-designed, multifaceted intervention programmes on the Brunel campus. This Urban Scholars Programme attracted £1 million in research and consultancy funds during the REF period from charities, local authorities and the Moody's Foundation in New York. Rivers' research on the experiences of LGBT young people has been funded by: the Big Lottery (£500k, Co-I, with Aston, Greenwich, London South Bank and PACE); SportsScotland (£24k); and an ESRC Seminar Series (£17k, 2008-2010, Co-I with the University of Manchester). Mendick's research on the impact of popular culture on young people's identities has attracted £170k of funding from the ESRC for a 20-month project (2012-14) focusing on the role of celebrity in young people's classed and gendered aspirations (with Manchester Metropolitan). This builds on her earlier work on the role of TV drama in career choice (£40k, funded by the British Academy), on online representations of women within science, engineering and technology (£20k, funded by the UKRC) and on the impact of popular cultural images of mathematics on learners (£110k, funded by the ESRC and UKRC). Crook's research on 'Social Change and English: a study of three English departments, 1945-65' (2009-11) was funded by the Leverhulme Foundation (£225k, 2009-11, Co-I with IoE and King's), while his 'Historical Review of Community and Mutual Ownership' was funded by the Joseph Rowntree Foundation (£35k, 2009, Co-I with IoE). For Koshy and Rivers this funding has enabled the successful engagement in policy and practice outlined in their Impact Case Studies; for Mendick and Crook, it is supporting pathways to impact begun elsewhere and strengthened at Brunel. Further, a series of small grants have been secured from the former Training and Development Agency for Schools to research specific aspects of teacher education; for example, 'The Use of Hand-Held Voting Pods in the English Classroom' (Green, £5k) and 'Implementing the Recommendations of the Rose Review for Systematic Synthetic Phonics' (Jones and Ludhra, £9k).

Infrastructure and facilities: Brunel University's library was commended for its Outstanding Student Support at the 2012 *THE* Awards. In addition to a strong Academic Skills programme, it has a large collection comprised of 16,731 books and 1,377 journals (most available electronically). A dedicated Education librarian works closely with staff to ensure resources are available to support research, including by contributing to School Research Committee meetings as necessary. Since 2013 there has been a fund available for Gold Open Access publishing and a dedicated member of the library staff manages this, the Brunel repository and other Open Access developments.

As stated above, support is also provided for postgraduate students, who are allocated their own desk in a shared postgraduate office and other resources. The Graduate School acts as a central hub for research students, providing advice and support, weekly coffee mornings, monthly researcher teas, on-request inductions as well as a range of facilities that can be accessed 24 hours a day, 7 days a week. Doctoral research students are supported through a programme of personal and professional skills development through the Graduate School's Researcher

Development Programme. All provision within the Researcher Development Programme is mapped to the Researcher Development Framework. In the academic year 2011-12, Education PGR students were among over 1240 attendances recorded at 74 Graduate School workshops.

e. Collaboration or contribution to the discipline or research base

National and international collaborations: Collaborations are a key element of our research strategy in order to: share expertise across the sector; support ECRs and build capacity; enable us to develop interdisciplinary and more internationally-focused studies; and to extend the reach and significance of our research. All staff within Education have existing national, research collaborations. At ECR level, for example, Ineson's current work with Prof Rowland (UEA) on MKT as part of the Brunel ESRC Future Leaders Scheme and Ludhra's award of a BERA 'Meeting of Minds' Fellowship to work with Prof Phoenix (IoE) in 2012; at senior level, Crook with Drs Hardcastle (IoE) and Medway (King's) on English teaching and social change and Koshy with Prof Desforges (Exeter) on teaching primary mathematics and Prof Gorard (Durham) on Design Research methodology. Education staff also work closely with key Brunel interdisciplinary Centres, notably the Centre for Youth Work Studies (CYWS), collaborating on events and publications. Nicholls' involvement in EISI and the movement of the CYWS from Education and Sport to Health Sciences and Social Care in 2010 has created new inter-school collaborations.

Education has also developed several significant international collaborations. For example, Rivers collaborated on two US federal government expert panels. The first to develop a definition of bullying included in the Youth Risk Behavior Surveillance System and implemented across all 50 states. The second to establish the links between suicide ideation and bullying behaviour, hosted by the Centers for Disease Control and Prevention. These collaborations grew out of his research on bullying and victimisation with many colleagues including: Dr Espelage and Dr Robinson (Illinois) and Dr Poteat (Boston) Koshy also has strong links with international experts in the USA (e.g. Prof Renzulli, Prof Sheffield and Prof van Tassel-Baska) which fed into re-conceptualising ability, moving from labelling to cognitive challenge and learner engagement. The appointment of Ellis also brought a collaboration between the US (Prof Zeichner, Washington), China (Prof Yang, East China Normal) and Norway (Dr Trippestad, Bergen University College) as part of the British Academy-funded Pedagogies of Teacher Education for Urban Schools project.

Seminar series, conferences, research-based CPD, journal editorship: Rivers co-led an ESRC Seminar Series from 2008 to 2010 entitled 'LGBT lives: the biographies and lifecourse of sexual/gender dissidents' leading to three edited collections. EISI hosted two one-day national seminars on identities and education. These events attracted speakers and participants from across the UK. For example, a 2011 event (sponsored by the BERA Social Justice Special Interest Group, with over 40 participants) focused primarily on creating a supportive environment for postgraduate researchers and ECRs to present their work. The BACE Centre has organised seven national conferences in the UK for practitioners and academics in aspects of talent development, three of these led by international speakers. Education has also hosted a range of other research events, including a national one-day conference on 'Modern Girlhoods' (funded by the Gender and Education Association and the BSA's Youth Study Group and run in conjunction with colleagues from the CYWS) in February 2012 and leading to a special issue of *Sociological Research Online* in May 2013. Members of staff make significant contributions to the editorial work of journals. For example, Crook is co-editor of *History of Education*; Jones is associate editor of *Early Child Development and Care*; Mendick serves on the editorial board of *Gender and Education*, *International Journal of Gender, Science and Technology*, *Research in Mathematics Education* and Rivers (*Psychology of Sexualities Review*, *Psychology and Sexuality*, *International Journal of Adolescence and Youth*).

Contribution to professional associations, learned societies and disciplinary initiatives: These activities provide another important way of contributing to and benefiting from the wider education research communities. Crook is an executive member of the History of Education Association and Mendick was an executive member of the Gender and Education Association from 2009-13. Toplis served as an elected member of the Research Committee of the Association for Science Education from 2004-11. In 2010, Rivers was elected as a Fellow of the British Psychological Society, following his election in 2007 to the American Psychological Association (APA). Mendick, Rivers and Watts are members of the ESRC Peer Review College. These contributions have enabled

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them to support less-experienced colleagues in preparing bids for research funding.

Research collaborations with users, and how these have enriched the environment: As detailed in the Impact Statement, we work strategically and closely with teachers in all phases; actors in teacher education across schools and universities and at policy level (e.g. the National College for Teaching and Leadership) and young people and those who work with them (e.g. careers advisors and youth workers). These collaborations have enhanced our research environment by providing funding and pathways to impact and by maintaining the social relevance of our research.

Co-operation and collaborative arrangements for PGR training, including whether these have received formal recognition nationally or internationally: Brunel doctoral students are given opportunities to attend events organised regionally through the Graduate School's collaborations with other London Universities (e.g. UCL, King's) and through Vitae and the Vitae London Hub. This engagement with other universities has enriched their research.

Interdisciplinary research and mechanisms to support this: Brunel Education research is a genuinely interdisciplinary space, with sociological, psychological, historical, philosophical and linguistic tools deployed in the research of our small staff team. The structure of our Research Groups also supports interdisciplinarity with EISI and PPP research groups both having links with colleagues in other Schools (from Arts to Social Sciences and Engineering) and through CYWS and other interdisciplinary initiatives such as the Brunel Heritage Network. A recent AHRC award represents Education's first funding council support for interdisciplinary research with a focus on Cultural Value and growing out of a collaboration with Literary Studies (Birmingham), Psychology (Reading) and Education (Brunel - Ellis).