

Institution: University of Southampton
Unit of Assessment: 23 Education
<p>1. Unit context and structure, research and impact strategy</p> <p>1.1 Context and structure</p> <p>Southampton Education School (SEdS) focuses on research across a wide range of contexts and sectors, with the central aim of positively influencing policy and practice. It is a responsive and dynamic community of education researchers and professionals, strongly connected to the local community, as well as demonstrating significant national and international engagement and collaboration across 45 countries. SEdS work is permeated by an inclusive culture, which is encouraged by ways of working that respect diversity and ensure that all staff take an active part in decision-making. Since REF 2014, SEdS has generated over £2.6M in research income and has attracted nine strong researchers to new appointments to complement existing strengths.</p> <p>One of five schools in the Faculty of Social Sciences (FSS), SEdS was restructured into two interconnected institutes in 2014: the <i>Institute for Educational Effectiveness and Equity</i> (IE3), which is the umbrella structure for our three research centres (RCs), and the <i>Institute for Professional Practice in Education</i> (IPPE), focusing on enterprise, Initial Teacher Education and professional development, informed by our research. Colleagues work collaboratively across these two institutes to produce high-quality research, to impact significantly on thinking and practice in the field, and to make a real difference to wider society.</p> <p>SEdS comprises 23 (22.4 FTE) (11 female, 12 male) permanent research-active staff, (5 Professors, 9 Associate Professors, 7 Lecturers, 1 Principal Research Fellow and 1 UKRI Future Leaders Fellow), plus 3 post-doctoral research staff contracted to specific externally funded projects. During this REF period, 9 new Category A colleagues were appointed (4 female, 5 male). The age profile is balanced with 43% of staff <45 and 57% >45. 9% of Category A colleagues are BAME.</p> <p>Research is grouped thematically into three centres representing our major areas of expertise, with leadership provided in each by internationally recognised researchers: The Centre for Research in Inclusion (CRI) (led by <i>Nind</i>); the Leadership, Educational Effectiveness, and Policy (LEEP) research centre (led by <i>Kelly</i>); and the Maths, Science and Health Education (MSHE) research centre (co-led by <i>Grace</i> and <i>Bokhove</i>) (see Section 3). All staff have a primary affiliation with one RC but are welcome to (and do) attend meetings of the other RCs. Membership of the RCs is enriched by the engagement of post-graduate research (doctoral) students (PGRs). This creates a continuum of research experience from PGRs and Early Career Researchers (ECRs) to senior Professors. The RCs are dynamic, developmental and inclusive spaces where staff and students share research ideas and activities.</p> <p>SEdS places considerable emphasis on developing a supportive research culture. RCs usually meet monthly to discuss strategic objectives related to publications, research bidding, impact, and PGR progress. Additionally, other less formal avenues for facilitating discussions have been created, such as 'Research Chats'. Held every three weeks, 'Research Chats' are open to all SEdS staff, providing an inclusive context where research-related matters and their impact are discussed. Individual research conversations are also held annually with the Director of Research (DoR), focusing on how the research agendas of individuals can be further developed, complementing discussions between colleagues and their RC Heads. Research workshops are organised each semester, focusing on specific themes. SEdS staff also contribute to the seminar series to share their research more widely across the University of</p>

Southampton (UoS) and region, alongside national and international invited presenters. These well-attended events are advertised across FSS and to all post graduate students in the School.

SEdS is internationally recognised and respected, connecting with other international centres for educational research in (for example) USA, Singapore, Greece, Finland, Ireland, Hong Kong, Belgium, Spain, Denmark, Portugal, Mexico, Japan, and New Zealand. Additionally, there is an extensive range of enterprise/professional development initiatives offered by IPPE (led by the Director of Enterprise) that connects with our research and demonstrates a breadth of engagement with the field. One such initiative is our Mathematics and Science Learning Centre (MSLC), founded in 2004 as part of the Department for Education's (DfE) funded Science Learning Centre programme, but subsequently widened as a stand-alone laboratory and conference facility to build on SEdS research strengths in Maths and Science. MSLC facilitates a number of national professional development programmes, including *Science Learning Networks* (STEM Learning), *Computing at School Regional Centre* (British Computer Society) and national programmes run in partnership with the Institute of Physics. MSLC provides over 1,000 CPD days annually for teachers and technicians.

1.2 Research strategy

Review of objectives for the assessment period: A major focus has been on ensuring that colleagues are supported in realising their potential, by working in teams that can stimulate their thinking and enhance the possibilities of seeing their plans materialise. In 2014, we planned to develop four research centres of excellence, while maintaining our focus on a limited number of (optimally-staffed) areas where we could be world-leading. Following a Faculty-led strategic review of the SEdS in 2016, recommendations were made to reduce the number of research centres to three, in order to strengthen areas where we demonstrate research excellence and influence - locally, nationally and internationally. These are also areas of national and international need and opportunity. This resulted in the current centres: Maths, Science, and Health Education (MSHE); Leadership, Educational Effectiveness and Policy (LEEP) (including research in Higher Education); and Inclusion (CRI).

Our three RCs serve as the focus of our strategic recruitment and development of staff and PGRs. In particular, we have implemented a clear strategy to align the research interests of PhD applicants much more strongly with the expertise of our RCs, thereby leveraging more prestigious internal and external funding for studentships. We have had considerable success (Section 2.2). As planned, we have targeted prestigious academic and third-sector funding within an increasingly challenging funding climate. We have demonstrated resilience and diversity in this endeavour, successfully securing funding from a wide range of sources (Section 3.1).

Over the next five years, our overarching aim is to continue supporting colleagues individually and collectively in developing their research agendas, thereby strengthening our research culture. Our research strategy is to:

- (i) maintain our focus on three research themes aligned with our RCs, emphasising public engagement activities, building pathways to impact, and supporting even more proactive roles for PGRs;
- (ii) make appointments to our RCs to address reduced capacity through staff departures (reflecting promotions for many), and continue to build our strengths in these areas;
- (iii) play leading roles in interdisciplinary research within the university and beyond, especially in the areas of adolescent mental health and well-being; the teaching and application of school mathematics; social policy-relevant areas related to disability and inclusion, and school

effectiveness; and connecting with the strategically important pedagogical research programme within the National Centre for Research Methods (NCRM);

(iv) expand our research collaborations locally, nationally and internationally;

(v) develop stronger pipelines for career development through targeting opportunities for funded research fellowships and studentships, aligned with our RCs, in order to further develop high-quality PGR and ECR representation within SEdS; and

(vi) develop stronger pathways to securing the interest and development of UG and PGT students in research (e.g. via summer research internships and exchanges; designing student dissertation projects aligned with RCs).

1.3 Impact Strategy

SEdS places particular emphasis on research that makes a difference, relevant to the field of education locally, nationally and internationally. Many studies start from the needs in the field, and often research designs are developed through collaborations between researchers and practitioners. An Impact Champion has lead responsibility for encouraging an impactful approach to research and identifying and supporting specific Impact Case Studies (ICS). The Impact Champion secured funding from the ESRC Impact Acceleration Account (IAA) which was used to support a range of activities, including a workshop on *'Enhancing the impact of research beyond the REF'*, led by Professor Judy Sebba (REF2014 Impact assessor).

SEdS has further benefitted from the ESRC IAA via support for *Nind's* 'Southampton Platform for Inclusive Research and Ideas Together' (SPIRIT), a co-constructed partnership between researchers across the university and local organisations and individuals interested in working collaboratively and inclusively around researching disability issues. SPIRIT has subsequently secured £330K ESRC funding for a project addressing social policy challenges relating to social care. In addition, *Grace* was awarded £7.5K to support the extension of *LifeLab* to Oman; *Bokhove* secured £21K to enable the *Southampton Mathematics Project* archive to be updated, digitised and disseminated to schools across the UK; *Parsons* secured £25K to extend her early years' digital stories methodology for supporting autistic children's transitions between nursery and primary schools; and *Nind* was awarded £15K to expand her work with learning-disabled adults to co-design activities and resources for enhanced accessibility and impact.

Furthermore, via the university's Public Engagement with Research unit (PERu) (Section 2.9, REF5a), SEdS has benefitted from funding to support public engagement activities (£8K) and from seminars promoting different approaches to public engagement, which inform and support our overall approach to research, namely to enhance policy and practice for wider societal impact. For example, *Early LifeLab* empowers children to lead the change in their own health and received funding from PERu to collaborate with 'ukactive KIDS', Winchester Science Centre and Caroline Jenkins Photography to create a vibrant and inspiring photographic exhibition of young children engaged in 'active play'. The Autism Community Research Network @ Southampton (ACoRNS) secured seed-funding to co-construct a research agenda with local schools and has since won ESRC funded research studentships from the South Coast Doctoral Training Partnership (DTP), and external funding from the Froebel Trust and the ESRC's Festival of Social Science. ACoRNS and *LifeLab* are showcased in two of our ICS.

Meanwhile, all colleagues are alert to opportunities for **developing stronger pathways to impact**. This often involves collaboration with other organisations, bringing practitioners and researchers together. Senior colleagues with established links introduce junior colleagues to relevant stakeholders to facilitate and promote sustainability of collaborations. For example, *Messiou* introduced *Peleg* to schools in a multi-academy trust with a view to developing new

collaborations around his research expertise (science education and Escape Rooms). In this way, we **develop sustainable pathways to impact** through inter- and multi-disciplinary work, as well as a longstanding commitment to wider collaboration with key stakeholders from our local, national and international communities.

Our REF ICS show how we develop pathways to impact and the success of our impact strategy. For example, MSHE plays a leading role in *LifeLab*, which is an interdisciplinary programme run in collaboration with the Faculty of Medicine, comprising a programme of work that encompasses teacher continuing professional development, pre- and post-lessons delivered in schools and a hands-on visit to the state-of-the-art educational facility located in University Hospital Southampton. *LifeLab* ICS #23-03 is also an educational intervention for adolescents, facilitating learning about health through the science curriculum, which has demonstrated evidence of impact on students' theoretical health literacy. Funding from a range of sources has been secured and sustained for over ten years, including £550K+ in external funding since 2014 alone. Colleagues have collaborated with a range of organisations in order to ensure impact, both nationally and internationally.

The *Inclusion* ICS #23-02 demonstrates the power of knowledge co-construction in research by working from the outset with community stakeholders, including schools, disabled people, third sector and People First organisations, to design, develop and implement practice- and policy-relevant research.

The *Maths Education* ICS#23-01 illustrates the strength of our research legacy over many years through the *Southampton Mathematics Project* archive materials, and how we are connecting with new technologies and with business, such as Macmillan (for the World Class Maths MOOCs), to build new pathways to impact with vital stakeholders, especially schools and teachers.

1.4 Commitment to interdisciplinarity

We are strongly committed to interdisciplinarity as evidenced above and in Section 4 below, in relation to our many collaborations across the university, nationally and internationally. For example, *Azola* is involved in an international interdisciplinary project '*Spaces of School Belonging*' with colleagues from Mexico's Centre for Research and Studies in Social Anthropology (CIESAS) and the Institute of Social Research at the National Autonomous University of Mexico (UNAM). SEdS supports interdisciplinary research through its work on research methods capacity-building. *Nind*, co-director of the ESRC NCRM <https://www.ncrm.ac.uk/>, has led a major research programme on the teaching and learning of social science research methods across social science disciplines. This has highlighted the importance and distinctiveness of research methods pedagogy and led to the ESRC's call for bids for a Research Methods Training Centre to include a pedagogic research and development focus in building capacity and capability (now being led by *Nind*). Colleagues are also engaged with the university Institute for Life Sciences (IfLS) through the Mental Health and Adolescent Health themes (*Hall; Woods-Townsend*) and *Kelly* is an elected Fellow of the Institute of Physics and of the Institute of Mathematics & its Applications, where he has served as a member of education steering committees.

1.5 Open Research

All colleagues follow a policy of open access publishing and archiving in line with university policy (Section 2.4 REF5a). SEdS via *Nind*, is part of the wider NCRM effort to enhance access to data, sources, training and resources and in the development of local and national strategies, including impacting on the work of the ONS and Ipsos MORI. For example, *Nind's* data have

been archived with the UK Data Archive, and there is strong open access to applications from the data and other work via the RC's web portal; papers based on data collated via Freedom of Information requests have been supported by FSS funding to be published as gold open access in the *British Educational Research Journal* (Kelly; Parsons); detailed summaries of the data from Parsons *et al*, as well as other completed projects, are also freely available to download on the ACoRNS website; and all outputs produced as part of European Union (EU) funded projects are freely available to download from relevant websites (Brockmann, Messiou). Bokhove is the university lead for the UK reproducibility network (UKRN), and supports a thriving PGR-led discussion community on reproducible research issues.

1.6 Research Integrity

All SEdS researchers adhere to research integrity principles as outlined in the *Concordat for Research Integrity* and following the university processes (Section 2.8 REF5a). Five colleagues serve as reviewers within FSS and contribute strongly to research integrity through ethical review on the university online ethics approval system (*ERGOII*). SEdS has stipulated that these important research administration roles should be undertaken for a minimum of three years in order to build and sustain expertise and demonstrate commitment. Expertise in this area is also recognised nationally and internationally: Parsons is a member of the national Research Ethics Committee for the £1M research programme on Disability Research on Independent Living & Learning (DRILL) funded by the Big Lottery Fund, and has published invited sections on 'informed consent' and 'assent' for the *SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (2018).

2. People

2.1 Staffing strategy and staff development

Category A colleagues include 11 female and 12 male staff: 10 staff are from countries outside the UK and have experience working in other countries including Israel, Malaysia, Singapore and a range of European countries (Cyprus, Germany, Greece, Ireland, Holland) which fosters a rich and diverse international context within SEdS.

SEdS recognises the importance of having a clear, well-established, and robust set of processes for supporting staff development. Our RCs are the main hubs for mentoring and formulating research ideas and plans, and for inducting new staff into the vibrant research culture of SEdS. All staff are members of one RC. Newly appointed colleagues, including post-doctoral researchers, join one of the three RCs upon arrival, where members meet regularly to discuss research plans and ideas. The RCs provide reflexive, forward-looking agendas for research planning, writing, and engagement, as well as constructive feedback on papers, bids and research development.

Senior colleagues undertake line management and appraisal to ensure that objectives and expectations are shared and work is distributed fairly and consistently between colleagues. All appraisers undertake mandatory appraisal training, including attention to the importance of equality, diversity and inclusion (EDI) and unconscious bias (Section 3.8 REF5a). Additionally, colleagues are supported to attend career development opportunities offered by the university, such as the Leadership Circles programme, which enables senior leaders to share skills and experiences.

Colleagues are encouraged to attend promotion 'roadshows' to understand the criteria for promotion to each level on each pathway (research-focused or education/enterprise focused or balanced) (Section 3.1 REF5a). These criteria form the basis of our appraisal and objective-setting guidance, thus embedding promotion discussions within the appraisal process.

Applications for promotion are formatively reviewed by the Probation, Promotion and Sabbatical Leave (PPSL) committee before discussion at Faculty-level, and successful candidates for promotion to Associate Professor or Professor are invited for interview and external references taken up. SEdS has been very successful in supporting colleagues' careers. There have been ten promotions (balanced and research-contracts) during the REF period: four promoted to Chairs at Level 7 (three females: *Bhopal*, *Parsons*, *Messiou*; and one male: *Grace*); four to Level 6 Associate Professor/Principal Research Fellow (3 males: *Bokhove*, *Tomlinson*, *Downey*; and one female: *Woods-Townsend*); two female colleagues to Lecturer/Senior Research Fellow at Level 5 (*Kaparou*, *Lewthwaite*).

All Category A staff are on permanent contracts and in line with the principles of the *Concordat to Support the Career Development of Researchers* (Section 3.5 REF5a), we have provided opportunities for staff on fixed-term research-only contracts to extend their contracts or apply for permanent posts. We have a policy of including fixed-term research staff on bids as named researchers or co-investigators, and to apply for Fellowships to create longer-term funded posts. External validation of the quality of SEdS's environment and ability to attract excellent staff is evidenced through *Lewthwaite* being awarded the university's first UK Research and Innovation (UKRI) Future Leaders Fellowship.

SEdS has also invested in supporting colleagues who were previously on research contracts to gain full-time, permanent balanced pathway posts during the REF period (*Azaola*, *Rietdijk*), thereby demonstrating a strong commitment to career stability and progression. Many senior colleagues have moved to prestigious roles at other institutions (e.g. *Fan* to a Distinguished Professor and Director for the Asian Centre for Mathematics Education at East China Normal University; *Muijs* to be Head of Research at OfSTED; *Macfarlane* to be Head of the School of Education at the University of Bristol; *Reynolds* to be Head of School of Education, University of Swansea; *Bhopal* to a Professorial Research Fellow at the University of Birmingham; *Evans* to be Pro Vice Chancellor at Griffith University in Australia). *Fan*, *Evans* and *Muijs* are all Visiting Professors in SEdS and join retired professors *Grenfell*, *Lumby* and *Weare* in continuing to support the School in its research activities. In the context of sector-wide pressures on recruitment and staffing, the university has implemented close scrutiny of new posts and disinvested in some areas since 2016. Within this challenging context, SEdS has been supported to invest in key strategic appointments at Associate Professor level, appointing *Hall* from Exeter and *Strogilos* from Nanyang Technological University in Singapore, and at lecturer level, *Kaparou* from University of Nottingham Malaysia Campus, *Peleg* from University of Haifa in Israel and *Pensiero* from UCL.

Staff development more widely is supported by an annual individual allowance of £1,300 for presenting at conferences and/or attending other development opportunities. Applications to the conference and staff development fund are made to the DoR, detailing the nature of the activity and how it supports the professional development of the individual's research and the strategic priorities of SEdS. Colleagues share the content or outcomes of their attendance with their peers within team or RC meetings or through seminars. Additionally, for equity purposes, every new ECR is entitled to £1,000 start-up funding per annum for the first three years of employment, to help with setting up networks and facilitating small-scale research activities. Finally, workshops with specific themes, such as "Developing our research agendas" and "Enhancing the quality of our research applications" are organised to enhance SEdS research activities, in addition to workshops offered at Faculty-level and across the University.

2.2 Research students

The recruitment of PGRs is a key area of strength in SEdS. There is a rigorous recruitment process, including mandatory training for staff involved to raise awareness of all aspects of equality and diversity; review by at least two staff members; and an interview for applicants who score highly.

We have targeted ESRC and university-funded studentships and have been successful in recruiting students through project-led studentships and supporting promising students in their individual applications. We have also implemented a strategic, managed reduction in our PGR cohort from 125 to 73 in order to prioritise higher-quality applications that align more strongly with our expertise within the three RCs.

The success of this strategy is evidenced in the number of scholarships that have been awarded in this REF period: 12 ESRC studentships and 13 Vice-Chancellor/Presidential scholarships. Many students are also supported by their employers (e.g. University of Guadalajara, University of Portsmouth, Bournemouth University, and Southampton Solent University) or governments (e.g. Oman, Kuwait, Saudi Arabia, Malaysia, Kazakhstan and Chile). We have also expanded and strengthened our routes through to Doctoral qualification by introducing a four-year Integrated PhD programme. This is designed to develop students' skills through a comprehensive taught programme in their first year, followed by progress into the research phase upon successful completion of the taught modules.

All our PGR students have access to a comprehensive research training programme. This includes a range of foundational and advanced Research Methods modules provided by FSS. SEdS also runs a programme of half-day workshops on research methods specific to the field of education, and there is an extensive programme of training courses and workshops on academic skills (e.g. on particular software, data handling, and communication skills) available through the university's Doctoral College and the university library (Section 3.7 REF5a). All PGRs have access to funding of £750 p.a. (pro-rated for part-time students) to cover bespoke training, conference attendance, expenses incurred through fieldwork or other items/material to support their research.

The university's Careers & Employability Service (Section 3.7 REF5a) and the Doctoral College also provide support on career development and opportunities. Skills development is addressed primarily through an Academic Needs Analysis (ANA), which forms an integral element in each of the progression reviews (see below). The ANA ensures that PGRs' skills needs are identified as they arise, as well as by careful monitoring of progression review reports. PGRs are encouraged by their supervisors to make full use of the available training. Training on Equality, Diversity & Inclusion, Health & Safety, Ethics and Research Data Management are now compulsory for all staff and students.

SEdS has robust systems in place to support and monitor progress, as evidenced by our high level of successful doctoral completions. Since 2014, we have supported over 120 successful completions across our doctoral programmes (approximately five students per staff FTE). Although already demonstrating a strong record, in 2016/17, the university introduced a more structured monitoring of progression through formal review of key milestones in order to ensure smooth progression, consistency across all Schools/Departments and timely completions. PGRs are now required to provide evidence of successful progression at specified points in their first, second and third years (of full-time study; correspondingly for part-timers), which are assessed through a rigorous process according to a set of criteria, with an oral examination at the first and second progression reviews. This new structure has enabled the identification of issues surrounding progress early on, which can then be addressed

appropriately. SEdS provides comprehensive support, including tailored workshops to prepare PGRs for progression reviews and for their final viva voce examinations.

The effectiveness of SEdS support is reflected in the strong record of PGR progression. In 2017/18, 100% of PGRs passed their first progression review (84% at the first attempt and 16% at the second attempt) and 100% of PGRs passed their second progression review at the first attempt. Upon completion, many PGRs embark on careers in academia, or in policy and research settings.

Number of full person equivalent completions of PhDs and EdDs in this REF period

	13-14	14-15	15-16	16-17	17-18	18-19	19-20	Total
Education PhD	16.00	10.00	7.10	15.80	16.70	19.60	12.65	97.85
Education EdD	7.00	4.60	4.00	9.00	3.00	0	0	27.60
Totals	23.00	14.60	11.10	24.80	19.70	19.60	12.65	125.45

PGR students are vital for the vibrancy, quality, and sustainability of SEdS research culture.

There is a lively and highly diverse PGR community where students bring a wealth of different experiences. They come from a range of countries (31 of our 73 students are from overseas) and professional backgrounds (including 25 university lecturers from various countries, 5 headteachers, as well as those holding senior positions in organisations, including local authorities and national charities).

All PGRs are members of one RC, usually that of their main supervisor. RCs are an important way of engaging PGRs in the wider research community and they regularly present their work at meetings alongside staff. PGRs are also encouraged to attend regular SEdS, FSS, and university seminars and workshops. PGRs have been very active organising both social and academic events, including the Student Conference which is held in the Education School annually. PGRs also participate in a range of other activities, such as the Festival of Doctoral Research organised by the Doctoral College, where they have produced prize-winning research posters at faculty and university levels. Our PGRs have also been highly successful in the Three Minute Thesis competition.

2.3 Equality, diversity and inclusion

The principles of inclusion and equality permeate the SEdS ethos and every aspect of its work. For example:

Sabbatical leave arrangements: All research-active staff are eligible to apply for a one semester sabbatical after every four years of service through submitting a proposal to the PPSL committee. Applications are submitted a year in advance of the planned leave to provide sufficient time for formative feedback on the initial plan and ensuring that cover for teaching and administrative duties is available and arranged. All applications are expected to adhere to strategic as well as individual appraisal objectives, and be discussed with, and supported by, line managers. Fifteen staff had a combined total of 22 sabbaticals since 2014, i.e. 88% of eligible staff were granted and took sabbatical during the REF period. The outcomes of the sabbatical are reviewed by PPSL and constructive feedback is offered to colleagues.

Well-being of staff and students: The well-being of staff and students is of paramount importance to SEdS. Ongoing confidential discussions between line managers and colleagues, and staff and PGRs, focus on the wellbeing of individuals. A dedicated quiet space has been created for staff and PGRs. The room can be used for relaxation, reflection, prayer or for mindfulness sessions.

Support for diverse needs: Support is provided for colleagues who have caring responsibilities, ill-health, or disabilities (such as dyslexia) by making adjustments to accommodate their needs.

Return from periods of leave: Staff and students who return from periods of parental caring and similar leaves are supported on return by receiving substantial ongoing support from their line managers/supervisors and other designated colleagues with whom they work in relevant teams.

Construction of REF submission: EDI issues have been carefully considered during the preparation of this REF submission. All staff have had opportunities to suggest relevant information for the Environment Template. 46% of our selected outputs are attributed to current female colleagues.

Gender equity: As discussed earlier, there is balanced gender representation in SEdS. In all appointment panels, there is an equal representation of male and female colleagues. Gender equity has been a particular focus of SEdS during the REF period. In addition, female staff are supported to attend career development opportunities offered by the university, including the Springboard Women's Development Programme, targeted at female staff at all career levels.

We acknowledge that a focus on BAME and disability is needed for the future. SEdS has set up an EDI Committee in 2020 to focus on these areas of recruitment.

3. Income, infrastructure and facilities

3.1 Research clusters for investment and impact

Our strategic investment in research, as well as our structure for providing a strong and responsive research culture, is focused on our three distinctive RCs each of which demonstrates international excellence and impact. Through our RCs, we showcase sustained and repeated funding success with highly competitive funders. Since 2014, SEdS won 61 awards totalling £3.02M and generated research income of £2.68M from a wide range of funders, including Research Councils, the European Commission, charitable trusts, third sector partners, and government departments, agencies and authorities, demonstrating flexibility, quality and reach.

CRI is committed to understanding and supporting the inclusion of children, adults, families and practitioners in education. This strongly shared ethos is critical to CRI's identity and work. CRI members (40 including Associate Members, PGRs and Teaching Fellows) primarily adopt and develop inclusive, participatory, practitioner-based or emancipatory methodologies across four core areas: (i) inclusive education; (ii) inclusive practices, pedagogies and technologies; (iii) diversity and student voice; and (iv) marginalisation. They work in collaboration with local community partners through *Parsons' ACoRNS* and *Nind's*, and both locally and internationally through *Messiou's* 'Reaching the 'hard to reach': inclusive responses to diversity through child-teacher dialogue' study (ICS #23-02), and internationally through *Azola's* work with schools in Mexico.

The vitality of CRI is further ensured by strong connections with teacher educators and researchers in psychology, social geography, health and medicine who are associate members and participate regularly in CRI seminars and events e.g. the Writing Collaboratively in Coproduction workshop. The CRI newsletter is distributed (1,000 copies) across these networks and into schools, colleges and community groups. CRI has hosted international visitors from Australia, New Zealand, Spain, Norway, Singapore and USA. CRI is supporting its sustainability through securing significant grants from ESRC (totalling £337K) and EU (totalling €405K) and

funds for innovative work from diverse organisations including Froebel Trust, Society for Research in Higher Education, Higher Education Academy, Autism Hampshire, Gatsby Foundation, Santander, and the British Council, and by growing a community of inclusion-focused South Coast DTP and other funded doctoral researchers.

LEEP has 38 full-time SEdS academic staff and PGRs in addition to affiliates from local schools and from Southampton City Council. During the REF period, several senior professors have moved to other academic positions (e.g. *Muijs* to Ofsted, *Enders* to Bath, *Macfarlane* to Bristol, and *Reynolds* to Swansea) and the centre is rebuilding deliberately with ambitious early-career staff (e.g. *Kaparou*; *Hall*; *Pensiero*). The centre employs a range of quantitative and qualitative methodological approaches, with an emphasis on mixed- and multi-method research in several policy-relevant areas: (i) effectiveness and equity; (ii) leadership and policy; (iii) higher education (including teacher education), the economy and employment; and (iv) affective, social, emotional and well-being outcomes. LEEP has particular expertise in analysing large datasets, developing innovative modelling techniques and advanced Social Network Analysis techniques. Research projects have been funded by bodies such as Ambition School Leadership (*Downey*, *Kaparou*, *Kelly*), Oxford University Press (*Hall*, *Kelly*, *Galbraith*), UKRI (*Tomlinson*) and local/national government departments and agencies.

In terms of academic leadership, *Kelly* has appeared before the Education Select Committee, and is advisor to the Irish and Hong Kong governments; *Kelly* has also advised the Cabinet Office (No.10 Open Innovation Team) and RMA Sandhurst and the Army Command Group on recruitment and leadership. *Muijs* (now Head of Research at Ofsted) has advised the Flanders and Chile governments; *Reynolds* (while on staff at SEdS) advised the Wales and Malaysia governments; *Hall* has submitted evidence to the Science and Technology Select Committee; PGR research is also wide ranging, including studies on school effectiveness in Uganda, Malaysia, Thailand, England, China and Saudi Arabia, gender and leadership in Oman, teacher effects on literacy acquisition, the impact of marketisation in higher education and longitudinal effects of change in socioeconomic factors on student academic outcomes.

MSHE is committed to building on its internationally excellent and world-leading reputation for research in the areas of Science, Technology, Engineering and Mathematics (STEM). The centre works with learners, teachers, schools, and regional, national and international organisations, to research ways of advancing learning and teaching in STEM. MSHE focuses specifically on four themes: (i) STEM engagement including socio-scientific issues and the relationship between science and health literacy; (ii) designing and evaluating curriculum resources and professional development for classroom teaching and learning; (iii) exploring students' conceptual understanding of early mathematics, reasoning and computational thinking; and (iv) the use of digital technologies as pedagogical tools.

Funded research projects include: *LifeLab* (over £550K from various funders including BUPA and the British Heart Foundation) led by *Grace*; the 'World Class Maths' MOOCs (MacMillan, £60K) involving *Bokhove*, *Voutsina* and *Jones*; the British Academy (£30K) for *Bokhove's* enGasia project and ESRC IAA for 'Towards a School Mathematics Project 2.0' (£21K), *Peleg's* work funded by Science Foundation Ireland (£20K) and *Voutsina's* Leverhulme Grant (£107K). The work of MSHE is characterised by its multi-disciplinarity, with members collaborating with health science, mathematics, psychology, and web science. *Grace* leads the science research, including, with *Woods-Townsend*, the influential *LifeLab* project (ICS #23-03). MSHE members collaborate with practitioners in schools, work with organisations including the National Centre for Excellence in the Teaching of Mathematics (NCETM), and have influenced policy in DfE

working groups, for example *Fan* served on the DfE's national working group on teachers' planning and resources review, where his research informed policy (ICS #23-01).

3.2 Infrastructure and facilities

Staff are supported in research bidding, finance and project management through FSS and university-level Professional Services. The Finance Research Hub (FRH) is a centralised resource comprising experienced colleagues who provide pre-bidding costing support. FRH is closely connected with colleagues in Research and Innovation Services facilitate academic collaborations, identify funding opportunities, including research fellowships, manage major grant submissions, provide grant management expertise and support to successful projects, and explore ways to maximise research impact (Section 1.5 REF5a). Specialist research engagement librarians support open access repositories and publishing requirements, as well as provide guidance and infrastructure for data management plans and activities. The university's iSolutions team provide centrally managed support for all IT services and equipment, including secure data storage and access to research tools, such as the *iSurvey* software and *SafeSend* file sharing service.

SEdS has also invested substantially in facilities to support the use of digital video technology in research and dissemination. A studio was established in 2010 and was supported throughout the REF period via dedicated staffing to provide professional video editing facilities and expertise, as well as state-of-the-art digital equipment, lighting and cameras. The studio has been vital in translating our research into practice and teaching through, for example, the development of MSHE's 'World Class Maths' MOOCs (ICS#23-01).

SEdS's YouTube Channel currently hosts over 500 Videos, the majority of which are publicly available. SEdS's Research Methods series is accessed around the world and has been adopted by Universities in New Zealand, United States and the UK, and are some of the most highly viewed videos on this topic (approximately 882,000 total views). SEdS's expertise and facilities have also contributed to the NCRM developing online research methods training videos, which now cover some 16 topics focusing on advanced research methods from Structural Equation Modelling to Participatory Methods.

SEdS's use of facilities also reflects our commitment to equality and diversity, e.g. through maintaining a dedicated quiet room, mentioned above (Section 2.3). The allocation of space for our PGRs is sensitive to stage of study and individual needs, providing smaller, shared rooms for those at the final stages of writing-up, or individual rooms based on a person's needs and reasonable adjustments. Student study areas have been refurbished to include new desks and state-of-the-art IT equipment, and a recently refurbished Social Space provides a mix of café style accommodation, digital charge points and screen casting facilities to facilitate lunchtime informal seminars and salon deliberations/workshops. Learning design has informed our use of space and the introduction of digital noticeboards that are media-rich and regularly updated.

SEdS was also instrumental in the development of a strategic School-University Partnership Officer (SUPO) role to support public engagement and the development of pathways to impact for research. The role was created as a result of the UKRI-funded School-University Partnership Initiative (SUPI) project, Talk to US!

(<https://www.southampton.ac.uk/schools-colleges/talk-2-us/talk2us.page>), led by *Grace* with *Kelly*. The strategic value of continuing the post beyond the original funding was recognised by the university's three key stakeholders in schools' engagement: SEdS, Outreach and Widening Participation, and PERu. The role ensures connectivity between schools and the university. Key impacts include: the maintenance of the 'Building School-University Partnerships' guidebook, an

internationally-recognised and utilised resource; a suite of training on public engagement for researchers available to the sector; and the development of a powerful online tool *Activity Mapper* <https://www.efolio.soton.ac.uk/blog/activitymapper/> for mapping engagement and outreach activities across the institution (Section 2.9 REF5a).

Tomlinson has collaborated with colleagues in the Careers and Employability Service and in the Psychology department, which led to the institutional framework of the Graduate Capital model, and led to the creation and application of the Career Readiness Test which is being used campus-wide to enhance student employability and which made an important contribution to the university's Silver TEF outcome. There has been significant international interest in this approach from Australia, Finland, Italy and the USA.

In addition, colleagues have been successful in winning internal funding for pump-priming and collaborative research, as well as for generating impact, across a number of different schemes including the Web Science Stimulus Fund, Strategic Interdisciplinary Research Fund, ESRC IAA and PERu. Many of these opportunities include targeted support for newly appointed staff and/or ECRs.

4. Collaboration and contribution to the research base, economy and society

Colleagues in SEdS demonstrate wide influence in their contributions to, and recognition by, the research community, contributing nationally and internationally to their fields across all career stages in line with SEdS's strategy to influence locally, nationally and internationally.

4.1 Research collaborations, networks and partnerships

SEdS colleagues play leading roles in major multi-national research partnerships through projects, including *Brockmann's* involvement in EU/Erasmus+: European cooperative framework for Dual Learning in HE (*Euroduale*), involving 13 organisations in six different EU Member States; *Grace's* PARRISE (Promoting Attainment of Responsible Research & Innovation in Science Education) an FP7-funded project on innovative methods in science education involving collaborations with 17 other universities and institutions across 14 countries in Europe; *Bokhove's* involvement in Research in Teacher Education (RiTE) Erasmus+ project involving four countries, focusing on promoting and facilitating student teachers to create an evidence-informed teaching practice in STEM education; *Messiou's* Erasmus+ project involving 30 schools and five HEIs across five European countries – the study's approach is now expanded to schools in California (in collaboration with Stanford University); and *Parsons'* involvement in the €3.4M H2020 ProsocialLearn innovation project which involves 11 institutions and SMEs across five different countries.

In addition, colleagues lead external seminars and conferences to promote the dissemination of, and collaboration in research, which are vital in building and sustaining research networks and partnerships locally, nationally and internationally. For example, colleagues from MSHE (*Bokhove, Voutsina, Jones, with Fan*) hosted the first International Conference on Mathematics Textbook Research and Development at the university in 2014, attended by over 170 delegates. Funded by the British Academy, *Azaola* led a major seminar in Mexico in 2018 on 'Enhancing reflective learning and school collaboration in rural Mexico'. *Nind* has led dissemination and training events for the NCRM, including annual summer/autumn schools targeted at ECRs across the UK, and has led advisory/training work for government researchers in disability in England and Ireland. *Parsons* was PI for an ESRC-funded seminar series (2014-16) on 'Innovative technologies for autism: critical reflections on digital bubbles', attended by over 240 stakeholders including autistic individuals and families, professionals and researchers. *Parsons*

and *Messiou* have both secured funding from the ESRC as part of the annual Festival of Social Science, to run events connected to their collaborative work with local schools.

SEdS recognises the importance of establishing research networks as a channel for sharing knowledge and learning, exploring research opportunities, creating projects and promoting wider collaborations across the academic community. *Kaparou* convenes the network on methodologies in educational effectiveness and improvement (MoREI) for the International Congress for School Effectiveness and Improvement (ICSEI). *Christodoulou* led the first European Training School on 'Pedagogical Approaches on Education for Environmental Citizenship' for the EU's Cooperation in Science and Technology (COST) Network for Environmental Citizenship in Portugal in 2018. *Galbraith* was a founding member of the European Literacy Network, also funded by COST, from 2014 to 2019, with an annual budget of approximately €170,000. The network has 517 members drawn from 35 countries across Europe and 16 other countries worldwide. The network has secured independent funding from its activities, which have enabled it to continue beyond the period of COST funding, hosting triennial Literacy Summits, supporting a journal for disseminating best practice in the teaching of literacy, and maintaining funding for research exchanges and training schools.

Evans secured over £550K funding from HEFCE/Office for Students to pilot and evaluate innovative pedagogies for assessment and feedback, impacting over 5000 students and involving over 100 academic staff. The core assessment framework developed by the project has been used in the UK and internationally across over 160 different HEIs worldwide.

4.2 Forming relationships with key research users, beneficiaries or audiences, engaging with diverse communities and publics

SEdS recognises that the key to successful research collaborations lies in developing inclusive and sustainable relationships with key stakeholders within educational settings. Each of our RCs engages with key research users such as schools, parents, policy-makers and various marginalised groups, such as disabled people and Travellers. For example, research carried out in CRI is distinctive in actively engaging participants in the research process. Similarly, research in MSHE has engaged schools and young people in research through *LifeLab*, whereas LEEP research has also engaged with policy-makers and practitioners in schools.

4.3 Wider contributions to the economy and society

Colleagues serve as formal members of external committees for government and other organisations: *Woods-Townsend* is a member of the ukactive KIDS council; *Downey* is a member of two national advisory groups for the DfE on School Performance Measures, and Reception Baseline Assessment; *Kelly* is an advisor to the Parliamentary Committee on school governance, and a member of the Advisory Board of the Welsh Big Research Centre which focuses on enquiry based learning; *Jones* is a member of the UK Advisory Group of Cambridge Mathematics; *Christodoulou* serves on the International Committee of the National Association for Research in Science Teaching, and the Research Group Committee of the Association for Science Education; and *Hall* was appointed a member of Ofsted's new Early Years Pedagogy and Practice Forum.

Grace (with others) led the Evidence Review Group for the 2018 Education Endowment Foundation (EEF) Guidance Report on Improving Secondary Science, which has been reported on in the TES and is now being followed-up by the Association of Science Education. *Grace* was a subject advisor for the DfE's Carter Review of Initial Teacher Training in 2014, has contributed to the DfE's Biology curriculum and assessment in 2014 and 2016 and was a panel member for the World Universities Network Public Health Education Group.

Bokhove and *Muijs* led the EEF review on metacognition and self-regulated learning literature. The report was sent to 20,000 schools and the project webpage has been viewed by over 50,000 (unique) users with more than 4,000 report downloads. *Bokhove* and *Muijs* also undertook secondary analyses of postgraduate student surveys for Advance HE. *Voutsina's* research formed part of the consultation process for the development of the new National Primary Curriculum for mathematics in England.

Parsons is an invited independent member of the research ethics committee for the major UK-wide DRILL programme, which is the first programme of its kind to fund research led by, and in co-production with, disabled people. *Parsons* is also leading a review of the co-produced research ethics practices and materials (disseminated in 2020).

4.4 Indicators of wider influence, contributions to and recognition by the research base

SEdS colleagues are widely recognised for their expertise through invitations for scholarly review and leadership for funders, journals, appointment panels and government committees. Colleagues receive regular invitations to share their expertise more widely via the media, including nationally for the Guardian, Times Higher Education, TES (where *Bokhove* has a regular column), The Conversation, the Guardian, the BBC; and also regionally e.g. for ITV's Meridian News and Radio Solent. Most recently, the report by *Pensiero, Kelly and Bokhove* 'Learning inequalities during the Covid-19 pandemic: how families cope with home-schooling' gained national interest and was reported in major newspapers. *Nind* was awarded an honorary doctorate by VID Specialized University, Norway, and *Kelly* and *Reynolds* were both Distinguished Visiting Professors at the University of Malaysia. During this REF period, *Kelly* was also elected a Visitor at Trinity College Dublin.

Journal editorship

Staff have served as Editors or Associate Editors of a number of international academic journals during this period, including: International Journal of Research & Method in Education (*Nind*, Editor); Journal of Enabling Technologies (*Parsons*, Editor); International Journal of Technology in Mathematics Education (*Bokhove*, Associate Editor); Journal of Vocational Education & Training (*Brockmann*, Associate Editor and Reviews Editor); Journal of Writing Research (*Galbraith*, Associate Editor); and Journal of Biological Education (*Grace*, Associate Editor).

Colleagues have also led developments in their field through guest editorship of special issues including in the: International Journal of Social Research Methodology (*Nind*); International Journal of Method and Research in Education (*Nind & Parsons; Hall*); ZDM Mathematics Education (*Jones*), Journal of Mathematics Teacher Education (*Jones*), Teaching Mathematics and its Applications (*Jones*); Sinéctica (*Azola*); Higher Education Policy (*Tomlinson*); and Research Papers in Education (*Christodoulou*).

Editorial Board Memberships encompassed 46 journals during the REF period, including: British Educational Research Journal (*Kelly*); Educational Assessment, Evaluation & Accountability (*Kelly*); British Journal of Learning Disabilities (*Nind*); Disability & Society (*Nind*), European Journal of Special Needs Education (*Nind, Parsons*), Autism and Developmental Language Impairment (*Parsons*), Educational Research Review (*Galbraith*), Compare (*Pensiero*), The Educational and Developmental Psychologist (*Hall*), Eurasia Journal of Mathematics, Science and Technology Education (*Voutsina*), Research in Mathematics Education (*Jones, Voutsina*), Physical Education and Sport Pedagogy (*Kinchin*), International Journal of Social Research Methodology (*Bokhove*); Journal of Vocational Education & Training (*Brockmann*), British Journal of Sociology of Education (*Tomlinson*), Learning and Instruction, (*Galbraith*), Malaysian

Online Journal of Educational Management (*Kaparou*), and Mexican Educational Research Journal (*Azaola*).

Participation on grants and assessment panels

Kelly was a REF panellist in REF2014, and is again in REF2021. *Kelly* was also an assessor for Hong Kong through his membership of the Hong Kong Research Grants Council and Committee on Research and Development, and advised on research quality and governance for the University of Management and Technology, Lahore, Pakistan, and at other universities in the Middle East. *Nind* and *Parsons* have reviewed grant applications for the Rix Thomson Rothenburg Foundation focusing on disability and social inclusion. *Messiou* was a panel member of the National Science Centre in Poland in 2019.

Fellowships and prizes

Kelly and *Nind* are elected Fellows of the Academy of Social Sciences; *Grace* is a Fellow of the Royal Society for Biology (RSB) and *Messiou* is a Fellow of the Royal Society for Arts (RSA).

Evans, while at the university, led the development of the award-winning Researching Assessment Practice initiative. She received both a collaborative award for teaching excellence and an award for exceptional performance at the 'Advance HE' National Teaching Fellowship and Collaborative Award for Teaching Excellence in November 2018. *Messiou* won the British Educational Research Association Annual Conference SIG (Inclusive Education) Best Paper Award in 2019. *Bokhove* received the 2020 Wolf Award from the International Association for the Evaluation of Educational Achievement (IEA).

Membership of Research Councils and other national and international committees

Colleagues demonstrate significant service to research councils and funders, nationally and internationally. In the national context, *Kelly*, *Nind*, *Parsons*, and *Jones* are members of the ESRC Peer Review College; and *Azaola* and *Hall* have also been invited to review for ESRC open calls and the Secondary Data Analysis Initiative, respectively. *Hall* has also reviewed for the Medical Research Council (MRC) and UKRI Future Leaders applications. *Nind* is a reviewer for applications to the ESRC's NCRM, as well as for the AHRC and EPSRC. *Grace* has reviewed for the Education Endowment Foundation/Wellcome Trust's 'Improving Science Education scheme'. *Parsons* has reviewed for the Welsh Government's National Institute of Social Care and Health Research, Wellcome Trust, Autistica, British Academy, NIHR, the AHRC and the Froebel Trust.

Internationally, colleagues have provided peer reviewing services to over 25 research councils, foundations, and committees including the European Commission; UNESCO; UNICEF; Research Foundation Flanders (FWO); Netherlands Initiative for Educational Research Organization; Austrian Science Fund, Social Sciences and Humanities Research Council of Canada; National Science Centre - Poland, South Africa's National Research Foundation; University of Leuven Research Council and IOF-Council (Belgium).

SEdS colleagues are elected members of prestigious learned societies and organisations, including the Institute of Physics, the Institute of Mathematics, the International Committee of the International Group for the Psychology of Mathematics Education, and the International Society for the Advancement of Writing Research. *Kelly* served as a Panel member for the Irish Research Council. *Grace* is the Chair of the Royal Society of Biology's national Biology Education Research Group (BERG) and Chartered Science Teacher panel (CSciTeach).

Invited keynotes, lectures and conference chair roles

MSHE colleagues have shared world-leading developments in STEM education and research in Europe and Asia. Examples include: *Grace*'s innovative research on the teaching and learning of

socio-scientific issues at the Annual FDN Conference of Science Educators (Malmö, 2018), the UNESCO Asia-Pacific Regional Meeting on Teacher Education (Japan, 2018), and the Korean Society for Environmental Education (2018); *Jones'* keynote on strategies for globalizing research in education at the prestigious annual conference of the Japan Society for Science Education (2018) and in 2020 at prestigious Mathematics Conferences in Germany, Poland and Thailand; and *Bokhove's* keynote at the Central and Eastern European Conference on Computer Algebra and Dynamic Geometry Systems in Mathematics Education in Romania. In his role as Chair of the Academic Committee, *Grace* co-ordinates the biennial International Conference of the European Researchers in Didactics of Biology. *Grace* and *Byrne* also lead contributions to SEDS annual ITE Health and Wellbeing conference, which is a multi-disciplinary event involving colleagues in Medicine, Public Health England, local and national charities, and schools.

Colleagues from CRI influence research, policy and practice internationally via invitations such as *Messiou's* keynotes at the World Congress on Special Needs Education 2018 (University of Cambridge) and a Ministry of Education and Culture annual event in Cyprus (2017). *Nind* has given many keynotes during this REF period, including her ESRC-funded research on the pedagogy of research methods at the University of Barcelona, on educational inclusion at the Pune University, India, and at the Ireland International Conference on Education, Dublin.

Parsons' work related to technologies and pedagogy for autistic children has been recognised through keynote invitations at the prestigious Karolinska Institute in Sweden (2015), the Italian Conference on Autism and Atypical Neuro Development (Naples, 2017), as well as keynotes at major conferences for professionals, parents, and researchers in Moscow, Kazakhstan and Geneva. *Strogilos* has been invited for successive keynotes (2016, 2017) in Indonesia focusing on the inclusion of disabled students in mainstream classrooms.

In LEEP, colleagues are at the forefront of policy and practice relevant research on leadership and educational effectiveness. *Tomlinson's* invited keynote at Monash University (2018) focused on the career readiness of graduates; while *Kinchin's* keynote at the Asia Pacific Physical Education Conference (Hong Kong 2017) highlighted the leadership of sport education. *Kelly's* expertise in school effectiveness and improvement was the focus of the keynote at the Association of Community and Comprehensive Schools annual conference in Ireland, and at the International Congress on Global Education, Moscow. *Galbraith* has given keynotes on his innovative methodological approach to researching the writing processes of students at Dartmouth College, USA, at the International Conference on Academic Writing in Israel, and the EARLI SIG Writing Research School, University of Ghent, Belgium. *Hall's* (2020) invited keynote in Moscow focused on early childhood education and care.

Co-operation and collaborative arrangements for PGR

The expertise of colleagues is valued by national and international institutions in the recruitment and promotion of staff and the examination of doctoral students. Colleagues examine extensively, serving as external examiners for over 60 doctoral candidates nationally and more than 30 internationally, including in Australia, Norway, Spain, Sweden, Austria, Pakistan and New Zealand. Staff have served on recruitment and promotion panels nationally for the University of London, Birmingham, the Open University, Bristol and Exeter; and internationally, for the Chinese University of HK, the government of Catalonia, University College Dublin, Trinity College Dublin, NUI Maynooth, University of Iceland, Nazarbayev University (South Africa) and the University of Cyprus.