

Institution: University of York

Unit of assessment: 23 - Education

Section 1. Unit context and structure, research and impact strategy

1.1 Introduction

The mission of the Department of Education at York is to *advance the understanding and improvement of learning*. We pursue this mission by nurturing an inclusive environment in which we support researchers to produce internationally excellent, impactful research. During the assessment period we have cemented our reputation for leadership in language education, science education and social justice in education. We have also expanded our focus on psychology in education with the consolidation, rapid growth and immediate impact of our Psychology in Education Research Centre (PERC). We have built on the success of PERC by accelerating strategic growth into mental health and wellbeing research, and have initiated a further strategic expansion into educational evaluation. Our national leadership in the application of Open Science principles to education research has underpinned our success and can be seen most clearly in the work of our National Centre for Excellence in Language Pedagogy ([NCELP](#)), established in 2018 and developed with grants worth £3.63 million from the Department for Education (DfE). NCELP has advanced understanding of how modern foreign languages are learned and has made a substantial difference to how they are taught, partly through sharing research findings, tools and data with the teaching profession. During the assessment period we have grown in size and scope and have developed our infrastructure to effectively and inclusively support a diverse team of researchers and a programme of purposeful and sustainable growth.

1.2 Research Infrastructure

All research staff and students are members of a Research Centre which supports them to produce high quality research, often with potential for impact, and to develop projects that will *advance the understanding and improvement of learning*. Events such as research seminar series, research away days, writing groups and writing retreats are used to promote collegiality throughout the Department and to maximise potential for interdisciplinary collaboration between researchers from different Centres.

At the time of REF 2014 our activities were concentrated in three Research Centres, with the fourth (PERC) established towards the end of the assessment period.

- University of York Science Education Group (UYSEG, led by Bennett)
- Centre for Research in Language Learning and Use (CRELLU, led by Roberts)
- Centre for Research on Education and Social Justice (CRESJ, led by Davies)
- Psychology in Education Research Centre (PERC, led by Klassen)

Our current submission also includes three medical education researchers based in the Health Professions Education Unit (HPEU, led by Finn) of the Hull York Medical School.

UYSEG works to improve school science outcomes by conducting research that makes a positive and sustained difference to policy and practice. The team also develops and evaluates research-informed curricula, and trains and supports practitioners.

CRELLU makes theoretical and applied contributions to second language learning and teaching, using traditional and novel methods ranging from corpus and discourse analysis to psycho- and neurolinguistic techniques.

CRESJ researchers work to enhance equality, inclusion and access to education for all, using quantitative and qualitative methods to address local and global social injustices related to class, race, ethnicity, gender, sexuality, faith, language and culture.

PERC research is designed to benefit students, teachers, training providers and educational institutions. Studies focus on topics including literacy, numeracy, mental health and teacher attributes, often drawing on innovative methods such as behavioural genetics and neuroscience.

HPEU's strategic priorities for research include widening access to medical training, and innovative curriculum development and assessment.

During the assessment period we recruited a Research Facilitator (McLoughlin, 0.6FTE) who plays a key role in identifying new opportunities and drawing researchers together to consider interdisciplinary opportunities. By offering every researcher a discipline- or theme-based 'home' (Research Centre) and regularly bringing those Centres together for shared activities we have built an inclusive and collegial community in which all researchers are supported to achieve their individual aims and those of the Department.

1.3 Evaluation of Strategic Goals Outlined in REF 2014 statement

We met all eight of the strategic goals set out in our 2014 REF submission:

Consolidate and continue growth in terms of academic staffing based on long-term sustainability

We saw a 19.4% FTE increase in research staff numbers, from 34 (31 FTE) in 2013 to 40 (37 FTE; 32 REF-eligible) in 2020. In addition, four members of staff (not included in the 40) recently left the department and will be replaced in 2021.

We recruited more project staff in research-related roles (e.g. technicians, resource developers and curriculum specialists) from 1 in 2013 to 17 in 2020. In addition, in 2019 we submitted a successful Strategic Investment Bid to the University to recruit two Chairs, a Senior Lecturer, three Lecturers and a researcher.

Our strategic mantra during this period has been *growth with a purpose*. We have expanded into new areas with scope for long-term sustainability that build upon our existing strengths.

Increase research income by maintaining current funders and expanding our funding base to include more international funding agencies

Since 2014 our grant income has increased by 8%, with an average annual income of £1.1 million, and we have successfully diversified our funding portfolio. We rank 8th among Education Departments in the UK (2018-19) for research funding per FTE.

We have continued to receive grants from existing funders and have attracted funding from new charitable funders including Leverhulme, the Big Lottery Fund and the Office for Students. We have also gained support from a wider range of UKRI funders, including the EPSRC and the ESRC/Space Agency partnership, and have secured funding from industry partners such as BAE Systems and Pearson Education. New international funders since 2013 include the European Commission, the European Research Council (funding the research profiled in Klassen's Impact Case Study) and the Templeton World Charity Foundation. We rank 4th in the UK in terms of attracting funding awards from the EU. (See *Section 3 for full details of our funders*).

This diversification of funders has allowed us to pursue new and innovative lines of research, such as intervention studies with Bradford-based children with English as an Additional Language, and to ensure our growth is sustainable.

Grow the number of postgraduate research students through a more targeted approach to attracting home and EU students by increasing the number of funded positions.

At the REF census date we have 143 postgraduate research (PGR) students compared to 87 at the time of REF 2014, representing an increase of 64%. We have targeted home and EU students by offering departmental studentships (one per year but three in 2018) and launching named PhDs in TESOL and Applied Linguistics to reflect growth in CReLLU. We

also offer a PhD by distance which enhances our reach to international students and supports our focus on inclusivity.

Expand expertise in higher education and secondary data analysis (quantitative) within our research centres through expanding networks and collaborations.

We appointed three Lecturers (Dumangane Jr, Hancock, Knox) and a Research Associate (Mateos-Gonzales) with a focus on higher education to complement our existing expertise. This has enabled involvement in cross-institutional initiatives such as the Research on Research Institute (<https://rori.figshare.com/>). We have also been able to play an impactful and nationally leading role in widening participation in postgraduate education (see Wakeling's Impact Case Study and Section 4). For expertise in secondary data analysis we recruited a Chair (von Stumm) and a Lecturer (Toseeb). Both have successfully attracted funding (from the ESRC and the Nuffield Foundation) and von Stumm is a panel member for ESRC Secondary Data Analysis (SDAI) Panel D, enhancing our understanding of funder requirements in this area and leading to an increase in applications for ESRC SDAI funding.

Collaborate with, and build upon the work of the Cambridge Primary Review Trust in areas of existing strength within the DoE and IEE (such as classroom interaction and dialogue, science education, quality and effectiveness in learning)

We have collaborated with the Cambridge Primary Review Trust, and built on their work to pioneer a primary school classroom intervention called Dialogic Teaching (Hardman). Designed to improve the quality of classroom talk, it was found (in an EEF evaluation) to raise the attainment of disadvantaged pupils in English, Maths and Science and is now being widely used by schools.

The IEE will expand its knowledge brokerage service for schools.

The IEE expanded its research-practice brokering interface via the 2016 launch of its national Research Schools Network and a fortnightly Best Evidence in Brief newsletter circulated to over 15,000 subscribers worldwide. From late 2016-2020, the IEE was run as a self-supporting charity, independent of the Department and the University, at the request of the sponsor. We continued to work closely with IEE throughout the assessment period, for example, employing some IEE researchers within the Department (Hardman, Tracey) and providing speakers for Research Schools Network events.

Augment research equipment and laboratory space for both research and teaching.

During the assessment period we invested in an EEG machine to measure event-related potentials in the brain; an Eyelink Eye Tracker; two pairs of mobile eye trackers; a suite of high-spec computers; and an expanded and regularly updated test library (e.g. standardized cognitive and language tests). Furthermore, we set up two dedicated research labs: an EEG Lab and an Eye-Tracking Lab. Our expanded resource base has enabled projects such as an interdisciplinary (psychology/neuroscience/linguistics) study of whether implicit knowledge of syntax can be fully acquired if a learner's first and second language do not share the same grammatical structures, using EEG, eye-tracking and pupillometry (Roberts). We recruited a Research Coordinator (Wild) to manage and maintain these resources, and to facilitate their use by research staff and students.

Address gaps in second language (L2) research through in-depth systematic study from a multidisciplinary perspective.

We recruited five new Lecturers in L2 acquisition from a range of academic backgrounds (Bolibaugh; Indrarathne; Lanvers; Mifka-Profozic; Vanek). Several CReLLU researchers fostered new interdisciplinary L2 collaborations with departments including Psychology, Computer Science and Language and Linguistic Sciences. Notable examples include:

- The application of cognitive psychology approaches to quantify, for the first time, the linguistic differences between home and international students and how that relates to attainment (Trenkic).

- The development of a digital game environment to collect robust large-scale data on the acquisition of L2 grammar by primary school children (Marsden, <https://digitalcreativity.ac.uk/creations/gaming-grammar-game>).

1.4 Current Research and Impact Strategy

Our research and impact strategy is built on York's principles of excellence, public good, equality, community and internationalism. Our strategic goals for the future were developed and agreed through a department-wide consultation process that is representative of our inclusive and collaborative culture. This approach means that all research staff share a sense of ownership of – and responsibility for achieving – our research goals. Our strategic research goals for the next REF assessment period are:

1. Build a team of experts in mental health and wellbeing in education, and develop a positive national and international reputation for research expertise in this area.
2. Consolidate and expand our existing expertise, and funding success, in educational evaluation.
3. Maximise the impact of our research – and its contribution to the public good – by building new relationships with schools and community-based organisations in the public and private sectors, and responding to the challenges they face.
4. Build on the work of our Educational Researchers for Open Science (EROS) group to make Open Science practices the norm for staff and students, and embed this approach in Research Methods training for PhD students.
5. Expand and nurture our ECR community by developing new PhD student training pathways and attracting more funded Fellowships.
6. Enhance fairness in our selection, recruitment and nurturing of research staff and students, and embed our equality, diversity and inclusion principles in the research we undertake and the populations it represents and serves.

Our overall mission – *to advance the understanding and improvement of learning* – remains unchanged and will be well served by these six strategic goals. Our approach to achieving them rests on four departmental strategic priorities: growth with a purpose; maximising collaboration; making a difference; and quality.

Growth with a purpose

We have grown since 2013 and during the assessment period we have reflected on the optimal size, shape and make-up of our department, concluding that we should continue to develop in a steady, sustainable and equitable way that builds on our existing strengths. This will guide our staffing and funding choices over the next 5-10 years. This decision underpinned our successful 2019 Strategic Investment Bid to expand our expertise in mental health and wellbeing in education and educational evaluation. Resourcing this growth has been built into our Medium Term Planning, with the full support of the University, reflecting the fact that Mental Health has been identified as an institutional priority area for research.

Maximising Collaboration

By maximising collaboration with each other, with other academic organisations and with stakeholders in non-academic organisations, we seek to support the development and impact of interdisciplinary research. This has been a strategic priority for us throughout the current assessment period and will remain so during the next.

During this assessment period we collaborated on externally funded projects with 31 academic partners and eight third-sector partners. We welcomed research visitors from Australia, Brazil, Canada, Chile, China, Costa Rica, Denmark, Finland, Germany, Japan, New Zealand, Norway, Saudi Arabia, Spain, Switzerland, UK and USA, and many of these visits led to fruitful collaborations. For example, Dr Tracy Durksen visited York from UNSW in

Australia for two weeks in 2013. Since then, collaborations with our staff include 16 publications involving three staff members (Asbury, Kim, Klassen); six joint international conference presentations; a joint research grant (Durksen and Klassen) with the NSW Ministry of Education (2017-2020) and a visit to UNSW by Klassen in 2018. In 2020 an MSc graduate from our Psychology in Education programme began a fully funded PhD at UNSW with Dr Durksen.

In addition to maximising opportunities to develop and maintain collaborative networks, we proactively promote and support interdisciplinary funding bids. For example, two of our researchers (Brown, Dunlop) collaborated with investigators from York's Biology, Chemistry, Environment, Politics and Social Policy and Social Work Departments, as well as researchers from the University of Sao Paulo and Research Institute Campinas in Brazil, on a British Academy (Knowledge Frontiers) project designed to understand and support sustainable energy production and new technologies in rural communities (see <https://www.york.ac.uk/igdc/research/stripes/>).

Making a Difference

Our knowledge and awareness of how to conduct impactful research has been enhanced by bespoke Research Away Days; a standalone Impact Strategy, and making impact a standing agenda item at our termly Department Research Committee and Education Research Forum (open to all staff) meetings. For the current REF exercise, we have submitted three Impact Case Studies and it is testimony to the diversity of our impact that each one has been drawn from a different research centre (CReLLU, CRESJ and PERC). In addition, our Best Evidence in Science Teaching (BEST) project (Bennett, www.stem.org.uk/best-evidence-science-teaching) is transforming how GCSE Sciences are taught by making evidence-informed teaching materials available to secondary school science teachers throughout the country, and our work on anatomy teaching (Finn) has transformed medical training in both anatomy and embryology in the UK through the General Medical Council's uptake of the Anatomical Society's curricula, a move which has also been adopted in the pharmacy and dentistry fields. Our Impact Strategy targets all staff, with a particular focus on ECRs, and we will work to ensure that our push to build impact into research from the initial idea bears fruit in the coming years.

Quality

We have defined our approach to quality more clearly during the current assessment period, most notably with a focus on our PhD students. As planned, our PhD student numbers grew during the assessment period. However, we have taken a more recent strategic decision to streamline those numbers, prioritising staff effectiveness and student experience over growth. We now expect staff to supervise 2.5 PhD students on average - but with expected variation linked to career stage and circumstances - and to only recruit students working on projects that clearly align with their own research. By prioritising closer alignment with staff interests and expertise we aim to increase the quality of post-graduate research and to encourage collaboration on publications and funding bids between staff and students. We want to support our students as they take their next steps after their PhD, as well as during the course of it, and to this end we have decided to make an increase in applications for externally funded post-doctoral Fellowships a new strategic priority. This will provide us with opportunities to retain excellent PhD students as well as to attract new ECRs. We will continue to prioritise research excellence for staff and students in all that we do.

1.5 Open Research and Research Integrity

We have a fundamental commitment to the societal benefits of making our research freely and easily accessible to all. This commitment has seen our department become a national leader in the area of Open Science. In the current assessment period we appointed two Open Science Leads, one to lead on Open Science strategy and staff development

(Bolibaugh) and the other to lead on the establishment of an Open Science culture in our PGR community (Vanek). We also established an Open Science working group (EROS: Educational Researchers for Open Science) which meets termly and has developed an extensive suite of resources to help staff and PhD students to adopt Open Science practices. Beyond this we have effected culture change in small ways such as adding a question about Open Science intentions to our Small Grants application form, and in larger ways by organising and running a Research Away Day on Open Science and a series of Open Science training events for staff and research students.

By using these new mechanisms, we have successfully increased the number of staff and students who pre-register their studies, make their data and materials open and accessible, and publish their work as preprints and registered reports. During the assessment period our staff have pre-registered 64 studies and one researcher has been responsible for introducing Registered Reports at a major international journal, *Language Learning* (Marsden). We make use of York's Open Access fund to publish all UKRI and Wellcome Trust research via the Gold OA route and, where it is needed and justified, we pay Open Access fees from Research Centre budgets.

Our staff have not only embraced and promoted the principles of Open Science within the Department, they have led the way for the sector. This leadership is exemplified by two projects, one focused on making research open and accessible to Modern Foreign Languages (MFL) teachers (Marsden) and one on the risks inherent in 'overselling' research to teachers (Lortie-Forgues).

Marsden has successfully used her research on MFL teachers' limited access to research evidence as a basis for successfully lobbying the editors of sixteen leading language learning journals around the world to adopt open and accessible summaries as a new and compulsory element of their publishing process. In doing so she has instigated a sustainable and research-informed change in the academic publishing process to the benefit of teachers and researchers globally. Beyond academia, her Open Science resources have been accessed more than 100,000 times, primarily by MFL teachers (See Marsden's Impact Case Study).

Lortie-Forgues (with the Department from 2015 to 2020) conducted a meta-analysis of Randomised Controlled Trials (RCTs) of educational interventions and found that the majority have negligible effects. This led to a wider discussion about RCTs in education, and a new study of the optimal ways of communicating effect sizes to teachers so that they can use research findings to make meaningful decisions about their pedagogical practice. Both bodies of research have contributed to transparency in the communication of findings for the benefit of practitioners.

We promote transparency, methodological rigour and ethical practice by requiring staff and PhD students to submit data management plans for all studies to the department Ethics Committee. Our Ethics Committee is made up of 11 members of research staff, one lay member, three students and one administrator, and meets three times per year, also considering cases on an *ad hoc* basis throughout the year. Our Ethics Committee ensures that research integrity and ethics processes are fully aligned with the University's structures, policies and processes which, in turn, are aligned with – and supported by – the UK Research Integrity Office (UKRIO). This ensures that our research is compliant with the UUK Concordat in terms of codes of practice on research integrity, principles of good ethical governance and research misconduct.

(See IES paragraph 14 for further information on supporting research integrity and paragraphs 15-17 for information on Open Research at York).

Section 2. People

2.1 Staffing Strategy

Staffing decisions are guided by our strategic priorities: growth with a purpose; maximising collaboration; making a difference; and quality. In this spirit we endeavour to recruit academic staff who complement and build on our existing expertise; who are open to collaborative and interdisciplinary working within and beyond the department; who show strong potential for generating research impact and, above all, who produce – or show clear potential to produce – internationally excellent research.

Of our 32 REF-eligible staff members, 17 were recruited during this assessment period (along with four who have since moved to positions elsewhere). Of the 17 new (since 2013) academic staff members submitted for REF 2021, 16 were recruited as Lecturers (eight since promoted to Senior Lecturer) and one was recruited as a Professor. Appointments were made in all Research Centres and enhanced our capacity to produce internationally excellent research in areas including applied linguistics (Bolibaugh, Indrarathne, Lanvers, Mifka-Profozic), children's literature (Beauvais), genetics (von Stumm), global development (Brown), medical education (Crampton, Leppink), mental health (Dorjee, Toseeb), race and faith (Dumangane Jr), Special Educational Needs and Disabilities (Pavlidou, Toseeb), teacher personality (Kim), widening participation in higher education (Hancock, Knox) and youth and environment (Dunlop). Their appointments have enabled new collaborations and interdisciplinary projects within and beyond the department. We ensured that we could support this growth in both numbers and expertise by buying new equipment and recruiting more research support staff, as noted in Section 1.3.

When approaching recruitment, we focus closely on our strategic priorities and goals, identifying excellent researchers with expertise that complements our existing knowledge and interests and, in cases such as our expansion into Mental Health and Wellbeing in Education, those who can drive specific strategic goals forward. The fruits of our approach can be seen in our publication and funding portfolios, as well as in the national and international reputations of our staff. As one illustrative example, we recruited Klassen from the University of Alberta, Canada in 2012 and, since then, he has overseen the rapid expansion of PERC, published more than 50 articles in peer reviewed journals, and been awarded – among other grants – an ERC Consolidator award for €1.4 million.

2.2 Staff Development

We have long-standing mechanisms in place to support new staff, help them establish their research at York, and develop their careers. As one example of the effectiveness of our approach, five Lecturers appointed during the assessment period were previously employed as post-doctoral research assistants or Teaching Fellows within the department – and two of those have since been made Senior Lecturers. Furthermore, three Senior Lecturers have been promoted during the assessment period to become Professors; one Senior Lecturer was promoted to Reader; ten Lecturers became Senior Lecturers; and our Research Support Officer's role and contract was successfully upgraded. Our staff, at all levels of seniority, consistently meet or exceed our departmental research expectations, reflecting a hard-working, dynamic and well-supported research community.

We have a wide range of support mechanisms in place. When a new researcher joins our community, they are allocated a buddy for their first year in post. This colleague takes responsibility for answering their questions about the University, the Department and how to establish and develop their programme of research. The first two years of a Lectureship are a probationary period during which staff are mentored directly by the Head of Department. During this time they do not take part in the University-wide Performance and Development

Review system but, instead, meet regularly with the Head of Department. All new starters have successfully progressed from this probation period to permanent positions within the Department. They are also, where appropriate, invited to join our thriving ECR Forum which is supported by the Department but operates independently of it, meeting regularly to discuss research and other work-related issues as well as meeting socially. The ECR Forum is represented on the Department Research Committee as a formal mechanism to ensure that ECR voices are heard and taken account of in all research decision-making processes.

All other staff take part in the annual Performance and Development Review system which acts as an opportunity to reflect on successes and areas for development, and to make research and development plans with a more senior colleague. We take a formative approach to performance review, seeing it as an opportunity for mentoring and development, including the identification of training needs. The University's criteria for promotion are clear and accessible and performance reviewers can work through them systematically with researchers. Researchers are also able to seek support from former members of the University's Academic Promotions Committee within the Department.

Researchers in the Department benefit from a network of colleagues who can provide direct support and guidance on all research-related issues, including their Research Centre Leader, Director of Research, Research Facilitator and Research Support Officer. Beyond probation, staff are entitled to apply for a departmental mentor at any stage of their career. In the most recent cohort of our two-year mentoring programme we had 13 applicants, each assigned their first choice of mentor. Staff also have access to the University-wide Mentoring Scheme and a University grant-writing bootcamp open to researchers at all levels.

In addition to formal and informal support from colleagues, staff benefit from a carefully designed Work Allocation Model (WAM). All academic staff with research in their contracts are allocated 40% of their time for research, 40% for teaching and 20% for academic citizenship activities (with PhD supervision included in the teaching allocation). If staff win external funding they are allocated the amount of time they have been 'bought out' for and their remaining time is then split 40:40:20. We also offer the opportunity to apply for one term of research leave every nine terms, allowing staff to undertake substantial projects without distraction. Since 2016, when our current research leave policy was introduced, 23 people have taken research leave, an average of six per year. Staff are also entitled to apply for a period of impact leave at any point. In this way we keep possibilities for making a difference open and have capacity to respond quickly to opportunities to do so.

Departmental funding is available for professional development, research dissemination and research priming. Each year staff are allocated a personal budget of £1,000 for training, equipment or conference attendance. They can apply for a top-up if the amount is insufficient to cover their needs and this is often granted. Furthermore, they can apply for priming grants of up to £1,000 – and more if justified – to develop proof of concept cases, pilot studies to strengthen external grant proposals or to fund impact activities.

We offer a wide variety of training activities to all research staff and PhD students within the Department. For example, our workshops on using R software for data analysis and visualisation have been so well received and attended that they needed to be repeated. We also run informal 'brown-bag' seminars on research methods for staff and PhD students ten times per year on topics including meta-analysis, EEG, psychometric measurement and qualitative data coding.

By providing research support and mentoring; formal opportunities for reflection and development; a fair, equitable and transparent WAM; funding for professional development, travel, training and priming research; and a suite of departmental training opportunities we endeavour to ensure that all staff development needs are met. When gaps in our provision are identified, as was the case with R in 2018, we work swiftly to fill them.

(See Institutional Environment Statement (IES) paragraphs 27-28 for information on how York implements the Concordat to Support the Career Development of Researchers).

2.3 Support for Postgraduate Research Students

We are ambitious for, and proud of, our PhD students, who come from Africa, Asia, Europe, the Middle East, North America, South America and the UK. Over the last three years a total of 66 students – 52% funded by the ESRC, departmental scholarships or national governments and 48% self-funded – successfully defended their thesis and graduated with a York PhD.

Our policy has always been to select high-quality students – and that remains the case – but during the assessment period we have increasingly prioritised the fit between the research interests of the potential student and their supervisor. Our growing success in this endeavour can be seen in staff-student authorship teams being represented in 29 papers published in peer-reviewed journals and 26 conference presentations. PhD students also have regular opportunities to gain paid research experience as Research Assistants on staff projects. Many are key members of their Research Centres, taking responsibility for activities such as organising seminars and talks, running the website and taking part in writing workshops.

PhD students who are accepted onto our programme benefit from regular meetings with, and mentorship from, their supervisor. In addition, they are assigned a Thesis Advisory Panel (TAP) member and present their work at a TAP meeting with this individual and their supervisor twice per year. Their progress is also monitored at the end of Year 1 and 2 by a Progression Chair, in collaboration with the TAP member.

In addition, all PhD students access Research Methods training in their first year, as well as training in research and professional skills (such as time management, open science and referencing) throughout their degree via the Education Research Group (ERG). ERG meetings also provide students with a regular opportunity to present their studies to their fellow students and, at some meetings, to staff in their Research Centre. In addition to training and presentation experience, the ERG provides students with a forum to socialise. A sense of community is enhanced by our PhD suite, an attractive 145m² space where we provide PhD students with desks, computers and the opportunity to work together and learn from each other. This represents a positive change from 2013 when our PhD students were scattered across campus, and has boosted the sense of community more broadly in the department. Many of our research-focused opportunities are open equally to research staff and students, including research seminars (at least three per term); monthly research methods brownbag sessions; writing workshops and retreats; journal clubs; subject-specific reading groups and R training workshops.

Some students are members of specific research labs such as the Hungry Minds lab (von Stumm), the Child and Adolescent Neurodevelopmental Diversity (CANDY) lab (Toseeb), and the Genomics and Life Stories (GOALS) lab (Asbury), where they actively collaborate with other students and staff. For example, CANDY lab students helped with data collection, analysis and write-up and were co-authors on two recent papers, while three students in the GOALS lab were given financial support to present their PhD research alongside their supervisor as part of an invited symposium at an international conference in Canada.

Beyond the department, our students can access a broad range of PGR-targeted training organised by the University Research Development Team or by the ESRC White Rose Doctoral Training Partnership. They also take part in initiatives such as the 3 minute thesis competition and the York Festival of Ideas and have access to a University-wide PGR mentoring scheme.

(See IES paragraphs 30-34 for further information on opportunities available at Faculty and University level).

2.4 Equality, Diversity and Inclusion

Our success in promoting equality, diversity and inclusion has led to us being awarded an Athena Swan Bronze Award, one of only eight Education Departments in the UK to have achieved this. We are now proactively working towards a Silver Award.

In our Department Plan (2016-2021) we commit ourselves to four core values, two of which are diversity and social justice. Equality, diversity and inclusion are therefore at the heart of the principles that guide our professional practice. For example, we adhered to our ED&I principles in all decisions related to our REF submission, selecting outputs on the basis of a candidate-blind review process. Furthermore, the Committee responsible for selecting outputs for REF was 57% female. All 32 of the researchers submitted for REF are on open-ended contracts.

During the current assessment period our ratio of female:male Professors rose from 2:3 in 2013 to 5:3 in 2020. We more than doubled the number of women in senior (Senior Lecturer+) positions through internal promotion. We also tripled our numbers of BAME colleagues moving from two in 2013 (both Lecturers) to six in 2020: a Professor, two Senior Lecturers and three Lecturers, representing 19% of our REF-eligible staff. Two of our last three Heads of Department have been female, as have two of our last three Directors of Research and Chairs of the Board of Studies. Both female and BAME colleagues have been successfully nominated for University Committees including Senate, Teaching Committee and Academic Promotions Committee.

To monitor and address ED&I issues we have an Equality and Diversity Group, made up of academic, teaching and professional services staff and students. The group meets at least four times per year and is represented on the Department's major committees, including the Department Management Team. A major current focus for the E&D group is decolonising the curriculum and this has led to the establishment of a Decolonising the Curriculum site on our VLE and a group of staff and students which meets fortnightly to take action towards this end, and toward enhancing inclusivity more broadly within the Department.

During the current assessment period we have made several strategic decisions designed to remove barriers to effectiveness and success. For example, we have established bespoke departmental support for developing promotion applications. One of our researchers (Hardman) has been involved in the University's work on increasing promotion applications among staff from BAME groups. We have also increased our opportunities for flexibility, making use of phased returns for staff going through prolonged periods of caring for children or parents or adverse personal circumstances, and prioritising research leave for staff returning to work after caring leave. We have appointed a Mental Health Champion (Nash) to provide proactive support to staff and students, such as workshops on stress management, and we have scheduled all of our committee meetings and research activity within core working hours. We ensure that colleagues on part-time and fixed-term contracts have access to the same support and opportunities as those on full-time and open contracts. Finally, we have a policy that no departmental emails are sent between 6pm and 8am or at weekends (staff are required to use the 'schedule send' facility during this period). This makes it possible for all staff to work when it is convenient for them (ensuring flexibility) while protecting others from the intrusion of the workplace into their free time.

In addition to our day-to-day practices and values, equality, diversity and inclusion represent core strands of our research, especially in CRESJ and the HPEU but also in UYSEG, CReLLU and PERC. For example, our Equality and Diversity Champion (Sundaram) has led the field in applied sociological research on 'lad culture' and sexual violence in universities, finding that most HE staff underestimate the pervasiveness of lad culture in HE, and female students view sexual harassment as too commonplace to even report. Sundaram has built on more than a decade of research, funded by bodies including the European Commission and HEFCE, to develop a training programme for HE staff and students at York that supports a culture of violence prevention and 'campus consent'. This training has been taken up by

universities throughout the north of England and training programmes based on the same research have been developed in Greece, Italy and Spain.

We also conduct research on access to postgraduate education (see Wakeling's Impact Case Study); educational implications of speaking English as an Additional Language (Bowyer-Crane); gender equality in access to STEM subjects (Bennett, Dunlop); mental health in children with SENDs (Toseeb) and race and faith as moderators of educational experience (Dumangane Jr). In short, principles of equality, diversity and inclusion are baked into our values, our processes and our research.

Section 3. Income, infrastructure and facilities

3.1 Income

Our proven ability to attract external funding is key to the quality of our research and outputs. During the assessment period we have increased our research funding and broadened our funding base, securing grants from new domestic and international sources, expanding our international grant portfolio, and obtaining funding through new interdisciplinary collaborations.

Research income during the assessment period totalled £7.69m, an annual average of £1.14m in the past 5 years and an increase of 8% from the previous period. We rank 8th among Education Departments in the UK (2018-19) for research funding per FTE. This includes major and prestigious grant awards: £3.63m from the Department for Education to establish the National Centre for Excellence for Language Pedagogy; €1.4m ERC Consolidator Award to develop effective teacher selection tools; and £343,831 from the Templeton World Charity Foundation to explore broadening the post-16 science curriculum.

Our increased funding is based partly on repeated successful applications to existing funders, for example CreLLU with the British Council (two awards during the assessment period including Handley's work on how study abroad influences the oral fluency development of Chinese students); CRESJ with HEFCE/OfS (seven awards including for work profiled in Wakeling's Impact Case Study); PERC with the Nuffield Foundation (three awards including von Stumm's 2019 grant to explore gene-environment interplay in early cognitive development); UYSEG with the Salters' Institute (six awards including Bennett's influential BEST Evidence Science Teaching). Ongoing funding has also been secured from the British Academy, Education Endowment Foundation, ESRC, Society for Research in Higher Education, and Wellcome Trust.

The Department has also diversified and built a broader portfolio of funders in order to ensure financial stability in the current political and funding climate. A strategic decision to broaden expertise within the Department, with an eye on funders' strategic priorities, has increased our eligibility for certain opportunities, allowing us to attract, for example, a greater share of Education Endowment Foundation (EEF) grants. In the current assessment period we won 12 EEF grants worth £3.1 million in total and £1.03 million to the department.

The range of our funding portfolio means that we are less reliant on Government funding than other Education departments in research-intensive universities, enhancing our sustainability. This allows us to focus less on consultancy and evaluation – although we do provide both of these research services – and more on original empirical research that can *advance the understanding and improvement of learning*, our core mission.

Our strategic objective of seeking more international funding has borne fruit in that we have ranked within the top 4 UK Education departments in terms of funding awards from the EU

for the past three years. New international funders since 2013 include Daiwa Japanese-Anglo Foundation, European Commission, European Research Council, Jacobs Foundation, Social Sciences and Humanities Research Council (Canada), and Templeton World Charity Foundation. We have also attracted funding from new supporters in the UK, including the Leverhulme Trust, Big Lottery Fund, Royal Society of Chemistry, Health Education England, Early Intervention Foundation, and the Gatsby Charitable Foundation. During the period we have also gained support from a wider range of RCUK funders (including the EPSRC and the ESRC/Space Agency partnership).

Working across disciplines and in collaboration with other Universities has brought in significant income. For example, Bowyer-Crane (with the Department from 2012 to 2020) was a Co-Investigator on the Better Start Bradford Innovation hub (betterstartbradford.org), funded with a £1.8m grant from the Big Lottery. Bowyer-Crane is now with the National Institute of Economic and Social Research but retains an honorary fellowship and is working with the Department on a series of grants, including a successful recent bid to the EEF.

3.2 Infrastructure

All research carried out within the Department is overseen by the Departmental Research Committee (DRC). It is comprised of the Director and Deputy Director of Research, Head of Department, four Research Centre Leaders, Chair of the Ethics Committee, two Open Science Leads (one for staff, one for PGR students), representatives from the ECR and PGR communities, Department Manager, Research Facilitator, and Research Support Officer. The make-up of the DRC is reflective of the Department's research culture, enabling academic, student and professional services staff to contribute to research strategy, and supporting our commitment to Open Science.

The Department has invested in staffing (appointing a new 0.6FTE Research Facilitator (McLoughlin) and upgrading the role of our existing Research Support Officer (Parker)) and has developed new administrative structures to support research during the assessment period. The RF and RSO help staff to identify the most appropriate funder for research projects; share details of appropriate funding calls with researchers; help prepare bids, including costing proposals; facilitate collaborative partnerships with other institutions and departments within the University; and manage and monitor funded projects, ensuring compliance with reporting and financial targets throughout the lifecycle of the award. The Department's research support team is supported by the University's central Research Grants and Contracts team, which works with the Department on budget, contract, IP and legal issues, and by the Faculty's Research Development Manager and Impact Manager, who work closely with the Department to facilitate major interdisciplinary collaborations and provide expert advice on impact and knowledge exchange opportunities.

In response to a Department-wide consultation held in 2018 we have instigated a new system for developing grant applications designed to give researchers the benefit of highly tailored expert feedback. This process gives researchers access to reviews and feedback from the appropriate Research Centre leader, the Chair of the DRC, the Head of Department and two further reviewers with relevant expertise. In order to promote capacity building for less experienced researchers, grant talks given at an early stage in the application preparation process provide ECRs with an opportunity to gain an insight into the funding process, as well as to provide important feedback for the applicant.

Pump-priming funds are available on a competitive basis via our departmental Small Grants scheme and from other schemes relating to the University's broader research themes, such as the Global Challenges Research Fund (GCRF) and ESRC-funded impact acceleration account (IAA) funds. These schemes allow researchers to deliver impact, to pilot new projects, and to develop large, externally funded bids. During the assessment period, for example, the Department awarded pump-priming funds for the pilot phase of UYSEG's

exploration of independent research projects in school science (Bennett) which led to a successful bid to the Gatsby Charitable Foundation for a larger study. Nine projects in the department have been funded by the ESRC IAA, worth a total of £82,500, including work profiled in Klassen and Marsden's impact case studies. We have also won five GCRF QR grants, worth £79,440, which have enabled, for example, a programme of research that has provided training on specific learning difficulties to teachers throughout Sri Lanka (Indrarathne).

3.3 Facilities and resources

As a direct result of a strategic focus on augmenting research equipment and lab space the department's facilities and resources have improved markedly during the assessment period. This has helped to foster a more cohesive research environment and sense of community, as well as enabling us to attract the highest calibre of research staff (see Section 1.3).

These improvements include the relocation of our department onto one main site. Staff now enjoy improved facilities in Derwent College including single occupancy offices for academic staff; team rooms for researchers working on funded projects; a PGR research suite providing personal study space for the majority of PGR students; access to meeting, seminar and conference rooms; significantly expanded lab spaces for research and teaching, including a new research lab dedicated to EEG and another to Eye-Tracking.

Beyond the Department, our researchers make use of facilities established to support the development of interdisciplinary work, particularly the Research Centre for Social Sciences (ReCSS), opened in 2013, which provides social science researchers with training opportunities and meeting space and offers a state-of-the-art training suite for interview and focus group studies. ReCSS staff, including the Faculty Research Manager and Impact Manager, support the impact-related work of the social sciences at York by training postgraduates and ECRs in impact pathways; facilitating interdisciplinary projects and assisting with the development of impact inclusive grant proposals; providing a nurturing space to devise and deliver impactful research; and devising mechanisms for monitoring and measuring impact achieved.

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

4.1 Collaborations, Networks and Partnerships

We have made it our mission to *advance the understanding and improvement of learning* and our research and impact strategies are rooted in the knowledge that doing so is dependent on producing research that is shaped by a deep and up-to-date understanding of the needs of those who have a stake in the processes and outcomes of education. To that end, during the current assessment period we have worked with hundreds of schools, tens of thousands of prospective and practising teachers, and countless more pupils across the UK and in Africa, Asia, Australia, Europe, North America and South America. We have also collaborated closely with academic partners in the UK and around the world, to ensure that our outputs draw on the best available expertise.

The University of York Science Education Group (UYSEG) Network provides a good illustration of the collaboration and co-production we engage in with schools. The UYSEG Network is a well-established group of teachers and researchers who gather three or four times per year to develop connections between research and practice. Recent topics have included gender balance, practical work and STEM clubs. The network allows UYSEG to make a direct contribution to practitioners while maintaining a strong understanding of the research that teachers in schools need and want. This, in turn, informs the research

designed and conducted by UYSEG researchers, and the curriculum resources that the team develops.

A further example can be seen in the work of the Teacher Selection Project group, which has devised an innovative suite of evidence-based and culturally-sensitive teacher selection and development tools that have been trialled and rolled out in institutions in Australia, Bulgaria, Malawi and the UK (see Klassen's Impact Case Study and teacherselect.org). For example, since Spring 2018, these tests have been used in the live selection of 40,000 applicants to *Teach First*. Klassen and his team have demonstrated that the tools predict student teachers' success more accurately than previous approaches and have advised the UK government and the World Bank on teacher selection and retention.

As well as collaborating with stakeholders in education, we prioritise collaborations within academia. Within the University of York alone, colleagues have developed interdisciplinary research with collaborators in Biology, Chemistry, Computer Sciences, English and Related Literature, Environment and Geography, Health Sciences, Language and Linguistic Sciences, Physics, Politics, Psychology, Social Policy and Social Work and the Department of Theatre, Film, Television and Interactive Media (TFTI). For example, one colleague (Olive) worked with a researcher from English and Related Literature, along with industry partners including Shakespeare's Globe Theatre and Leeds Playhouse, on the ESRC IAA-funded interdisciplinary *Leeds Meets Shakespeare* project. In a pilot study in six Leeds primary schools with high numbers of pupils from Pakistani and Bangladeshi backgrounds, they found that teaching Shakespeare to children in Year 1 can raise attainment and confidence for pupils with English as an Additional Language. This approach is now being rolled out to other schools around the city, making a practical difference to whether and how Shakespeare is taught in Leeds' classrooms.

Our researchers are highly sought after as collaborators beyond York. Of the outputs we produced during the assessment period, 42% included an author from another UK institution, and 28% included an overseas author. Furthermore, 26% of our grant applications included applicants from other institutions (76% UK, 24% overseas), with 35% of funded projects involving non-York investigators (73% UK, 27% overseas). Our focus on collaboration and partnership has led to the development of research networks fostered by individual researchers or Research Centres. As a local example, the LARRY (Language and Reading Research in Yorkshire) Network was established by members of PERC and CReLLU as an interdisciplinary network of researchers in Yorkshire Universities working together to forge strong relationships with practitioners. At an international level, Davies won Leverhulme funding to develop an international network of researchers to study how young people participate in society (e.g. volunteering and engagement) and the implications of that for education. The work carried out by the network, which has partners in Australia, Canada, Hungary, Lebanon, Singapore and the UK, is particularly important at a time of widespread political turmoil, when there are signs that young people's voices have increased potential to make a major difference.

4.2 Contributions to the research base, the economy and society

Our research has had a direct impact on all those with a stake in the processes and outcomes of education: school pupils, prospective teachers, current teachers, prospective and current university students, policy-makers, employers and society in general. We have mentioned several examples of our contributions to schools including the influence of UYSEG'S BEST resources for science teaching, NCELP's influence on the teaching of modern languages, and a dialogic teaching intervention that has been evaluated and found to benefit primary school children, particularly the most disadvantaged.

Beyond schools, we have made a noteworthy contribution to higher education by improving equality of access and the quality of the campus experience, especially for disadvantaged

communities. During the assessment period, researchers in the Department have opened up innovative new lines of enquiry in relation to higher education, focusing especially on issues of diversity, inclusion and equality. For example, innovative research by Trenkic has found that international students are strikingly disadvantaged in the language skills most relevant to academic assessment – with difficulties exceeding those of dyslexic home students – and that this is detrimental to their success and wellbeing. Based on this and further research, Trenkic has advocated raising the language entry requirements for university courses, a recommendation that we have followed for our own largest MA programme.

As profiled in Wakeling's Impact Case Study, CRESJ researchers have established that there are inequalities in progression to postgraduate study in relation to socio-economic background, ethnicity and gender. They have identified factors underlying this inequality and their research has had a significant impact on policy initiatives such as the Postgraduate Support Scheme and England's Masters loan programme. These initiatives have led to a significant increase in graduates from first degrees progressing to postgraduate study, particularly those from under-represented backgrounds. The group is increasingly focusing on equality in access to doctoral study (Hancock, Wakeling).

More widely still, we have had an impact on policy by helping policy-makers identify emerging educational issues, set new national and international priorities, and respond to them. We have collaborated with policy-makers in the Cabinet Office, the Department for Education and the Government Office for Science, helping them to identify and respond to national and international priorities. For example, we have become a leading university in the field of genetics in education, with three members of staff currently working in this area (Asbury, Toseeb, von Stumm). In recognition of this cutting edge work, we were invited to communicate research findings, and their possible implications for policy, to the Permanent Secretaries of all government departments at a private meeting organised by the Cabinet Office, and in invited talks to individual government departments including the DfE.

Other examples of contributions to policy-makers and policy include advising the Welsh government on the development of a new health and wellbeing curriculum for Welsh schools (Dorjee), and advising the Cabinet Office on teacher selection and retention (Kim, Klassen). Our influence on policy has continued during COVID-19, during which we have acted rapidly and constructively to address the educational issues arising from the pandemic, with evidence from two longitudinal studies submitted to parliamentary inquiries. One was a study of teachers' experiences of COVID which led to recommendations focused on the treatment of teachers by policy-makers (Asbury, Kim), and the second was a study of the impact of school closures on the mental health and wellbeing of children and young people with SENDs and their families (Asbury, Toseeb).

4.3 Contributions to the sustainability of the discipline

Our research makes a key contribution to the sustainability of educational research by seeking out new approaches to the study of teaching and learning as well as using tried and trusted approaches to ask new questions. We are the only education department in the world to employ behavioural geneticists studying play, inequality, special educational needs and personalisation, and we also use eye tracking, brain scanning, secondary data analysis and machine learning methods in our research, as well as more long-standing approaches such as surveys, interviews focus groups and document analysis.

Our staff make regular and active contributions to the research community, both nationally and internationally, thereby sustaining the pursuit and impact of educational research. For instance, colleagues act as Editors and Associate Editors of major and specialist journals (e.g. Davies, *Citizenship Teaching and Learning*, *Journal of Social Science Education*; Klassen, *British Journal of Educational Psychology*; Marsden, *Language Learning*; Roberts,

International Review of Applied Linguistics; and Trenkic, *Journal of the European Second Language Association*). Furthermore, many of our staff are members of Editorial Boards of national and international journals (e.g. Asbury and von Stumm, *Intelligence*; Bennett, *International Journal of Science Education*; Klassen, *Journal of Educational Psychology*, Sundaram, *Gender and Education*, Vanek, *International Journal of Applied Linguistics* and Wakeling, *Sociology*). We also take on leadership roles within academic organisations (e.g. Davies is a member of the ESRC Peer Review College and Klassen was Chair of APA Division 15's Educational Psychology International Committee, 2016-2019).

All of our research staff are actively engaged in peer reviewing for journals, book publishers, conferences and funders. For instance, we review grant applications for funders in the UK including the British Academy (Roberts), the Wellcome Trust (Bennett), Leverhulme (Roberts), the Medical Research Council (Asbury) and the ESRC (Klassen, Roberts, von Stumm and Wakeling); and internationally in countries including Finland, Ireland, Israel and Luxembourg (Klassen), South Africa (Bennett) and Belgium, France, the Netherlands and Norway (Roberts).

We aim to work collegially with other institutions to support the sustainability of education research. For instance, we support other universities in their recruitment and promotion processes. (e.g. Bennett has been involved in recruiting Chairs to King's College London and the UCL Institute of Education, and Klassen to the University of Cambridge and the Autonomous University of Barcelona). Senior staff have advised on applications for promotion in a wide range of countries including South Africa (Bennett); Australia and Canada (Davies); and Hong Kong, Malta, Singapore and the USA (Klassen). We regularly host academic visitors and have had recent visitors from overseas universities including Jyväskylä, Mainz, Wellington and Zaragoza.

Our staff have been rewarded for their contributions to their disciplines with prizes. For example, in 2020 alone, two papers by one staff member, Emma Marsden, won the ACTFL Paul Pimsleur award and a 'Best of MLJ 2019' prize from The Modern Language Journal, and Lisa Bardach won the Scopus Elsevier Early Career Researcher UK Award for the Social Sciences.

4.4 Public dissemination of research findings

We ensure that we make our research findings accessible to a broad range of audiences and we have an excellent record of success in getting people talking about our research. We use these discussions to refine and shape future research ideas.

Our staff have published articles in outlets with wide national and international readerships including *The Conversation*, the *Guardian*, *Times Higher Education*, the *Times Educational Supplement (tes)*, *Psychology Today* and *Wonkhe* on topics including children's literature (Beauvais), international student attainment (Trenkic), lad culture (Sundaram), MFL take-up in the UK (Lanvers), pupil mental health (Dorjee), sibling bullying (Toseeb), teacher selection (Klassen), undergraduate sleep (Foulkes) and widening participation (Wakeling). On controversial topics such as the use of genetic data within education, researchers (Asbury, Toseeb, von Stumm) have used extensive media engagement and practitioner conferences such as ResearchED to explain complex and, to many, troubling ideas, and understand the perceptions and concerns of teachers and the general public.

Using a different, more didactic, approach to public engagement, our staff have established and delivered Massive Open Online Courses (MOOCs) to a broad range of participants. Examples include: Olive and Beauvais, who developed a course called *Pictures of Youth: Visual Culture for Children* which has been taken up by 4,500 participants to date; and Indrarathne, who developed a course in collaboration with the Sri Lankan Ministry of Education to train the entire nation's teachers in the support of children with dyslexia within

the classroom. In addition, we share research findings directly with schools and teachers via our National Centre for Excellence for Language Pedagogy (NCELP) and the National STEM Learning Centre.

In these ways we endeavour to ensure that our research is accessible to people likely to be affected by it.