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Institution: University of Reading

Unit of Assessment: 23 Education

1. Unit context and structure, research and impact strategy

The Institute of Education (IoE) has a national and international reputation for impactful research making important contributions to theory. Its central goal is to conduct research that addresses the overarching aim of improved education and learning as a route to enhanced self-efficacy, economic well-being and improved life chances. This reflects the IoE's commitment to teacher education and the development of policy and practice across all stages of education and learning, placing local, national and international collaborations with practitioners at the core of our strategy development and implementation.

The IoE's research-active Teaching and Research staff (TR) form the *Education, Language and Learning* Research Division (ELL). Teaching Intensive (TI) colleagues working towards research independence or engaging in scholarship can opt-in and contribute to the Division, and six currently do so. As a whole, ELL constitutes a critical mass of researchers working in two interrelated groupings: Language and Literacy in Education (LaLIE), and Improving Equity and Inclusion through Education (IEIE). LaLIE researchers form a central part of the Centre for Literacy and Multilingualism (CeLM), a University-wide Interdisciplinary Research Centre that is an internationally renowned hub for research into linguistic, psychological, clinical and educational aspects of literacy and multilingualism. Two members of the UoA have served as co-directors of its outreach arm, Bilingualism Matters@Reading, while three others are part of the CeLM Steering Committee. The following figure presents the UoA context and structure:
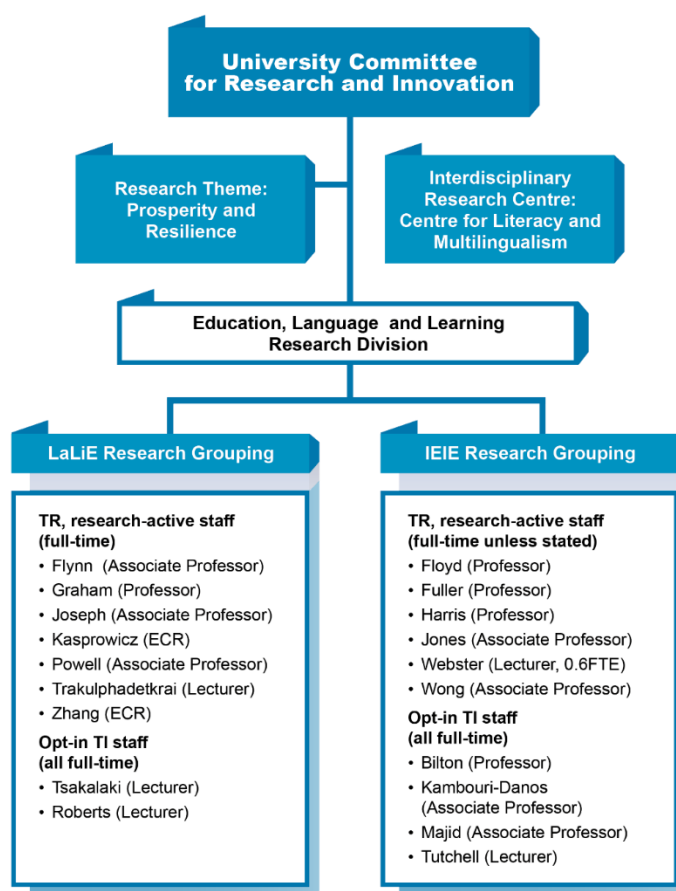

Figure 1: *UOA context and structure*

Situated within the *Prosperity & Resilience* Research Theme at the University of Reading (UoR), ELL works closely with the Theme's Research Dean in the achievement of its strategic aims for research and impact. ELL research management is overseen by a Research Committee headed by the Research Division Leader (RDL), supported by the Leads for Impact, Postgraduate Research (PGR), Research Ethics, and Research Communications; and representatives from the ECR community. An annual research planning cycle operates at Division and personal researcher level, the latter including Personal Research Plans (PRPs) within the Personal Development Review (PDR) process. This cycle drives a dynamic climate of research aspirations and goal attainment (Section 2).

Research Strategy

The Unit's over-arching research strategy in the assessment period has been to reinforce and deepen the quality of areas of existing strength in order to address two priority research concerns for the field of education in the broadest sense: how literacy and language skills can best be developed, and tackling issues of educational access and inequality. We have been highly successful in our pursuit of our strategy, as follows:
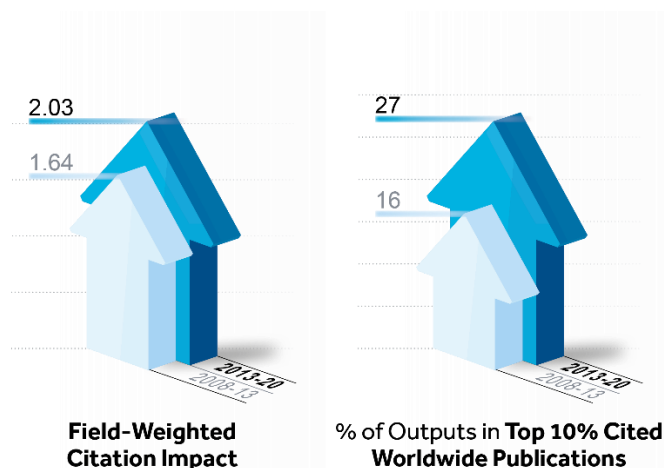
- Improved bibliometric measures

Figure 2: Field-weighted citation impact and percentage of outputs in Top 10% cited worldwide publications comparisons
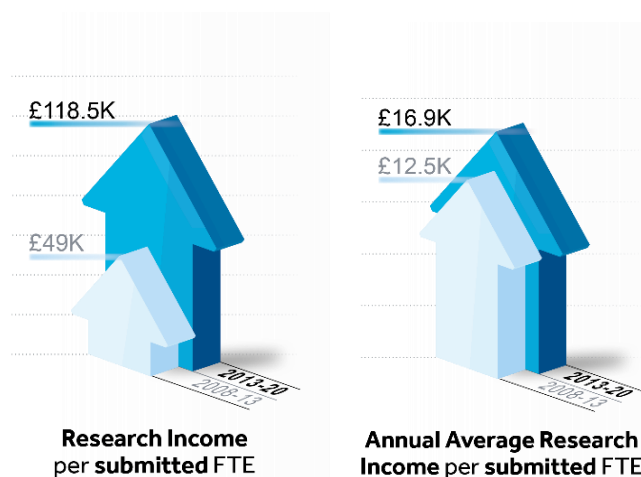
- Doubled research income

Figure 3: Research Income per submitted FTE and Annual Average Research Income per submitted FTE

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- More numerous and more successful PGR students

Doctoral Awards per **submitted** FTE annual average
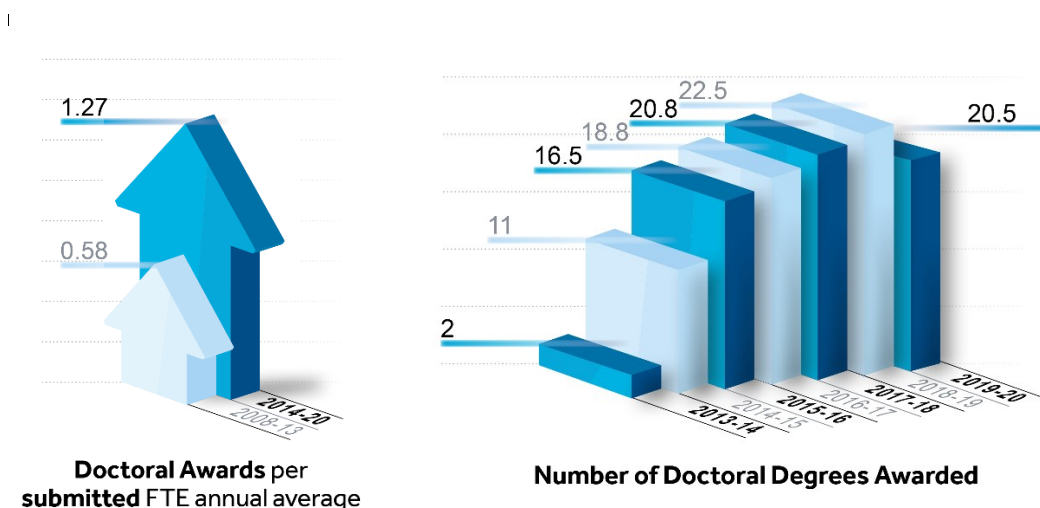
Number of Doctoral Degrees Awarded

Figure 4: Doctoral Awards per submitted FTE annual average and Number of Doctoral Degrees Awarded

These successes stem from our achievement of three interrelated objectives identified in our REF 2014 submission, namely:

a) build research capacity to achieve nationally and internationally visible research excellence in outputs, grant funding, and Impact
b) establish new inter-disciplinary and collaborative initiatives
c) increased recruitment of high-quality research students

Strong research leadership, investment in people and targeted efforts to further strengthen the vitality and sustainability of our research environment have led to substantial and measurable progress in each of the three objectives, as outlined below.

(a) Build research capacity, in order to achieve nationally and internationally visible research excellence in outputs, grant funding and Impact

Targeted and strategic recruitment measures have enabled us to substantially enhance the depth and quality of our research capacity since 2014. We have planned proactively for retirements and re-locations so that the size of the UoA remained relatively stable at 12.6 FTE (with three staff being returned to UoA26). We have replaced departing staff with those who not only have excellent research profiles, but who also increase the ethnic and career stage diversity of the UoA. We have built small teams of two to three researchers working on related themes, moving away from lone researcher models.

Our overall academic impact, evidenced in SciVal bibliometrics data with comparator benchmarking, is summarized thus:

	Social Science: Education		Social Science: Linguistics & Language	
	Field-Weighted Citation Impact	Output in Top 10% Citation Percentiles (field-weighted) %	Field-Weighted Citation Impact	Output in Top 10% Citation Percentiles (field-weighted) %
LaLiE			3.35	42.9
IEIE	2.22	20.9		
UCL	1.71	21	2.3	26.8
Oxford	2.78	25	2.66	21.1
York	1.95	25.1	2.21	31.1

Table 1: SciVal bibliometric comparisons, Reading and competitors

In the field of language and literacy in education (LaLiE), our goal has been to become an international centre of excellence for research into a) education (age 7 – 12) for Modern Foreign Languages (MFL); b) foreign/second language listening comprehension; and c) the cognitive and classroom-related factors that underpin reading, vocabulary and pedagogy for monolingual and bilingual learners, namely those who have English as a first language or as an additional language (EAL). We achieved those goals through focused recruitment of staff with specific areas of expertise. Thus the recruitment of Kasprowicz and Zhang has strengthened a) and b) respectively, complementing Graham's well-established research in both areas and hence making the UoA one of the few institutions globally to specialize in them. As a group they have made several unique empirical and theoretical contributions, regarding, for example, the role of explicit knowledge in foreign language grammatical development for young learners, and how vocabulary is acquired through listening. A combined Field-Weighted Citation Impact score of 4.85 is evidence of the high quality of their 2014-2020 publications. The arrival of Joseph and Flynn in 2015 added a new EAL-related dimension to area c), enhancing the existing strong research base in word reading established by Powell. This dimension includes methodological innovation in the form of eye-tracking studies that have led to advances in theory relating to the role of context in word learning for EAL learners. Research into EAL has also gained an interdisciplinary aspect, examining its impact on mathematics attainment (Trakulphadetkrai et al., 2017).

Our research on equality issues within education (gender, ethnicity, socio-economic status, Special Educational Needs and Disability - SEND) has been further developed through the recruitment of colleagues such as Wong who take a disciplinary perspective on those questions, focusing on mathematics, computing, and STEM and complementing existing work in History education by Harris. The work has made a significant contribution, strengthening theoretically, methodologically, and empirically understanding of notions of capital and decision-making in science-related curriculum areas. Wong, with Jones (UoR since 2015), also complements our existing expertise in research into higher education established by Fuller and Floyd. Their work as a whole is advancing theories of academic identity-trajectories within HE from a gender, class and ethnicity perspective, through the consideration of such notions as the 'ideal' university student and what that means for the potential gap in expectations between lecturers and students, in turn influencing academic support and attainment. Despite the retirement of Croll and Porter, a focus on SEND has been maintained through a ground-breaking Leverhulme Trust grant, *Access and Higher Education: Inclusive Online Learning for Deaf Students*. The appointment of Webster (July 2020), whose research on the role of Teaching Assistants in SEND is world-renowned, will help us to increase further our capacity in this area.

The quality of our research across all these areas is evidenced beyond bibliometric measures and through other tangible achievements such as the award of fellowships, including a 'Rising Star' fellowship to Joseph from the British Academy (2017) and a Fulbright Scholarship (2020, Flynn).

Our large increase of per FTE research income results from this strategy and the staff development measures outlined under 'People', notably training in research methods, impact generation and support for grant writing. These measures have led to an increase in the number of successful grant proposals (Section 3). Our focus on peer review and on developing research-user relationships has had a significant influence on the quality of our funding applications and ensuing impact activity.

Impact has been strengthened through a four-pronged strategy applied throughout all our research areas and key to supporting the development of our selected Impact Case studies (ICS). Firstly, via **Impact through research-informed teaching.** Our recruitment strategy has allowed us to appoint new staff members who are internationally known researchers and who can also make important contributions to Initial Teacher Education (ITE) and teaching-related programmes. One third of submitted staff have had major roles in ITE over the assessment period, ensuring continued impact from their research on teaching and learning in over 600 partnership settings across seven local authorities and 13 curriculum areas. This synergy between research-active staff and ITE is a key aspect of the UoA's distinctiveness. That is especially the case in MFL, History, Mathematics, EAL, and reading-related pedagogy, where overall we have influenced the classroom practice of an

estimated 1500 trainee teachers since 2014. In those areas, the ITE programmes are structured around the research of UoA members on factors influencing pupil learning. Furthermore, the UoA's research on teacher education guides much of the IoE's pedagogy for ITE, also influencing ITE in other universities (e.g. Oxford, Cambridge, Portsmouth, York, for MFL and early reading). We run a research-driven programme of CPD for NQTs, structured around the research of submitted staff members in the areas of EAL, educational aspirations and self-regulation. Overall, TR staff collaborate closely with TI colleagues to ensure a vibrant and sustainable relationship between research and practice, further strengthened by the IoE's policy of funding doctoral studies for TI staff (Section 2).

Secondly, we have planned for and achieved **increased visibility for our research**, through staff training and internal appointments to increase opportunities for Impact. Since 2014, strategically directed staff training in proactive media and policy engagement organised by our Impact Lead has resulted in the UoA's contribution to ten government consultations (for example on literacy and language education, STEM, and History education) and to national and international public debate through the media (for example, in New Zealand regarding the teaching of early reading). The whole UoA has presented its research at the House of Commons. In 2018 a dedicated Director of Research Communications role was created as part of our development of a more focused research media strategy, including greater use of blogs, research videos and regular news features. Since then, our research webpages have been considerably strengthened to make research staff and their outputs more visible to organisations seeking advice and consultancy. As a result, views of our research webpages have increased from 3,818 (77 countries) in 2018 to 14,682 (131 countries) in 2020. We also hosted 16 high-profile workshops and conferences to widen the reach of our Impact. We have given priority to promoting the work of ECRs within our research communications, as part of our longer-term strategic planning (see *Future strategic aims*).

This greater visibility has enabled us to forge more practitioner partnerships in the wider community. We have positioned ourselves as an important provider of research-based advice for schools, charities and other organisations. For example, EAL research has led to a well-established relationship with Hampshire Ethnic Minority and Traveller Achievement Services (EMTAS), influencing their work with teachers of EAL learners in 479 schools. Collaborations for the UoA as a whole range across diverse local and national organisations such as Thames Valley Police (Section 4).

A third and crucial plank of our Impact strategy has been to **gain funding to support work with partners**. In addition to making Impact an integral part of funded research projects, we have consciously sought funding exclusively for Impact work, especially for our ICS in foreign language and literacy education. Hence over the assessment period we have become an important provider of research-based CPD for the DfE because of the research profiles of five members of the UoA. These have led to DfE contracts for teacher development in phonics and MFL totalling around £160,000. The work has reached teachers from 367 schools across five governmental regions in the case of phonics and ~130 primary and secondary schools across England in MFL. ESRC *Impact Acceleration Account* and EU funding has also been gained to achieve Impact across Europe from research into primary and secondary MFL. The reach and significance of our MFL Impact was recognized through the award of 'highly commended' in the 2018 Oxford University ESRC **O2RB Excellence in Impact Awards**.

Fourthly, Impact has been enhanced and facilitated through **strategic decisions to support it financially and in workloads**. It has been included in the IoE's workload model and is recognised and rewarded within probationary reviews and promotion cases. This has been important to allow submitted staff to develop close partnerships with practitioner organisations. For example, it has enabled Flynn to support practitioners with EAL pedagogy through her role as Chair of Events for the National Association for Language Development in the Curriculum (NALDIC). Vital financial support has come in the form of funding for Impact activities by the IoE, CeLM and UoR's Building Outstanding Impact Support Programme (BOISP, totalling £13,500). The latter funded the prizewinning community project, *Marvellous Mums* outlined in Section 4.

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(b) Establish new inter-disciplinary and collaborative initiatives

Strategic appointments and networking activities to promote **new inter-disciplinary and collaborative** initiatives have been very successful in driving forward greater co-working both within the UoA, between UoAs, and beyond the University. Influential collaborations include the establishment of a cross-University Gender and Empowerment group, giving prominence to Jones' research. One outcome has been her invited participation in the **Women and Work APPG (All Party Parliamentary Group),** focusing on how the COVID-19 pandemic impacted women in the workplace.

Members of the UoA have led and participated in approximately 40 collaborative, largely interdisciplinary, externally funded grants. These include *Creative Multilingualism*, a high-profile £3.2m international project with five other universities headed by Oxford in which the UoR led the Education Strand. Our Leverhulme Trust grant unites experts in the UoA in language comprehension difficulties with UoR colleagues in computing. We co-supervise PGR students with other Schools and in 2018 we jointly won an ESRC staff-student collaborative doctoral award with Psychology.

(c) Increased recruitment of highly quality research students

Our doctoral awards have increased from a total of 45.5 (2008—2013) to 112 (2013-20), namely 8.89 per submitted staff. The number of PGR students commencing a doctorate in the IoE increased nearly threefold across the assessment period. These increases have resulted from measures detailed in 'People', namely: staff development in doctoral supervision, leading to improved submission outcomes; collaborations as part of the Southeast Network for Social Sciences (SeNSS) Doctoral Training Partnership; ESRC Collaborative studentships and SeNSS studentships; success in winning Regional and University PGR Bursaries, and the development of our Professional Doctorate. They also follow on from the enhancement of the overall research profile and capacity of the UoA, achieved through the strategic initiatives outlined earlier and further supported by joint supervision of PGRs across TR and TI staff. Similarly, ECRs act as second supervisors to expedite their potential as lead supervisors. We have developed rigorous PGR recruitment policies, including interviewing all shortlisted applicants, raising English language entry requirements, and annually reassessing the viability of recruitment targets. These measures have allowed us to maintain our student numbers at a level that is both sustainable yet high enough to create a vibrant research environment.

Future strategic aims and goals for research and Impact

Our future aims relate primarily to maintaining the strong upward trajectory for publications, research income, Impact and PGR excellence we have achieved since 2014. Specifically we will focus on:

- **increasing PGR supervisory capacity**, through continued and enhanced mentoring of ECRs, so that they can take on the role of lead supervisor to at least three students each over the next three-year period.
- **further developing provision for PGR students**, to boost our rising trend in passes with minor corrections, and to focus on career development. The former will be achieved through the continued application of more rigorous monitoring systems and academic writing support; the latter will target publication and teaching opportunities through mentoring, workshops and collaborations with experienced academics, with annual monitoring by the Research Committee.
- **forging more national / international partnerships**, aiming to win at least two large collaborative research grants in the next three years including those who have not held them before. Key actions will include: establishing targeted mentoring partnerships between more and less experienced grant-holders; pursuing grant collaborations with international Academic Visitors; building on new 2021 grant successes with Open (ESRC) and King's (Nuffield).
- **extending the number of researchers achieving wide-reaching and significant Impact,** so that within the next five years we generate three new Impact Case studies. This

will be achieved by further developing TR/TI staff collaborations, inter-disciplinary links across the University and offering enhanced training in gaining funding for Impact collaborations, especially for ECRs.

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2. People

Our staffing strategy is fundamental to our aims of increasing the research and impact capacity of the UoA and enhancing PGR provision, within the context of a diverse, equitable, vibrant and supportive working environment, where research and teaching complement each other. New appointments have taken leading roles in our Second Language MA programmes (Kasprowicz, Zhang), and in the development of enhanced research methods modules for PGR students (Joseph, Flynn).

Staff development
Our approach adheres to the principles of the Vitae Researcher Development Concordat of **environment and culture**, **employment,** and **professional and career development**. We address these through measures to ensure 1) research support including workload management; 2) research training; 3) mentoring; 4) review, reflection, mutual support and collective responsibility.

1) Research support: Workload management within the UoA is critical in enabling staff to undertake world class research. Staff meet termly with their line manager to review workload which is also considered in annual meetings with the Head of School and RDL. All staff can apply for research leave, as teaching buy-out, either funded by the IoE or by the University's funding streams. The latter have supported 50% of the UoA, through the Research Endowment Trust Fund (RETF – Floyd, Harris, Flynn), 2020 Fellowship (Joseph, Graham) and University Research Fellowship (Trakulphadetkrai) schemes. All submitted staff in post for more than three years have been granted research leave during the assessment period. For IoE-funded applications, leave allocations are closely targeted at supporting work on world-class publications and grant applications. The implementation of this policy has led to over 10 publications and to the increased grant success outlined in Section 3.

Further research support is provided by the IoE, RETF, BOISP and CeLM through funding for several purposes, including financing pilot studies for subsequent grant applications, supporting practitioner-researcher events, and funding research assistance for data collection and analysis for projects without external funding. Such projects are also supported through the Undergraduate Research Opportunities Programme (UROP), financing 20 projects in the IoE since 2014. Successful outcomes from internal funding support include the award of an ESRC grant in 2016, *Family Language Policy,* that received IoE seed-corn funding (later moved to Bath on the promotion of the PI to professor there). UoR funding was granted for 'gold' Open Access for articles and a monograph (Fuller, 2020, receiving £12k of funding) as part of our commitment to Open Research. Overall, this support has led to outputs with high academic impact. Examples, showing attention and field weighted citation impact scores, are as follows:
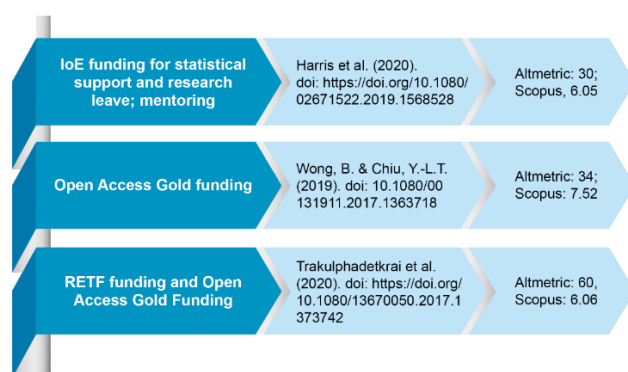
IoE funding for statistical support and research leave; mentoring	Harris et al. (2020). doi: https://doi.org/10.1080/02671522.2019.1568528	Altmetric: 30; Scopus, 6.05
Open Access Gold funding	Wong, B. & Chiu, Y.-L.T. (2019). doi: 10.1080/00131911.2017.1363718	Altmetric: 34; Scopus, 7.52
RETF funding and Open Access Gold Funding	Trakulphadetkrai et al. (2020). doi: https://doi.org/10.1080/13670050.2017.1373742	Altmetric: 60, Scopus, 6.06

Figure 5: Examples of targeted support and outcomes

All staff have an IoE-funded annual £750 conference attendance allowance which they can supplement with support from the UoR Research Travel Fund, permitting international research dissemination, and collaborative outputs with scholars from over 20 countries. Staff can also apply to an IoE 'Education' fund for additional training and support for research, including undertaking a doctorate on our EdD or PhD programmes. Since 2014, nine members of staff have been funded for such study, helping them work towards research independence and supervise PGR students.

2) Research training and mentoring. A major focus of staff training has been to enhance the quality of research outputs across the UoA and boosting citations as appropriate to the discipline. To that end we established peer-support Writing Group sessions in 2015, which have encouraged peer feedback and more extensive revision of publications before submission. Training has developed better understanding of quality, by, for example, basing peer feedback around principles for 3* and 4* writing. In addition to peer support, the RDL has engaged in close mentoring for writing with individual colleagues. The success of these initiatives is evidenced in the high levels of academic impact exemplified above.

The IoE provides weekly staff development sessions including research seminars and research training. Staff benefit from training provided by CeLM in writing grant applications and advanced statistics. Attending the latter enabled ECR Zhang to reanalyse data from his PhD and to win the IoE Research Output Prize in 2019 (Zhang & Graham, 2019). The ESRC *Accelerating Impact Account,* based at Oxford, has also provided training for Impact. Staff development sessions are open to TI staff as well as TR staff, to foster an inclusive and collaborative environment in which scholarship is valued and the research skills of all colleagues are enhanced. TR and TI collaborations, among staff at different career stages, also enhance staff development. A particularly successful example is the *Marvellous Mums* project, co-led by Fuller and TI colleague Kambouri-Danos, to promote greater self-confidence among women in the local community (Section 4).

3) Support and mentoring for early career researchers and new staff: New staff receive a comprehensive induction into the UoA's research environment. They are formally allocated a senior colleague as mentor, including support for developing research activity. Research induction is carried out by the RDL, the mentor and the Ethics Committee Chair. This induction strategy has led to rapid successes for new colleagues – for example, the award of a British Academy Small Grant to Wong for a study on *Mapping the characteristics of the 'ideal' university learner* shortly after his arrival.

Particular attention is paid to the induction and development of ECRs including Post-Doctoral Research Assistants (PDRAs) who have a mentor and annual PDRs. A bespoke ECR development programme has been introduced, including termly meetings with the RDL, a specific seed-corn funding allocation, and bespoke training, for example in 'Pathways to Impact'. Other support given includes media training and prioritizing the research of ECRs for showcasing through our Research Communications webpage, as well as joint planning of publications and grant applications with a mentor. The latter enabled Kasprowicz to be selected as an applicant for the ESRC 2020 Future Leaders Fellowship. PDRAs have benefited not only from UoA-based support but also from working on large, multi-institution projects such as the AHRC/OWRI-funded *Creative Multilingualism*. This has given access to inter-disciplinary training in a wide range of areas such as podcast production and career development, enhancing their employability. For example, one PDRA secured a prestigious ESRC post-doctoral role at UCL, exploring sign language acquisition. PDRAs are invited to become members of the Research Division, which helps to ensure their integration into the wider research environment.

4) Review, reflection, mutual support and collective responsibility. Expectations for submitted staff are clearly communicated and well understood regarding research funding, output publication, impact work and public/academic engagement, and research integrity. These expectations are then matched by support to enable staff to meet them. Annual PRPs with the Head of School and RDL encourage colleagues to reflect on their research goals and then to support them to fulfil

personal aspirations and those of the UoA. Mutual support and encouragement also come from the celebration of achievement through annual awards for the best outputs for researchers, at Lecturer and Associate Professor level, as well as Impact and Engagement prizes.

Adherence to the University's Code of Practice in Research is an important part of the UoA's collective responsibility and is overseen by the Research Committee for whom it is a standing item at termly meetings. The Research Ethics Committee, which includes ECR colleagues, maintains research transparency and reproducibility by reviewing all proposals for ethical approval and ensuring that staff are fully and regularly trained in all matters relating to research ethics, data storage and sharing.

Support mechanisms for, and evidence of the training and supervision of, PGR students.

A key aim of the UoA has been to increase the overall number and quality of PGRs to meet ambitious but realistic 5-year recruitment targets, providing an attractive, vibrant and supportive environment in order to achieve successful submission and employability outcomes for students.

We have awarded 112 doctorates during the period. A breakdown between PhD and EdD awards is below:

Type	2013/14	2014/15	2015/16	20161/7	2017/18	2018/19	2019/20
PhD	2	10	10.5	12.8	14.8	11.5	15.5
EdD		1	6	6	6	11	5
Total	**2**	**11**	**16.5**	**18.8**	**20.8**	**22.5**	**20.5**

Table 2: Breakdown of PhD and Professional Doctorates awards

Our student body has grown substantially during this cycle, and it is also more successful: in 2013-14, only 33% of students passed with minor amendments compared with an average of 77% 2015-2020. This improving trend is attributable to: the more rigorous selection process outlined in Section 1; enhanced student and supervisor training; and monitoring and support mechanisms that have been strengthened year on year. Each PGR student is jointly supervised and all research-active staff act as assessors for PGR monitoring. Alongside annual seminar presentations, and regular evaluations of written work by supervisors, full registration is only granted for PhD students after a successful viva based on a two chapter-length submission involving an assessor and an internal examiner. On the EdD programme students must gain an average of 60% or over for their assignments in the taught element of the course to progress to the thesis stage. The continued implementation of these measures, plus a new academic writing support programme, will enable us to improve pass rates still further in the future.

Growth in the PGR body has come from increasing the number of studentships available, investment in facilities, and the development of a more vibrant research culture. The international reputations of staff members attract applications from students supported by studentships from their home countries. Most important has been our membership of the SeNSS ESRC Doctoral Training partnership since its establishment in 2016. This has given access to ESRC studentships and to date we have won funding for four students. Around 70% of PhD students are in receipt of scholarships of some kind.

SeNSS membership benefits all our research students through a range of training and networking opportunities. They are actively encouraged to engage with SeNSS through a student-led journal and cohort-building events such as an annual conference. They can also access both research methods and transferrable skills training, covering, for example, communication and networking skills, leadership, personal/career development, and managing mental health. Collaboration within the Education Pathway across the five SeNSS partner universities is strong, each nominating an Education Pathway Lead. These meet at least twice a year to discuss how to share research

training and resources, and to evaluate studentship applications. The IoE has held the role of Education Pathway Chair since 2019.

Research students benefit from training within the Reading Researcher Development Programme, covering key knowledge and skills development in line with Vitae's Researcher Development Framework. Furthermore, to meet the more specific needs of Education doctoral researchers, in 2017 we established two Research Methods in Education modules, one in statistics, the other in qualitative and mixed-methods research, which all first year Education PhD students complete. EdD students cover research methods over years 1 and 2 of their programme, with progress assessed via an extended research proposal. Students' development is further enhanced through the IoE's weekly research seminars. These events providing evidence of a strong and integrated PGR culture across PhD and EdD researchers.

We have strong employability statistics for PGR students: two-thirds of those completing their doctorate in the assessment period were subsequently employed in university lecturer, PDRA or educational leadership roles. These successes are attributable to measures we have implemented since 2014, such as offering teaching IoE fellowships to students on completion of their doctorate to give them the experience needed for lectureship applications. In two recent cases this has led to a full lectureship within the IoE (Zhang), and a lecturer appointment at UCL for another. Students also gain valuable work experience from paid employment on staff research projects. They undertake paid MA teaching to increase their employability, supported by training from the University's 'Preparing to Teach' programme. Additional employment-focused support comes in the form of an exceptionally wide range of schemes, such as the UoR bespoke PGR Leadership programme, and SPRINT, a professional development programme for women. These programmes have been completed by 28, 11 and 10 IoE students respectively since 2014.

Promotion of Equality and Diversity (E&D)
Since 2014 we have diversified the UoA's profile by making appointments at a range of career levels: Chair (1), Associate Professor (4) and lecturer (4). The impact of central training in such areas as countering unconscious bias in recruitment can be seen in the increased percentage of submitted staff from BAME groups, from 15.6% in 2014 to 30% in 2020 (national average, 7%). Greater diversity has also been achieved by recruiting more researchers at earlier stages of their career as we have sought to nurture and develop promising new scholars coming through our PGR programme (Zhang). The ethnic and cultural diversity of the UoA provides a conducive environment for research that focuses on multilingualism and inclusivity as well as on challenges relating to equality in education. Other forms of diversity within the UoA make-up reflect our research priorities – for example, we are developing a new research strand, supported by an internal grant of £5k from the University, exploring the experiences of secondary school learners who are LGBTQ+ and their sense of inclusion. We take a very active role in the University's strategy for Widening Participation, with Wong taking a lead in his position as Associate Professor in WP that is then reflected in his research into equality issues for HE students.

E&D is also a key objective within the promotions process and allocation of research leadership roles. For example, because the UoA has traditionally had a higher percentage of white females in professorial and leadership roles, we have implemented measures to address that imbalance, while maintaining strong support for women through the Springboard and Aurora development programmes (e.g. Joseph). These measures have included offering male promotions mentors to male members of staff (all staff are considered for promotions mentoring on an annual basis). Within the UoA there have been three internal promotions to Chair since 2014, resulting in a gender-balanced professoriate. A further two male UoA colleagues have been promoted to Associate Professor during the assessment period.

Greater diversity has been achieved across research leadership roles by adopting a more distributed leadership model, creating more roles and hence more opportunities. Mentoring has encouraged applications for such roles from males across the ethnicity range, with the result that of the UoA's eight research leadership and deputy roles, three are held by males and three by those from minority ethnic groups.

We have taken full account of E&D considerations in our selection of outputs for submission, ensuring that our review group includes diversity of colleagues from the perspective of gender, ethnicity, career stage (including ECRs) and research methodologies. All outputs are reviewed by at least 2 reviewers, with all reviewers having recently completed Unconscious Bias training. The University's interim Equality Impact Assessment (2020) and bias analysis (2021) identified no statistically significant differences for protected characteristics in our selection.

Due account is also taken of individual circumstances in the consideration of applications for promotion and workload as an important part of our attention to staff wellbeing. Flexible working and individual support have been provided within the UoA for a range of personal concerns, ranging from caring responsibilities to serious health issues. Modifications to the working environment are made for staff with disability, such as deaf research staff on the Leverhulme project who are supported by BSL interpreters.

Our PGR body is also diverse regarding ethnicity, country of origin and age, as shown below:

Nationality			UK		Not UK		Age on entry		
UK	Not UK	Number of Non UK nationalities	White	BAME	White	BAME	21-24	25-34	35 +
58%	42%	25	86%	14%	16%	84%	2%	30%	68%

Table 3: Characteristics 2019/20 PGR doctoral students

As part of that drive towards greater diversity, we have actively encouraged applications from students from less traditional academic backgrounds and age groups, for example by supporting them to apply for such schemes as the Wilkie Calvert and UoR Regional Bursaries. The former pays tuition fees for professionals to undertake part-time PhD study, which both supports their own career development and is of strategic importance to their employer. The latter pays tuition fees for strong applicants living within 25 miles of the University and helps support professionals from the local community, many of whom are teachers. Five students have undertaken doctoral study 2013-20 with such support and a further two have been funded through the UoR Widening Access Fund. The EdD similarly allows practitioners to combine employment with doctoral study, and students come from a range of backgrounds: the NHS; the armed forces; and social work, for example, as well as teachers from all phases of education.

Ensuring wellbeing for staff and students is a key goal for us. UoR provides online and in-person support for wellbeing, and colleagues have been fully and regularly briefed regarding what is available. For students, the University has a Student Wellbeing service for short-term counselling and mental health support. An external wellbeing consultant runs a blog for PGR students, offering support, wellbeing activities and a forum for discussion. This is supplemented by Graduate School drop-in sessions. The IoE established additional support in the form of online communities during the COVID-19 lockdown.

At a material level, a range of measures have significantly enhanced the IoE PGR experience. All PGR students receive an annual allowance of free photocopying and conference attendance; we have invested in a key card system to provide 24-hour access to the PGR building. Further material improvements to PGR provision include the upgrading of all PGR computers.

3. Income, infrastructure and facilities

Research income per FTE has doubled over the assessment period. Research awards (c. £1,9m, vs. c. £900k, 2008-13) have come from approximately 22 different funders, across 40 different projects, representing significant research vitality especially given the size of the UoA.

Our strategy for increasing research income has had three inter-related aspects: (1) developing strong, lasting relationships with funders and forging relationships with new and diverse funders; (2) building key academic and non-academic partnerships; and (3) strengthening support for staff in grant writing to ensure grant success for the majority of submitted staff.

Taking each of these in turn, lasting relationships with funders are evidenced through linked projects that we have led or co-led, supported by the same funder. For example, grants from the Templeton Foundation group totalling £674k in the assessment period, supported five interrelated projects to explore pupils' and teachers' thinking about science and religion. Two interlinked grants from the Nuffield Foundation (one led by Oxford) supported research into French language learning from primary to secondary school. Funding was also obtained from the European Commission in a collaborative project (led by the Goethe Institute) to develop a digital game to assess young learners' progress in foreign languages, building on the findings of the original Nuffield study. Most recently, our project with the Nuffield Foundation exploring the impact of a dialogic book-sharing training programme evidences our strong-track record in project management through which we gain the trust of funders.

Alongside continuing to win funding through established links and with research councils, we have developed relationships with a wide range of new funders, including charities, national and local government, industry/private companies and subject/professional organisations, **a selection of which are presented here**:

Charities (Other) associations	• An examination of the impact of the history residential programme at Ufton Court – **Ufton Court Educational Trust** • Outdoor adventure activities and impact on educational attainment and aspirations – **Society for Educational Studies** • Raising aspirations and self-esteem – **Royal Society of Wildlife Trusts** • 4Ps - Project: Practitioners & Parents Play Partnership – **Froebel Trust**
National and local government	• Improving language outcomes in EYFS (Early Years Foundation Stage) – **Reading Borough Council** • Migration Excel – **Home Office**
Learned societies and subject associations	• Exploring the role of Associate Dean in UK Universities – **Leadership Foundation for Higher Education** • Youth Engagement Initiative – **Institute of Physics**
Private companies	• Enabling play: software analysis – **Enabling Play Ltd** • Research to explore and evaluate the ways in which Exploring Science supports formative assessment – **Pearson Education Ltd** • An Evaluation of the Nxplorers Programme – **Shaping Learning Limited**

Figure 6: Overview of links with new funders

This range reflects our decision post-2014 to target more diverse funders, together with our ability to attract smaller funders and private companies who approach us to undertake research because of our reputation in a number of niche areas: for example, in educational aspirations and issues of equity, parental partnerships, outdoor learning, and educational leadership.

Building key academic and non-academic strategic partnership has also led to improved grant success. Long-standing collaborations with Oxford and Cambridge universities have underpinned grants in language and science education in the Nuffield/Faraday projects outlined above. Additionally, we have targeted new partnerships with other universities, allowing us to secure funding such as a grant from the Froebel Trust with Roehampton and Open, and a British Academy grant with Imperial exploring university learners. International partnerships have been developed such as Powell's British Academy-funded project with University of Nottingham, Malaysia, enabling us to extend our reading research by exploring cross-language transfer among bilingual Malay-English speaking children.

Considerable collaboration with non-academic partners has led to successful funding applications, ensuring that our grant proposals are based on the needs of non-academic users from the start and put societal impact at the centre of project design. As outlined in Section 1, we led the Education strand within the £3.2m AHRC/OWRI-funded *Creative Multilingualism* project, an inter-disciplinary collaboration involving six universities. The project was underpinned by partnerships with organisations ranging from the British Council to GCHQ who worked with academics to formulate the proposal, ensuring it was rooted in the needs of users, namely to help change public perceptions of multilingualism. The ESRC-funded collaborative project with Cambridge investigating learning outcomes in India similarly took as its starting point the local needs of practitioners, explored in discussions with charities and schools. Most recently, in 2019 we won funding of approximately £200K from the Leverhulme Trust for a project with two local user organisations, Deafax and Goals4Life, collaborators who were integral to the shape and design of the project and who are working with us to investigate online learning for deaf students in HE.

Finally, mechanisms have been developed to strengthen support for staff at all stages of the grant writing process. Fortnightly drop-in funding surgeries with a dedicated Theme Research Development Manager offer advice on funding sources and applications. UoA staff have benefited from grant-writing and Pathways to Impact workshops supported by an expanded Research and Enterprise team, together with the Research Dean and by CeLM.

Most important to our increased success has been our internal peer-review process, which complements a Grant Development College established by the Research Dean. Early drafts of funding proposals are discussed in the supportive environment of our Writing Groups. Subsequent drafts are then reviewed more formally by the RDL and experienced researchers from the Research Committee who comment extensively on successive drafts**.** During the assessment period, **75% of submitted staff have had external research funding,** a testament to the success of our approach.

Infrastructure and facilities: For these we enjoy considerable support from the IoE, CeLM and the wider University. Our London Road Campus, refurbished by the University in 2011 at a cost of over £30 million and carefully maintained and updated since then, has unrivalled large room space for hosting public engagement and Impact events as well as a dedicated PGR study space with IT and printing facilities. Staff and students can access a range of research software to which the University subscribes. Our dedicated Blackboard site for PGR students includes lecture notes with embedded audio for topics that have been covered in research methods training. These provide important support for all PGR students but especially for those studying at a distance and during lockdown. All members of staff make use of the University research repository, bringing enhanced external visibility for our publications. The University has invested over £40 million in library refurbishment during the assessment period, with benefits to staff as well as PGR students. Further important investments in infrastructure include the purchase of a £28,000 portable eye tracker for use in reading research in external educational establishments, with joint funding from the IoE and the University. This investment was crucial for Joseph's successful application to the British Academy for a study of word learning among EAL pupils, for gaining Leverhulme funding to explore online learning, and in securing an ESRC PhD studentship in 2017 to investigate reading difficulties among Chinese university students. Infrastructure investment led to the creation of a bespoke research interview room, essential for those working on eye-tracking research; and to the

refurbishment of office space to enable us to accommodate groups of PDRAs working on large funded projects (e.g. *Creative Multilingualism,* the suite of Faraday science projects) in one place.

Overall, the assessment period has seen greatly enhanced research income, infrastructure and facilities. The significance of these developments lies in the extent to which they have allowed us to **boost the academic and societal impact of our research.** Approximately 25 high quality research outputs and consequent significant academic impact have arisen from externally funded projects, reflected in our strong bibliometric measures. Subsequent impact on non-academic groups from our funded research has been wide-reaching, both from our two Impact Cases on foreign language and literacy education and across the full range of our research, as we detail next in Section 4.

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

Research collaborations, networks and partnerships have been a vital component of our strategy to gain research funding and establish the UoA as a valued contributor to the national and international research base. Our academic partners in funding applications span numerous universities and over 10 disciplines, from ethno-biology to translation studies. We have had more than 70 user partners for our funded research in addition to the 608 educational settings in our ITE partnership across Early Years, Primary and Secondary education. Trainee teachers whose education has been shaped by our research have a direct impact on pupils' learning in those establishments. Since 2014 we have shared our research with over 100 Academic Visitors from 12 countries.

Academic collaborations and contribution to the research base
As outlined in Section 3, research funding has been gained in partnerships with a range of universities from the UK and from overseas. Further funding applications have been submitted with several international universities, as the following selection exemplifies:

Humboldt University Berlin	• Gender Equality • Application to Horizon 2020 (2016)
Auckland University of Technology, University of San Francisco	• Leadership in Education • Application to Leverhulme Trust (2018)
Turku, Finland; Chinese University of Hong Kong; Griffith, Australia	• Primary teachers' beliefs about mathematics • Application to Spencer Foundation (2014)

Figure 7: Academic collaborations and outcomes

A Fulbright Scholarship (2020, delayed by Covid) supports Flynn's collaborations with researchers from the USA to explore pedagogy for EAL (Indiana University & University of Nebraska). It aims to provide two-way learning to enhance international understanding of what effective teaching looks like for multilingual learners. For MFL, submitted staff and a PhD student have made written contributions to the Open Accessible Summaries In Language Studies initiative, a collaboration across six international universities, to make research findings on language education available and accessible to a wide audience, reaching over 2000 readers. We also contribute to research in the wider UoR. For example, mentorship from TI opt-in Division member Bilton is underpinning a Psychology-led £1M ESRC-funded Future Leaders grant exploring adventurous play in schools as a mechanism for reducing childhood anxiety.

Submitted staff **support the development of the discipline** through subject association committee membership, journal editorships, grant reviewing, keynote presentations and hosting high-profile international conferences, summarised here:

Subject associations	• Committee members across 10 associations, including history, mathematics, SEN, EAL and MFL education
Editorships	• Six Editors / Associate Editors: educational leadership, intellectual disability, primary mathematics, reading and developmental psychology
Grant reviewing	• Reviews for 17 funders across 12 different countries
Keynote presentations	• 40 keynote and other high-profile lectures across 10 countries
High-profile conferences	• 17 organised at UoR by UoA members • 6 held elsewhere but organised by UoA members
Public and policy engagement	• 10+ media appearances across the UoA • 10+ contributions to policy-related documents and government consultations • 15+ presentations at practitioner events

Figure 8: Contributions to the discipline

We have made substantial contributions as organising committee members of high-profile events organised by CeLM, such as the 2016 three-day European Second Language Acquisition Conference.

Societal Impact

Our work with non-academic partners makes an extensive and significant societal contribution, over and above what we outline in our Impact Case Studies, across a range of settings. We have diverse partnerships relating to (1) educational aspirations, Higher Education access, community cohesion and education leadership (IEIE group); and (2) EAL, English literacy and MFL (LaLIE group). The small selection of our work below exemplifies the extent and diversity of our Impact.

i) Local community

In 2018 we drew on our expertise in widening participation to help Thames Valley Police evaluate and improve their primary school 'mini-police' scheme (UROP funding). Changes in how TVP recruit volunteers to the scheme and its integration into the school curriculum resulted from the evaluation, enhancing the positive impact on police-community relations. The project fed into a wider national evaluation of the initiative. Our long-established partnership with Hampshire EMTAS arising from our EAL research led to the award of an interdisciplinary ESRC Collaborative studentship (with Psychology) to explore the impact of The Young Interpreters' Scheme on learners' language and literacy development. The project is generating data to explain the success of this initiative and help other schools to adopt it. We won a further ESRC Collaborative Studentship with a Southampton multi-academy trust to explore the relationship between professional development in EAL pedagogy and learning outcomes, to achieve long-term impact on classroom practices. Pilot work with one school of 98% EAL learners has already changed practice and curriculum planning in embedding the US-led multilingual pedagogy closely associated with Flynn's Fulbright Scholarship. The *Marvellous Mums* project, growing out of research funded by the Society for Educational Studies, established important mechanisms for

raising the educational aspirations of women from local communities with traditionally low levels of HE participation. Working with local partners, including Reading Borough Council's social work team, it has encouraged participants to enter the workplace, sign up for college and make other significant changes to their lives. In 2020 the project won a UoR Research Engagement and Impact award in recognition of its benefits for the local community.

ii) National reach
Our research in MFL (language learning motivation, language comprehension, and grammar acquisition) is at the core of national training for teachers of MFL, underpinning central strands of a high-profile DfE-funded CPD initiative, The National Centre for Excellence in Language Pedagogy (NCELP). NCELP has trained teachers from over 45 schools, benefiting an estimated 22,000 learners across England and helping to improve uptake of language study nationally. During lockdown, NCELP training that Graham and Kasprowicz devised supported remote teaching nationally for ITE and via the Oak National Academy.

At policy level, as outlined in our Impact Case Studies, our research informed curriculum and assessment in England in MFL and reading, influencing reforms in GCSE, A level, and phonics assessment at KS1. Our phonics research is at the core of the phonics screening test used in all state primary schools in England, and is cited in the research summary underpinning OFSTED schools' inspection framework. In addition, we have made key contributions to policy-related documents and government consultations in non-language areas, including those relating to: computer education, the All-Party Parliamentary Group on Diversity and Inclusion in STEM; and the Holocaust Commission. In February 2018, Fuller led a symposium in the House of Commons on childhood equality. Furthermore, she was the only named individual whose written evidence was cited in the 2017-18 report by the All-Party Parliamentary Group on Social Mobility on the regional attainment gap, which was then used in the House of Lords to take forward the debate about how to address such a gap.

ii) International reach
Our research in primary languages led to the development of *The Language Magician* digital assessment tool, used to give an enhanced sense of progress to around 22,000 learners across 94+ countries. Outcomes from the UoA-developed phonics screener led Australia to launch their own test from 2019 onwards in two states, in order to improve reading outcomes for children in ~500 schools. In mathematics education, our research into the benefits brought by employing stories to teach numeracy has been used to advise Ireland's National Council for Curriculum and Assessment. The approach has been embedded into initial teacher education in mathematics across 30 universities nationally and internationally, leading to changes in practice and improved understanding of ITE tutors and trainees. Related web-based resources have reached 115,000+ visitors from 198 countries, supporting mathematics learning including during the pandemic.

Overall, the recognized quality of the research of the UoA, together with the academic and non-academic partnerships it has forged, has enabled it to make important and lasting contributions to the subject area, locally, nationally and internationally.