REF2021

| **Institution:** |
| Glasgow Caledonian University |

| **Unit of Assessment:** |
| 23: Education |

1. Unit context and structure, research and impact strategy

UoA23 is centred around work carried out over two GCU campuses (Glasgow and London), mainly through the Educational Research & Evaluation (ER&E) Group which is situated within the Department of Academic Development and Student Learning. Its overall objective is to drive and support educational research and scholarly activity in pedagogy, practice, policy and participation in partnership with the academic Schools. As such, it is inherently multidisciplinary, seeking to complement the activities of Research Centres and other research groups working across the University.

The overarching driver for the team's work is the GCU 2030 Strategy, particularly its goal of 'Transforming lives through education'. Activities are also closely aligned to the Strategy for Learning, guided by priorities emerging from external drivers such as the SFC Outcome Agreement, the QAA Enhancement Led Institutional Review, as well as the National Student Survey and other measures.

The establishment of the ER&E Group is a manifestation of an enhancement and evidence-led approach to improving the University's Learning and Teaching as a part of the University's wider Research Strategy. With the University's adoption of the United Nations Sustainable Development Goals (SDGs) as its guiding framework, the research carried out by the Unit aligns closely with: SDG4 (Quality Education) - Colin Milligan's work on Massive Open Online Courses and Dane Lukic's work on Intercultural Competence; SDG8 (Decent Work and Economic Growth) - Dane Lukic's work on Learning from Incidents, Nicola Andrew's work on professional development in Nursing, Jacqueline McCallum's work on Nurse Education, and Colin Milligan's work on Personal Learning in the Workplace; SDG9 (Industry innovation and Infrastructure) - Dane Lukic's work on Learning from Incidents; and SDG10 (Reduced Inequalities) - Karen Campbell's work on widening access in Higher Education, Colin Milligan's work on Massive Open Online Courses, and Larissa Kempenaar's work on gender issues in HE. Conscious alignment to specific UN SDGs provides a strong organising principle for our work and facilitates new opportunities to explore interdisciplinary opportunities with researchers in other disciplines and collaboration with industry, practitioners, and end users, in the overarching pursuit of SDGs 4 (Quality Education) and 17 (Partnerships for Goals). The University has achieved a top 50 rank (43 out of 766, 2nd in Scotland and 8th in UK) in the Times Higher Education University Impact Rankings, which show how the Global Education Sector is working towards SGDs. UoA23 has played a major role in this, especially establishing international and interdisciplinary partnerships for knowledge boundary crossing, especially with ODA countries as key partners.

PROGRESS SINCE 2014

At the time of REF 2014, education research at Glasgow Caledonian University was focused on two centres: the Caledonian Academy, and the Centre for Research in Lifelong Learning. Our educational research structures have since been refreshed to support research-driven pedagogical innovation in our taught programmes, and to enhance cross-school, interdisciplinary and collaborative external impact through internationalisation of research activities. The current education research program builds on the strengths and previous achievements of our educational research from the previous period but is now distributed across the University through a network approach with a focus in Educational Research and Evaluation.

Despite the structural changes, as envisaged in the 2014 REF, we have mentored and developed education researchers across other disciplinary contexts in GCU and beyond, as part

of a broader strategy designed to provide baseline evidence to underpin professional practice and build a rich education research environment. The University has demonstrated its commitment to promoting the Scholarship of Learning and Teaching at all levels through the appointment of its first Professor of Learning and Teaching, as well as support for development of educational researchers within the Schools. This central focus enables interdisciplinary, intra- and inter-school collaboration across three Academic Schools in Glasgow as well as the GCU London campus guided by our Research Strategy 2020 and Strategy for Learning 2015-2020. Our institutional strategies include a commitment to enhance the research-teaching nexus and educational research and scholarship helps to underpin academic endeavours across the whole of the University and, in particular, to internationalise our research activity.

RESEARCH THEMES

The overarching theme of exploration of the Education UoA (Unit of Assessment) is that of learning and learners across contexts. It recognises that learning is a lifelong and life-wide phenomenon that involves and requires cross-fertilisation of knowledge across the various learning contexts that the learner encounters and makes transitions between them (e.g., formal, informal, professional, workplace). Research undertaken by the staff within the Education UoA during this REF period is organised in three strands:

1. A focus on learning beyond formal contexts. Colin Milligan's work explores how knowledge workers support their ongoing learning needs in the workplace whether through informal self-regulated workplace learning, or through the pursuit of semi-formal learning opportunities offered by the rise of Massive Open Online Courses. Dane Lukic's workplace learning research looks at learning in organisations, focusing on how new learning practices can be propagated effectively. Larissa Kempenaar's work on academic writing in Higher Education again considers the informal learning and development of higher education staff.
2. An exploration of the complex roles of learners across contexts. Situated within a healthcare context, another strand of our educational research again looks at professional learning including Nicola Andrew's work focusing on practice development among healthcare professionals and Jacqueline McCallum's work exploring the role of mentorships within the nursing profession. As with our first focus, this strand of work highlights an important aspect of our UoA in general that looks beyond traditional conceptions of learners.
3. A focus on how learners develop as individuals. The third strand includes Karen Campbell's (see papers by Karen MacFarlane) research exploring how learners develop as they make the transition into Higher Education, research focused on understanding the development of intercultural competence of both students and HEI staff and developing approaches to foster inter-cultural awareness (papers by Dane Lukic) and research on self-regulation and how it empowers learners to take control of their learning (papers by Colin Milligan).

INTERDISCIPLINARITY

As an Education Research Unit that is not based in a University with an Education Faculty, nor focused on teacher-education, our work and approach is intrinsically interdisciplinary. Our work with industry on Learning from Incidents necessitated an approach that was flexible enough to appeal to industry experts who were not trained researchers, and whose specialism was not education, but instead drawn from a range of disciplines including petrochemical engineering, health and safety and risk management. Similarly, our research on Massive Open Online Courses emerged from our work on informal learning in the workplace and our view of these new forms of education was to see them as sitting at the boundary of professional practice and learning. This led to research designs and approaches that combined the norms of research into online learning and technology enhanced learning, with current thinking and practice in

workplace learning research. Our practice-based research in Nursing also reflects this inherent interdisciplinarity, with attention paid to the role and expectations of professional bodies, and the tension between learning and practice, that followed the structural changes to Nurse Education introduced in the last generation. Our network approach to educational research across the University and beyond has allowed such knowledge boundary crossing for tackling complex learning issues.

IMPACT

While our research portfolio is varied in its focus and approach, all our researchers recognise the importance of generating research that addresses real-world problems (in line with our University's commitment to the 'Common Good') and which has practical value. While, for some primary research, this commitment manifests itself as the sharing of research instruments and broad dissemination of research findings through non-traditional routes, it is also evident in our focus on creating tools and toolkits through which end users can interact and engage with the outcomes of our research. This submission includes two impact case studies relating to our research. In the first, Improving organisational safety through learning from incidents, GCU team's research resulted in the co-production (with industry bodies and end user companies) of learning science informed frameworks and toolkits to directly improve Learning from Incidents. In the second case study, Intercultural competence development for student and staff in HEIs (Higher Education Institutions), our research on intercultural competence development for students and staff led to the development of a 'Toolkit,' of innovative and open models and resources and is now used by a variety of international HEIs to improve intercultural learning experiences of their students and staff.

INTERNATIONALISATION

The GCU ER&E research network views its work as intrinsically international through two perspectives: our research on intercultural competence and our conscious strategic principle of fostering international networks. Our research on intercultural competence directly contributes to policy and practice on internationalisation in higher education as it highlights the need to consider cross-cultural perspectives that go beyond the narrow 'nation state' concepts. As such, we critique the University internationalisation policies that focus predominantly on financial, numerical and mobility's perspectives, and we emphasize the development of intercultural competence for students and staff for a global and inclusive world as a central purpose of all internationalisation strategies. Our work and contribution to this debate has resulted in several institutions redesigning their internationalisation policies to explicitly include 'inter-culturalisation' perspectives (for example Universidad Don Bosco and Universidad Tecnologico de El Salvador). In addition to this, the Unit has fostered international networks through its research projects across the world, taking advantage of programmes such as Erasmus+ Capacity Building in Higher Education (for which GCU is the UK's largest beneficiary) to increase the reach of its research impact. Working with other departments (such as the Research and Innovation Office and International Office) and UoAs (e.g., 17, 13, 12 and 3) within the University, projects specially aimed at enhancing the teaching-research nexus have been successfully implemented across North and Latin America as well as Israel, Iran, Vietnam, Egypt and Indonesia. We have also co-created research with diverse organisations and individual professionals around the world (from the EU, Canada, USA, Argentina, Mexico, El Salvador, Vietnam, Philippines). This inherently international approach to our research practice has allowed us to achieve profound results in research and impact around the world, despite being a relatively small group of educational researchers within GCU.

OPEN ACCESS APPROACHES

All our staff adhere to formal open access approaches as set out by the University's Open Access to Research Policy (2014). This was further enhanced with updated PURE system modules that allow public sharing of outputs and research activities. The PURE aligned staff profiles are now searchable through main search engines which further enhances the visibility of our research activities. In addition to our institutional Open Access policy and practice, the educational research staff members are encouraged to additionally share their research whenever permitted through a variety of public fora including Mendeley and ResearchGate and publish using Creative Commons licences. These mechanisms increase the visibility of research and are particularly valued by researchers in developing nations who may not have access to expensive journal subscriptions. Sites such as ResearchGate aggregate new research outputs from researchers across the world and have become an important mechanism of discovery for new research. Sharing of research extends beyond primary research outputs and research staff are also encouraged to share presentations, data and research instruments through platforms such as Figshare to increase the reach and availability of these research artefacts and signal the openness of our practice. For example, Milligan's instrument to measure self-regulated learning in massive open online courses (SRLMQ) has been viewed >4700 times and downloaded >1300 times during the current REF period.

RESEARCH INTEGRITY

The unit works within the University's research integrity infrastructure, providing local advice and resolution available in the first instance. The unit is represented on the University Research Ethics Sub-Committee by the Chair of the Local Research Ethics Committee which oversees all applications for education research. The same process is used for all activity - from scholarly evaluations of teaching through to approval of funded research projects - ensuring that researchers can become familiar with a single set of procedures and encouraging new researchers to adopt good practice at the outset of their research career.

MOVING FORWARD

The education research that we undertake at GCU is applied and impactful, ranging from the development of intercultural competence and widening participation in higher education, to learning from situated work-related incidents. Our environment is reflective of a wider move in the sector towards a more diverse and inclusive culture; one where staff and students are encouraged to become part of a research community and where individual and collective contributions are grounded in the University's Common Good mission and vision, and reflective of our commitment to a high-quality education (SDG Goal 4).

The current REF period has been a time of readjustment with the emphasis on supporting the development of new educational research capacity. The next REF period working towards 2027 will build on the establishment of the ER&E team and focus on the wider recruitment and development elsewhere within the University of academic development staff with an educational research background. It will also be about consolidating and growing our international networks. The upheaval caused by Brexit has necessitated a re-calibration of our internationalisation strategy, which has been heavily reliant on European Commission funding through Erasmus+. In the next period we will explore other opportunities at a national, transnational and international level (e.g., British Council, GCRF, etc.).

The changes brought about by the COVID-19 pandemic will impact on education research and influence the way forward in the sector as we move towards the next REF. At GCU the ER&E team have already informed mainstream academic practice in new ways. Exploring and reporting findings from the rapid move to remote working and the impact of mainstreaming the online environment on staff and students has enhanced their institutional profile and signposts

new activity as we work towards the next REF. This is reflected in the strategic objectives detailed below.

STRATEGIC OBJECTIVES

Our overarching strategic objectives balance our external and internal aspirations:

- Capitalise on the positive outcomes of REF21 and work towards an enhanced submission by developing an action plan aligned with the University Research Strategy that continues to build a critical mass of education researchers; strengthens existing and creates new research networks/collaborations (internal and external) and embed the training and support needed to sustain a vibrant community and increase successful external funding applications.
- Build on existing expertise to support the generation of a cohesive body of knowledge that impacts on learners both within and beyond the University, ensuring that external research impacts practice within and vice-versa. A recent example of this is the TRUST-EU grant which brings together expertise from the ER&E team and staff in GCU London (along with a range of international partners) to improve Masters level business education.
- Align with the University's commitment to the GCU Common Good mission and vision, recognise and respond to the pressing need to address current and future societal challenges through a sustained commitment to research that positively contributes to the quality of the student experience by exploring social inclusion and key areas of equality and diversity in higher education.
- Recognise and exploit the current invigorated interest in new research opportunities created by the accelerated move in the sector towards mainstream online/blended learning by forecasting and leading on research that aims to integrate an increasingly metricised learning environment with the philosophy of the SDGs, including underlying social factors such as isolation, resilience and digital poverty.
- Disrupt the traditional view of the higher education researcher in the post-COVID-19 environment, by capitalising on a heightened national profile to introduce novel applied research that crosses the traditional boundaries of education research and professional practice and opens up new avenues of inquiry in an evolving and fast paced environment.
- In response to the recent sector wide move to rapidly mainstream online/blended learning, look again at the traditional definitions and meaning of research/teaching linkages in relation to what is currently described as the 'new normal' from both an institutional and wider sector perspective.
- Forecast trends, challenges and opportunities that impact on the institution by analysing and reporting on sector and university surveys and institutional statistics that will inform the development of learning and teaching strategy and practice across the University.

2. People

INTRODUCTION

Whereas in REF 2014 there were two centres and a number of staff whose primary role was to conduct education research, the University took advantage of personnel change to reposition its education research activity, and this is now physically and structurally distributed across the University, with individual researchers embedded within a range of disciplinary contexts as well as ER&E core staff within the central support Department of Academic Development and Student Learning.

PROMOTING A RESEARCH ENVIRONMENT

The ER&E team is a hub for educational research with a leading commitment to support evidence led approaches to enhancing teaching and learning across the institution. The positioning of education research within the Scottish enhancement context facilitates a strong developmental role for education research at the University. The ER&E team supports development of staff at all stages of their research journey, supplying one-to-one advice and mentoring, research seminars, and training workshops specifically tailored to the needs of education research. This provision complements the University level development offerings provided by the Graduate School and the wider Academic Development opportunities provided under the University's Academic Development Framework.

The education research environment at GCU is shaped by the SDGs and our commitment to the Common Good mission and vision. We recognise and will continue to respond to the pressing need to address current and future societal challenges (as outlined in the strategic objectives) through a sustained commitment to research involving meaningful partnership working with staff and students that positively contributes to the quality of the student experience by exploring social inclusion and key areas of equality and diversity in higher education.

DEVELOPING STAFF

At GCU education research provides an additional pathway through which teaching oriented staff can develop a research trajectory. Internal funding is available for staff who wish to pursue a PhD. This funding stream reflects our commitment to the scholarship of learning and teaching and enhancement through evidence driven approaches and can be a key route to development for some academic staff. A second route to development, favoured particularly by staff who have arrived in their teaching discipline as practitioners (the University teaches degree programmes in Nursing and a wide range of Allied Health Professions) is the Professional Doctorate offered by the University. The Professional Doctorate is structured in two stages. Stage One involves four taught modules. The modules develop the students' knowledge by framing and exploring their experiences in relation to theory. This mechanism provides both a source of learning, but also creates a supportive network for students that helps them meet the demands of combining full time work and part time study, supporting them through Stage Two which requires the students to research and write a thesis on an organisational problem, thus fulfilling the ESRC demand that the student's work contributes to both theory and practice. Several GCU staff have chosen the Professional Doctorate to understand, explore and enhance a broad range of areas aligned with learning and teaching experiences. A third route is to pursue the Award of 'PhD by Previous Published Works' where established researchers can complement their research contributions with a narrative that brings the work together and provides an opportunity for reflection on the Doctoral journey. Indeed, this route was followed by one of the contributors to this submission, Karen Campbell, who recently (2020) gained her PhD with a Thesis entitled: 'Widening Participation in Higher Education: Immersion Prior to Entry as an Enabler'. A summary of doctoral research degree completions during the assessment period is provided in Table 2.1 below.

2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	Total
1.33	0.34	1.50	0.50	1.33	2.16	0.00	7.16

Table 2.1: Research doctoral degrees awarded. NB non-whole numbers reflecting the interdisciplinary nature of supervisory teams where co-supervisors have been returned against other UoAs.

For PhD students & Professional Doctorate students, supervisory arrangements conform to University-wide standards such that all supervisory teams include at least one member with prior successful experience of research supervision. New supervisors are supported by a programme provided by the Graduate School, an area of enhanced institutional support since 2008. All doctoral students must complete a formal research skills programme with a focus on research

methods and skills. Training utilises both internal and external facilitators and includes academic writing. The Graduate School acts as a hub to support the academic and cultural life of research students. It operates in a dedicated facility to create a sense of community in which postgraduate students can mix across disciplinary boundaries, leading to an enriched research experience. PhD progress mechanisms include regular, timely hurdle processes, including formal presentation of a research proposal in the first year. PhD students have access to annual funds to enable conference participation and presentation.

STAFF PROFILE

All staff submitted to the Unit are on open-ended contracts (Table 2.2) with staff at a range of levels in the organisation (Table 2.3). As permanent staff, Unit members have access to the normal development processes of the University (Performance and Development Annual Review) as well as progression opportunities through the University's Academic Promotion process. Additionally, staff have access to the normal employment benefits offered by the University including organisational support for mental health, parental leave, and flexible working arrangements to accommodate those staff with caring responsibilities. Two staff returned in this UoA are on part-time contracts.

Contract Type	Number	% of total
Permanent	6	100%
Fixed term	0	0%
Atypical contracts	0	0%
Total	6	100%

Table 2.2: Contract Status of Submitted Staff

HESA category	Number
C1 Head/Director of major academic area	0
E1 Head of a sub-set of academic area / Directors of Small Centres	1
D2 Head of Department	1
J0 Section/team leader (professional, technical, administrative), lecturer B (pre-92), Senior Lecturer (post 92), Senior Research Fellow	2
K0 Senior Professional/Technical Staff, Lecturer A (pre-92), Lecturer (post-92), Research Fellow, Researcher/senior research assistant, Teaching Fellow	2
Total	6

Table 2.3: Categories of Submitted Staff at REF 2021 Census date

EQUALITY & DIVERSITY

The years between the REF in 2014 and the current REF have highlighted a growing need to challenge previous and sometimes flawed assumptions and outdated stereotypes, adapt to a changing research landscape and move towards a culture that promotes greater equality and diversity. At GCU our approach to education research seeks to tackle these challenges by promoting an inclusive community culture where the research-teaching nexus is grounded in learning and teaching and enhancement of the student experience. Research and evaluation activity align with our commitment to the GCU Common Good mission and reflects the United Nations Sustainable Development Goal 4 of Quality Education. The University's Equality and Diversity and Dignity at Work policies are deployed across all aspects of the recruitment and career management of all our researchers and PhD candidates. These policies ensure that each person is treated equitably and with respect and that decisions are transparent and sound. The group is international and ethnically diverse, and equality and diversity are embedded in research-led teaching activities, which addresses gender, race, disability, social inclusion, and poverty-impacts on a world-wide scale.

3. Income, infrastructure and facilities

INCOME

Our Research Income reflects a diversity of sources (Table 3.1). In the reporting period, research grants awarded to the education research unit amounted to £480,407, compared to the REF2014 reporting period where grant income amounted to £640,773. However, importantly the portfolio diversified during this period, reflecting the ambitions of the Unit to internationalise its activity.

HESE Category	TOTAL (2013/14-2019/20)
BIS Research Councils	£24,403
UK Based Charities (open competitive process)	£80,823
UK Based Charities (other)	£5,655
UK Central Government/ Local Authorities / RDEC	£48,094
EU (European Union) Governmental bodies	£306,823
Non-UK Charities	£14,609
Total Income	£480,407

Table 3.1: Diversity of income sources

Much of our research is interdisciplinary by nature and often as part of a larger consortium, and as such carried out in collaboration with other departments and UoAs. The value of some of these large scale, international projects, and total research income derived from them, is described below:

- Latin American University Research and Doctoral Support (LAURDS, with UoA17): an international project to develop resources to enhance academic research in Latin America. The project was conducted by a consortium of four Latin American and four European partners (total budget - EUR817,399; EUR153,125 to GCU with £35,297 to UOA23).
- Teaching Excellence in Israel (TeachEx; with UoA17) was conceived to contribute to the continuous professional development of academic staff by offering adequate support structures (Centers for Teaching Excellence) and innovative, high-quality, flexible programs designed to promote better teaching and therefore enhanced learning as well (EUR960,021; EUR47,477 to GCU; £15,230 to UoA23).
- Internationalisation of Higher Education in Iran (IHEI; with the Research and Innovation Office) aimed to raise the International Relations capacities of Iranian Higher Education Institutions by increasing their potential openness and reducing barriers for fluid international exchanges (EUR922,219; EUR79,000 to GCU; 27,750 to UoA23).
- Strengthening National Research and Innovation Capacities in Vietnam (ENHANCE; with UOA3) provided a mid/long term strategy for the Vietnamese Higher Education system (EUR922,219; EUR90,860 to GCU; £43,350 to UoA23).
- International Diploma for School Teachers in STEM Education (eSTEM; with UoA12) developed a new generation of qualified STEM teachers in Egypt and other Arab countries who are capable of providing adequate and innovative teaching in Science, Technology, Math and Engineering-based subjects (EUR906,318; EUR74,390; £32,100 to UoA23).
- Promoting Excellence in Employability and Transversal Skills (skills which are readily transferable and flexible) (PEETS; with UoA11) created industry informed, multidisciplinary and intercultural learning designs and resources to enhance the professional development of HEIs students and staff (EUR107,036; £20,136 to UoA23).
- Education at Universities for Intensive International Experiences (EQUiiP; with the International Office) provided an integrated, flexible programme of Continuing Professional Development modules for use during the internationalisation of higher education (EUR447,750; EUR179,100 to GCU; £41,882 to UoA23).

- Indonesian Education for All (INDOEDUC4ALL; with Research and Innovation Office) encouraged the participation and input from students with disabilities in Indonesian universities (EUR906,051; EUR81,248 to GCU; £41,398 to UoA23).

Due to the practice-focused nature of much of our work, we also pursue funds which are more developmental in nature and not necessarily classified as Research Income. We ensure that there is a sound empirical base underpinning all our development focussed funding grants, so that our application and impact within those large-scale projects is research-based. Therefore, in addition to the income submitted under in REF4b, other development focused grants include:

- Professional Development in Intercultural Competence in Higher Education Institutions (PROFIC) funded by the European Commission Erasmus+ Action 2 funds: Capacity Building in the field of Higher Education. Dr Dane Lukic (Principal Investigator). The project includes 11 partners from EU and Latin America. 2018-2021, €687,663.
- TRUST Financial Technology and digital innovation to modernise and develop curriculum of Vietnamese and Philippines Universities", project led Guglielmo Marconi University, GCU partner. GCU PI Dr Dane Lukic, Dr Colin Milligan Co-I. Erasmus+ CBHE: Total project budget €871,974, GCU portion of the funding for educational research components €76,672.
- Inclusion and Innovation: social, wellbeing and economic aspects of interculturality 2019-2020 Project jointly led by GCU and Universidad Veracruzana (UV), UK PI Dr Dane Lukic, Mexico PI Professor Gunther Dietz. £8,500.

These various sources of income ensured that we further our capacity in researching learners across different contexts and consider baseline research and implementation as part of the same collaborative process, rather than different phases in the lifetime of research. Therefore, including projects that were solely research and projects that were developmental based on research, the GCU ER&E network brought in £1,160,000 over the relevant REF period.

INFRASTRUCTURE & FACILITIES

The current operational and scholarly infrastructure that supports education research and evaluation at GCU is relatively new (as described in the introduction to this statement) and as already stated, builds on the strengths of the approach in place at the time of the last REF. Educational Research at GCU brings together a diverse group of researchers and practitioners who are interested in the scholarship of learning and teaching. A central Education Research & Evaluation Team support the wider academic community and act as a hub for the different strands of activity across the University. In terms of facilities the group includes office spaces for staff involved in educational research across all Glasgow based Schools as well as the GCU London Campus, and the dedicated space within the Department of Academic Development and Student Learning for the Educational Research & Evaluation (ER&E) team. The educational researchers arrange seminars, webinars and knowledge exchanges to ensure collaborations. The educational research network led by the ER&E hub has a dedicated online space for collaboration and our support structures integrate with other academic development activities such as our Senior Fellow of the Higher Education Academy (SFHEA) Network to encourage staff to explore scholarly approaches to their practice.

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

INTRODUCTION

The outputs included in this submission (REF2) have been published in top academic journals in the field: Computers and Education, The Internet and Higher Education, Higher Education, Teaching in Higher Education and Higher Education Research and Development. The interdisciplinary nature of the research we conduct is reflected in its presence in discipline-focused education journals such as Nurse Education in Practice, and in specialised journals in

other fields such as Safety Science, Risk Management and Knowledge Management Research and Practice. Our research is fundamentally collaborative, involving stakeholders from industry and professional bodies and academic partners from across the world.

RESEARCH COLLABORATIONS, NETWORKS AND PARTNERSHIPS

The ER&E takes a strategic perspective on fostering collaborations and partnership to further our research and maximise impact for stakeholders. The main principles of our partnership strategies are a) working directly with key stakeholders and potential users of research outputs, b) establishing international and interdisciplinary partnerships for knowledge boundary crossing and c) inclusion of ODA countries as key partners. This strategic approach enables us to develop a profound and impactful internationally recognized research portfolio despite having a relatively small educational researchers group within GCU. Our strategy in fostering partnership at all stages of the research is guided by our institution's commitment to the Common Good and the UN SDGs, especially Goals 4 on quality education and 17 on the need for partnerships for tackling global issues.

With our international projects carried out with other UoAs and University departments, we have established partnerships with a wide range of universities from across the world, including: Iran (Allameh Tabataba'i University, Ferdowsi University of Mashhad, Shahid Chamran University of Ahvaz, Shiraz University, University of Kurdistan, University of Sistan and Baluchestan); Vietnam (An Giang University, Can Tho University, Hue College of Agriculture and Forestry, Ministry of Education and Training, The Center for Vietnamese and Southeast Asian Studies); Panama (Universidad Catolica Santa Maria La Antigua, Quality Leadership University); Colombia (University of Ibague and University Panamericana); Indonesia (Universitas Islam Negeri Sunan Kalijaga, Universitas Indonesia, Lambung Mangkurat University, Universitas Negeri Surabaya Indonesia).

As an example of our international and inclusive research partnership agenda, GCU is leading a network on intercultural competence including HEIs across European and several Latin American ODA countries (Professional Development in Intercultural Competence in Higher Education Institutions – PROFIC, led by Dane Lukic). The network includes the Union of Universities of Latin America and the Caribbean (UDUAL), the University of Guadalajara and Veracruz University, in Mexico, the University of Cordoba, the University of La Plata and the University of Lanus, in Argentina, Guglielmo Marconi University, in Italy, the University of Deusto, in Spain, and the University of El Salvador and Don Bosco University, in El Salvador. Through the PROFIC network our research on intercultural competence development for students and staff has had an impact on learning and teaching practice as well as staff development in universities in the UK, Spain, Mexico, Argentina, and El Salvador. Our leading of intercultural competence partnerships includes collaborations with the University of Deusto and Groningen University on several intercultural projects. The intercultural competence work is also furthered through collaboration with the leading researcher in the field, Professor Gunther Dietz and Intercultural Universities initiatives in Mexico focusing on including indigenous cultures in higher education. Our work around interculturality and inclusivity in learning led to the establishment of a partnership with the British Council Mexico for work developing this area. Follow up work is planned with the Veracruz Intercultural University, Mexico and the British Council to facilitate future work with indigenous cultures and intercultural competence.

Our strategic principle of working with key stakeholders (as well as with international organisations) is also enacted in the work of Colin Milligan on professional and informal learning, and the role of social media and web-based tools in supporting personal learning networks that led to an early involvement in research into Massive Open Online Courses. This work has been critical in shaping this emerging research domain with several highly cited articles. The first of our outputs was identified as one of the dozen most cited MOOC papers (at the time) by Veletsianos & Shepherdson (2016). This early engagement in MOOC research culminated in Colin Milligan and colleagues securing funding from the Bill & Melinda Gates Foundation as part

of the MOOC Research Initiative, the first dedicated funding scheme for MOOC research, funding around a dozen projects worldwide. A key limitation of early MOOC research was the tendency of MOOC research to be undertaken by the teams running the MOOC themselves (who were rarely education/learning researchers). In contrast, our approach was to partner with the MOOC providers, but carry out the research independently as specialist online learning researchers. This led to international research collaborations with educators across North America at Harvard Medical School (Obiageli Ukadike), and the University of Virginia (Nabeel Gillani). Our research on technology enhanced professional learning also led to participation in developmental networks focusing on university staff training across several universities in the Philippines and Vietnam through the TRUST project.

Moreover, working with various stakeholders that might not be traditionally involved in educational research but can be direct users of research is demonstrated in Lukic's research on Learning from Incidents in organisations (LFI) developed through a long-standing relationship with the UK Energy Institute and their development of safety learning in the workplace. This research supported efforts to reduce the negative effects of such events in high-risk organisations by developing and testing learning science informed frameworks and toolkits to improve LFI offered by the Energy institute in their role as professional body for the Industry. The LFI toolkit work was funded by Royal Dutch Shell plc and the Energy Institute (EI) and used by several major energy companies, including Shell, BP, Exxon, TOTAL, Chevron, ConocoPhillips, and Phillips66 to improve their LFI practices. Through the ESRC LFI Seminar Series, the partnerships were further strengthened to include a number of both academic and industry partners (University of Edinburgh, University of Southampton, University of Aberdeen and University of Loughborough as academic partners, and Energy Institute, British Safety Organisation and TNO as industry partners). In addition to core partners the seminar series and workshops attracted participants from more than 15 academic institutions and more than 30 industry organisations. Through leading networks and creating platforms for interdisciplinary and inter-sectoral educational research GCU has enabled engagement with stakeholders not typically involved in learning development, which led to several follow up initiatives and projects on LFI across the wider partnership.

Other international connections nurtured by the GCU ER&E group include Colin Milligan's collaborations with several researchers throughout Europe and North America. Donatella Persico, of the Italian National Research Council visited for an extended research visit (three weeks) to learn about our work on charting and collective learning. This collaboration led to the publication of one joint conference paper and Donatella has taken forward our work in her own research on teacher education in Italy. Nicola Andrew has collaborated with researchers in Europe and previously held a three-year Research Consultancy in the Faculty of Psychology and Sciences of Education, University of Porto, Portugal, funded by the Portuguese Foundation for Science and Technology. Andrew is currently a Research Advisor at the Faculty of Health and Medical Sciences at the University of Adelaide, Australia. This has led to the publication of one journal article with a further two in preparation.

RELATIONSHIPS WITH KEY RESEARCH USERS / WORK WITH PROFESSIONAL BODIES

Karen Campbell has built a working relationship with researchers from the AshokaU network. AshokaU is a global network of universities and colleges who work collectively to make social innovation a new norm in higher education and beyond. GCU is a designated Changemaker Campus, one of only 29 in the world and the first in Scotland. Campbell's research on GCU's Common Good Curriculum was presented to an international audience at the AshokaU Exchange in Boston, USA in 2018.

Karen Campbell's research outputs in widening participation have been requested by the Commission on Widening Access (CoWA) to inform the development of the Framework for Fair Access and the Scottish Toolkit for Fair Access. The report from her work on GCU's Advanced Higher Hub was delivered to John Swinney, Cabinet Secretary for Education and Skills and was

referenced in the Scottish Parliament by the Minister for Education and in the Scottish Parliament's Education and Skills Committee meeting on 3 April 2019. The same report entitled, An Evaluation of the Advanced Higher Hub: The Learner Perspective is available as an example of good practice on the Scottish Government's website. Campbell's research on widening participation informed the direction of the Scottish Government's plans for fair access in terms of the Framework for Access, regarding the Commission on Widening Access' (CoWA) recommendation 6: 'The Scottish Government, working with key stakeholders, should ensure the key transitions phases around SCQF levels 6 to 8 are better used to provide students from disadvantaged backgrounds with the qualifications and experiences required to support fair access.' (CoWA, 2016).

VISITING RESEARCHERS

Our research networks enable us to host visits from research colleagues across the world. Recent visitors include Prof. Terry Anderson (University of Athabasca), Ashwini Datt (University of Auckland), Dr Maaike Endedijk (University of Twente), Prof. Piet van den Bossche (University of Antwerp), and Associate Professor Philippa Rasmussen (University of Adelaide).

PRIZES AND FELLOWSHIPS

Karen Campbell's work on Widening Participation resulted in her receiving the Association of University Administrators' 2019 Essay Prize for her paper: 'How can Universities contribute to the Common Good'. Campbell's research on the Common Good Curriculum was included as part of a submission for AshokaU's 2018 Innovation Award for which GCU was short-listed. Outputs from Campbell's research on GCU's Advanced Higher Hub led to the research being short-listed for the 2019 Universities Association for Lifelong Learning Research Award. Dr Campbell's widening participation research has been included in submissions for awards including the Social Mobility Awards, the Times Higher Educational Awards and the Herald Awards. Evidence from the Common Good Curriculum research and the Advanced Higher Hub research was submitted for the UK Social Mobility Awards 2019 which was won by GCU. Similarly, the Hub won both the Pride o' Worth Award and the Partnership of the Year in the SQA Star Awards in 2016 supported by this research evidence. Research evidence on the impact of the Hub has been used to iteratively refine and further develop the Hub. This research was also used to present evidence to the funding bodies (SFC and Glasgow City Council) which helped to secure continued funding in 2018. The same evidence also helped to secure Hub backing from the Scottish Power Foundation to boost pupil participation in Science, Technology, Engineering and Mathematics (STEM).

INVITED KEYNOTES

Colin Milligan was an invited Keynote Speaker at the University of Bath Conference 'Assessment & feedback: Curricula and Assessment in Higher Education' (February 2017) speaking on 'Encouraging Self-Regulated Learning in MOOCs'.

Dane Lukic was an Invited Keynote Speaker at the 4th Symposium on University Internationalisation, University of Guadalajara, Mexico, 4-5 June 2019 and was invited to deliver a Seminar on 'Internationalisation or inter-culturalisation: the case for intercultural competence', UTEC, El Salvador, 28 May 2019.

Karen Campbell's widening participation expertise led to an invitation to provide the Keynote at the Widening Access in 2018: Next Steps Holyrood event in December 2017 and to an invitation to present the Keynote at the inaugural Teach-Learn-Share symposium at the University of Lancaster in November 2018.

EDITORSHIPS AND OTHER PROFESSIONAL LINKS

Colin Milligan sits on the Editorial Board of The Internet & Higher Education, the second most highly rated journal in the field of Education & Education Research (JCR Impact Rating 2017: 5.847). In addition, Milligan regularly reviews papers for many of the leading (by JCR Impact Rating) journals in the discipline including: Computers & Education, British Journal of Educational Technology, International Review of Research in Open and Distributed Learning, Learning Media & Technology, Human Resource Development Quarterly, Psychology Learning & Teaching, Transactions on Learning Technologies, Journal of Computing in Higher Education, as well as other prestigious international journals including: BMJ Open, PLOSOne, International Journal of Training and Development, Journal of Workplace Learning, Journal of Online Learning and Teaching. He has also been invited to referee/review book drafts and book proposals for Springer and Palgrave MacMillan.

Dane Lukic is a regular reviewer of academic articles in the field of education and intercultural learning and workplace learning such as the Springer Social and Behavioural Sciences book series, Learning Organization journal, Journal of Workplace Learning and Academy of Management Learning and Education (AMLE).

Nicky Andrew has reviewed articles for Nurse Education Today, International Journal of Nursing Education Scholarship and Innovations in Education and Teaching International.

Karen Campbell regularly reviews papers for the Journal of Widening Participation and Lifelong Learning and the Society for Research in Higher Education and conference papers for, for example, Universities Association of Lifelong Learning, the Society for Research in Higher Education and the Quality Assurance Agency Scotland. Campbell was GCU's nominated representative on Universities Scotland Working Group on Measures of Success, is the University's representative on the Scottish Universities Association of Lifelong Learning steering group and the institutional champion for the Quality Assurance Agency's Transitions Project.

Jacqueline McCallum is a reviewer for Nurse Education Today and Nurse Education in Practice. She is also on the Council of Deans of Health Scotland, as well as the Council of Deans of Health UK Regulation group and was on the Council of Deans of Health UK financial review group. She is an elected member of the pre-registration nursing programme advisory board with the Scottish Government/NHS Education for Scotland due to her extensive knowledge and expertise in pre-registration undergraduate nursing and practice learning. McCallum has been Chair of the Scottish National Approach to Practice Assessment for Nursing since 2011 where all 12 HEIs in Scotland use the same practice assessment document, this has recently led to the re-approval by the NMC (Nursing & Midwifery Council) of the document for the NMC Future Nurse Standards and implementation in all the Scottish nursing pre-registration undergraduate curriculum from September 2020. She also regularly serves as an expert panel member on NMC approval events for pre-registration programmes.

CONFERENCES & GRANT REVIEWING AND AWARDING COMMITTEES

Colin Milligan has sat on the research program Committee for the last two European MOOC Stakeholders Summit Conference and has reviewed submissions for a range of prestigious International conferences including the conference of the European Association for Research in Learning & Instruction and the Networked Learning Conference. Colin Milligan has also reviewed grant proposals for the British Council and DFG (Deutsche Forschungsgemeinschaft). Colin Milligan serves on the Advisor and Monitoring Committee for the EU-funded PROFIC project as an independent quality reviewer of project outputs.

Dane Lukic was invited to act as an international project reviewer for the Irish Health Research Board Grants scheme (2016 call). For this work, Lukic reviewed large scale project proposals that focussed on learning. Lukic has also acted as a reviewer for the European Education

Research Quality Indicators project (EERQI) funded by the European Commission FP7 programme. The disciplinary value of Lukic's research has also been recognised through an invitation to act as External Expert for the Periodic Review Panel reviewing the undergraduate and postgraduate portfolio of the Human Resource and Organisational Behaviour Department, Anglia Ruskin University, Cambridge (May 2018).

Jacqueline McCallum has sat on the scientific committee of the Nurse Education Today/Nurse Education in Practice for the last two conferences in Sitges, Spain 2020 (remotely) and Banff, Canada (2018). She has also sat on the scientific committee of the World Health Organisation Collaborating Centres conference 2016, Glasgow (GCU) and 2018 Australia.

REACHING WIDER AUDIENCES

The Education research group at Glasgow Caledonian University places a great deal of importance on disseminating its research beyond traditional journal and conference outputs. Colin Milligan has published discussion pieces on the utility of Massive Open Online Courses. For instance, in 'Designing MOOCs for professional learners: Tools and patterns to encourage self-regulated learning', an output prepared for eLearning Papers, the magazine format afforded an opportunity to think through real world application of the outputs of a research-focused project. Andrew was commissioned by Oxford University Press (New York) to author a chapter of the Encyclopaedia of Health and Risk Message Design and Processing; 'Communities of Practice in Health and Risk Messaging' (published 2017).

The widening participation research is very much practice oriented and a key dissemination route for this research has been through grey literature. For example, a piece on the Advanced Higher Hub research 'Capital gains: how school pupils become university students', was commissioned by the influential WonkHE site and published in September 2019. Another article on the Hub research entitled, 'Engaged for the next stage: a creative approach to widening participation in Higher Education' was published by the Quality Assurance Agency in their Quality Enhancement Newsletter in October 2017. Dr Campbell's research on GCU's Common Good Curriculum has been used as an example of good practice by AshokaU, and Campbell was commissioned by AshokaU to author a book chapter about the University's approach to evaluating the Common Good Curriculum for a collection on evaluation entitled 'Evaluation for the Common Good: a whole institution approach to curriculum enhancement'.

SUSTAINABILITY OF THE DISCIPLINE

The recent COVID-19 pandemic has highlighted the need for an increased level of education research across the Higher Education sector. At GCU we have rapidly accelerated research and evaluation around online and blended learning, in particular the need to explore the ways in which staff and students respond to the digital pivot. The University is collaborating with Universities in Scotland and the UK to focus on the emerging digital priorities. As the new QAA Enhancement theme 'Building Resilient Learning Communities: Using Evidence to Support Student Success' is launched in Scotland, GCU is already collaborating with Scottish Universities. The seed funding of small research projects has been the hallmark of our Enhancement Theme activity and as a young institution without an established School of Education we are investing in the development of the education research community to build sustainability and to incrementally grow the number of active education researchers. The mentoring, by experienced researchers of new education researchers, is also utilised to build capacity. In addition to staff development at GCU we recognise that the inclusion of students as research partners is also of value, and we encourage cross university project teams to include students, not just as participants but also as partners. At GCU we recognise that researchers bring a distinctive and valuable perspective to the work of other groups. Our small group of core researchers contribute to major Enhancement-led Institutional Reviews and exploration of key aspects of the student experience such as Widening Access and the BAME Student Experience.

This strand of activity supports the sustainability of the unit as it allows our researchers to build a distinctive institution wide profile and demonstrate and mainstream their value at the higher levels of the institution.