

Scottish Council of the Deans of Education
Attainment Challenge Project

Developing pedagogies that work for Pre-Service and Early Career Teachers to reduce the Attainment Gap in Literacy, Numeracy and Health and Wellbeing.

Research Question 4:

How can we improve teacher education so our early career teachers are more effective in improving the engagement and attainment of pupils?

June 2021

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Executive Summary

This report concludes the Scottish Council of Deans of Education project related to the Scottish Attainment Challenge. It presents an overview of the outcomes of changes introduced in response to the fourth research question of the SCDE collaborative project: *How can we improve teacher education so our early career teachers are more effective in improving the engagement and attainment of pupils?* The purpose of this phase was to trial interventions in programmes and modules to demonstrate a range of practices that could improve teacher education. The Covid 19 pandemic reduced the opportunities for collaborative development of interventions from the literature review and each university has used their research under the project as a lever to develop their ITE and wider professional learning provision.

The interventions reported here illustrate some of the current directions of travel within ITE in relation to addressing inequity in education and anticipate further opportunities to continue the collaborative work developed to date. This work is presented in two sections: culture and content and, content orientated changes. This framework provides a shared overview of the interventions in order to support discussion and debate across ITE providers, and between ITE providers and other stakeholders, both local and national.

Culture and content

This section collates examples of interventions that made changes in the overall values and ethos of programmes, the work of staff groups and the student experience. It presents changes made in two institutions to course review processes adding points for reflection and understanding. It also considers changed interactions in support of equity based learning and teaching across the project universities and addresses interactions between ITE staff, between ITE staff and other stakeholders, between ITE staff and students, and between students themselves. The final section highlights the key role of practitioner enquiry in bringing research as 'lived practice' to student enquiries.

Content orientated changes

The content orientated changes in section 2 present a series of substantial developments through a focus on module changes, the planned introduction of new modules and the development of new approaches in practicum. The role of mentoring is reflected on in the introduction of a new mentoring module and the trialling of new approaches to shared reflective spaces for a mixed group of NQT and early career teachers.

Conclusion and next steps

The report ends with eight points that identify the changes brought by this project across ITE and provide a framework for ongoing discussion and a set of cross-institution connections that will support future collaborative action. The work presented throughout this project illustrates the strength of the collaborative engagement in research across teacher education. The discussions and shared development of work in phases 1 to 3 of the project demonstrate the response and capacity of each institution to build research capacity and contribute to building an empirical evidence base for education in Scotland.

Project members

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Abbreviations

GTCS General Teaching Council of Scotland
ITE initial teacher education
NQT newly qualified teacher
PEF Pupil Equity Fund
SCDE Scottish Council of Deans of Education
SIMD Scottish Index of Multiple Deprivation
SAC Scottish Attainment Challenge

Introduction

In February 2015, the Scottish Government launched its Attainment Challenge to tackle the poverty-related attainment gap in Scotland, in particular to improve achievement in literacy, numeracy and health and wellbeing for pupils living in areas of high deprivation. As part of this effort, the Scottish Council of Deans of Education were invited to develop a research agenda in the field of teacher education. In early 2018, funding was secured from the Scottish Government for a three year research programme involving representatives of the eight Schools of Education providing initial teacher education (ITE) across Scotland at that time.

The broad aim informing the suite of projects is to research how the sector might better prepare early career teachers (understood as final year ITE and probationer year) to work more effectively to improve literacy and numeracy attainment and health and wellbeing outcomes in schools serving pupils from SIMD¹ 1-40 backgrounds. Under this common purpose, the research programme has three strands:

1. an overarching collaborative project to achieve a perspective across the national sector across phases of audit, evaluation, horizon scan and reform;
2. eight research projects conducted by individual Schools of Education reflecting their context and priorities;
3. three PhD studentships hosted in the Universities of Edinburgh, Glasgow and Stirling.

This document was compiled by Tanya Wisely (University of Glasgow) and Morag Redford (University of the Highlands and Islands) from reports written by the eight universities. It considers the fourth and final question in the collaborative project:

Research question 4: How can we improve teacher education so our early career teachers are more effective in improving the engagement and attainment of pupils?

¹ SIMD is the Scottish Index of Multiple Deprivation – see <https://simd.scot/2016/#/simd2016/BTTTTT/9/-4.0000/55.9000/>

[Links to previous reports](#)

This is the final cross-project report of the Scottish Council of Deans of Education Scottish Attainment Challenge (SAC) Project. It follows on from and is interlinked with the previous reports:

[Research Question 1](#) - What do we in teacher education institutions collectively do currently to support early career practitioners to work effectively with pupils from SIMD 1-40 backgrounds?

[Research Question 2](#) - Of our current practice, what do we do well and what could we do better?

[Research Question 3](#) - What other practice or research might assist us in our purpose?

The report on Research Question 1 (December 2018) established that the teacher education sector in Scotland already invests considerable effort into cultivating social justice and equity values, professional knowledge and pedagogical skills to support pupil learning in areas of high deprivation. The audit revealed that ITE students engage with a wealth of academic and policy resources, on campus and placement experiences, assessment tasks and professional enquiries to this end, within the limited time and material constraints of their programmes. Professional learning is understood to continue beyond the ITE phase, thus responsibility is shared with employers of probationers. With this local expertise and professional continuum in mind, the literature review is interested in identifying well documented, innovative ITE models and pedagogies from elsewhere, that is, out with Scotland. It should also be noted that in some of the universities' own projects and the associated PhD projects new approaches are being developed and trialled within Scottish ITE programmes.

The report on Research Question 2 (October 2019) analysed interviews about the strengths and weaknesses of existing ITE programmes with teacher education, headteachers and mentor teachers, newly qualified teachers and their Local Authority employers across Scotland. The findings highlighted the emerging need for: better data literacy; more strategies for working with pupils with additional or complex needs; better pedagogic content knowledge around teaching literacy and numeracy; and more 'life experience' to better understand and work with communities of deprivation. With these identified needs in mind, the literature review has purposefully searched for publications on 'service learning', literacy, numeracy and health and wellbeing pedagogies, and for teacher education models that are specifically designed to prepare teachers to work in poor, disadvantaged communities or 'underperforming' schools.

The report on Research Question 3 (June 2020) presented a literature review that collected and analysed research findings and practice reports that provided information to resource professional conversations and thinking in the teacher education sector, and to inform the final trial phase of the project. A literature search was undertaken using a range of strategies, to identify published accounts of innovative work from beyond Scotland in the following fields: initial teacher education for high poverty settings; pedagogies in literacy, numeracy and health and wellbeing; mentoring and induction. Each group of studies was summarised under the themes with their potential for the SAC, ITE programmes and professional learning noted.

Approach

The four research questions in this project were designed to be followed in sequence, with outcomes from one question directly informing the work undertaken on the next. In this way, the findings of the literature review, were intended to provide an important additional source of evidence on which changes to the initial teacher education (ITE) programmes could be based. The review followed research highlighted by the individual universities and other project staff, alongside the findings of a 5-year horizon scan of leading international teacher education journals. The intention was to source innovative exemplars and pedagogies that are not part of current practice in Scotland but show promise in other contexts. These findings would then be used to stimulate and support engagement across ITE providers for changes that might be implemented to further the aims of the SAC.

Three aspects of the Covid 19 pandemic necessitated changes in the way we carried out this part of the project.

Firstly, the literature review was completed in the early stages of the pandemic and it was evident then, that cross-university engagement on the outcomes of the literature review was going to be challenging. The kind of face-to-face discussions needed to support the cross-fertilisation of ideas were not possible. The conference planned for July 2020, which would have also brought in a wide range of external education stakeholders to enrich engagement, was not possible. All university team members also faced the challenges of disruption and rolling changes to ITE delivery, limiting their capacity for extended reflective engagement. It was agreed that the universities would instead proceed with changes drawing on their own internal research work. The literature review work was used instead to inform other aspects of the project, principally the SERA Connects webinar series and the development of the project's Theory of Change. This latter piece of work presents the findings of the RQ3 review in such a way that it can inform future cross-stakeholder engagement, assuming opportunities for this can be created.

Secondly, the pandemic and related changes in access to students and teachers also limited the evidence that individual university research projects were able to gather to inform the changes they planned. All projects have taken mitigation measures to address this and maximised the use of evidence that has been gathered, and/or re-analysed findings completed before the initial lockdown in March 2020. This means that some programme changes have been developed more gradually, trialled rather than fully implemented or put on hold completely (See Appendix 1).

Thirdly, this research has been concluded at a point when the wider education system in Scotland is in transition. In terms of the pandemic, there are the ongoing practicalities of dealing with changing restrictions on schooling as well as the analysis of and response to direct and indirect impacts on the current cohorts of children and young people. And in policy terms, there are a new Government and Ministers in place and a number of reviews and consultations

expected and underway, including the OECD report: “Scotland’s Curriculum for Excellence, Into the Future”². These shifting circumstances affect ITE as much as any other part of the system.

For these three reasons, this report is presented as an illustration of the dimensions along which ITE can and does change rather than as any kind of conclusion or endpoint. At this time of flux, open and coherent exchange between the different parts of the education system is more important than ever. The report aims therefore to provide an accessible presentation of some of the current directions of travel within ITE in relation to addressing inequity in education and anticipates further opportunities to continue the collaborative work developed to date.

A rich array of interventions is reported here, despite the impacts noted above, all of which demonstrate the high level of commitment that the ITE providers accord the aims of the Scottish Attainment Challenge. Each university has used their research under the project as a lever to develop their ITE and wider professional learning provision. As with previous reports, challenges are also offered, for example in relation to terms and definitions and how the ‘closing the gap’ agenda under the Scottish Attainment Challenge is framed.

The report is not an independent investigative analysis but has been compiled by core project staff from inputs submitted by each university team reporting their own actions in relation to RQ4. As has been reported before, the ITE institutions and their various programmes are diverse in duration and emphasis, designed with different specialisations and audiences in mind. This is valued as a strength in terms of vibrancy and challenge across the sector but can also be problematic for policy makers, for other stakeholders and for the development of sustained cross-institution exchange. The framework below offers a shared overview that is illustrated by interventions at particular universities rather than giving overarching case studies from each university. This is because the primary purpose is to support productive discussion across ITE providers, and between ITE providers and other stakeholders, both local and national.

The change dimensions we have considered range from overall course review procedures to individual module development, from revisions related to values and ethos to changes in how staff, both within and out with ITE interact with each other, from alterations to practicum (school placement) and mentoring arrangements to shifts in how students are supported to engage with theory and research evidence as an integral part of their practice. Appendix 1 gives an overview of the actions reported on by the universities.

² OECD (2021), Scotland’s Curriculum for Excellence: Into the Future, Implementing Education Policies, OECD Publishing, Paris, <https://doi.org/10.1787/bf624417-en>.

Changes made to ITE programmes

The first section below outlines changes that might loosely be termed culture- rather than content- oriented and this is put first deliberately. The development of new and innovative modules offering content that directly addresses the issue of inequity in education is a clear and important route to change and development. Culture-oriented changes – for example, in the interactions between staff, in staff coming together to build a shared overview, in the reflective examination of underpinning values and ethos – can seem less concrete but can be at least as impactful, particularly in relation to the concept of staging which was highlighted in the RQ2 report. Staging is the process through which key concepts are revisited over the course of a programme, in order to secure deep and thorough engagement. This kind of coordination cannot take place unless ITE staff have the space and time to come together, to sustain interaction across courses and specialisms and to bring in challenge in the form of dialogue and investigation, especially around preconceptions, dispositions, values and attitudes. This project has afforded a clear incentive to use inclusive and equitable practice as a driver for these kinds of changes.

1. Culture-Orientated Changes

1.1 Overall Values and Ethos

Given the centrality of values to the GTCS Professional Standards³, it is not surprising that ITE providers retain an overarching attention to this dimension in the development of new teachers, particularly in relation to social justice. All courses explicitly cultivate principles of social justice and equity promoting fairness to all, while some universities also reported explicit treatment of children’s rights. These principles are presented in dialogue with a strong principle of inclusivity in embracing, normalising and responding to diversity, the needs of individuals, and the whole child.

Another common attitude reported in the university responses was an orientation to professional adaptability, reflection and learning to cultivate responsive, context-dependent and context appropriate practice that plans engaging, purposeful, and relevant learning experiences for young people. This disposition demands that teachers understand their communities and ‘the affordances associated with the classes/schools they work within’. One university described this disposition as ‘agentive teachers who responsively construct their understanding of their role – what they need to “be” for their pupils.’

A wider impact of the project is that noted by UWS who intend to draw on the experience of the collaborative ethos underpinning the SAC project itself to examine further ways of sustaining cross-staff engagement in their own research processes within the Division of Education and, more specifically, within teacher education.

³ GTCS (2021) Professional Standards. <https://www.gtcs.org.uk/professional-standards/professional-standards.aspx>

The University of Dundee report that their ITE students are now required to place significant emphasis on seeking evidence on how their placement schools are implementing social justice. This allows them to determine how the school and its community conceptualise and act upon equity and social justice. In framing this, students must consider how teaching may be improved to ensure that the impact of equity related issues on learning and teaching is minimised and how learners' achievement/attainment can be maximised through appropriate learning and teaching strategies, specific interventions and teacher research on learner community challenges or issues, as well as upon learners' response to teaching. All of this is linked to an ethos of inclusion – students must now determine if fairness is demonstrated and enacted, both by schools and by themselves. The 'research then act' methodology extends to requiring students to address all barriers to learning. A significant focus is placed upon challenging deficit models and building different ones, through influencing student teachers and using structured research to inform these processes. The Dundee 'theme' is that of trying to improve the situation and circumstances of local communities through encouraging teachers, schools and LAs to use focused research to improve their work.

At the University of Stirling, they have been working to better support students through their 'work on the self' which they hold as an integral part of professional growth. This has involved innovative work with Place2Be⁴, a charity supporting children's mental health. Until recently, under a two-year pilot scheme they have had a full-time Place2Be clinician offering support to students across ITE. Another aspect of this work relates to a third-year module on 'Differences and Identities' aimed at supporting the development of student identity as practitioner researchers and is reported in the modules section below.

1.2 Overall Course Review Processes

ITE programmes and modules are reviewed and re-developed as part of the University cycle of moderation and quality assurance and as part of preparation for accreditation by the General Teaching Council of Scotland (GTCS). All these processes offer a reflection point and allow for staff to come together across different specialisms and inputs and develop a stronger sense of shared purpose.

The University of Dundee used the opportunity of their SCDE SAC project to undertake a review process across all their teacher education programmes to support the embedding of knowledge and understanding of equity in both pre- and in-service courses. This took the form of three rounds of information, discussion and staff feedback among both course leaders and staff members. In addition, two further rounds of discussion were held considering specifically 'where were staff in respect to equity?' As well as guiding further development work on provision around equity, course review processes themselves were improved to take closer account of outcomes from the early phases of the Dundee Project.

⁴ [//www.place2be.org.uk/](http://www.place2be.org.uk/)

At the University of the West of Scotland (UWS), the work on this project provoked a commitment to reflect as an ITE team on the findings of the SAC research project in general, and on the UWS project in particular. The process initiated will feed into development planned for the 2021/22 sessions including a full institution-led review of all ITE provision and considers the following key questions:

- What do the main findings from the SAC research mean in general terms for the three ITE programmes at UWS in relation to module content, our pedagogy as teacher educators and future ITE curricular developments as we move into a period of review?
- How can we effectively implement what we have learned about ITE students' development needs in terms of data literacy, reflective practice and pedagogies that support both inclusive practice but that best support SIMD 1-40 pupils as a response to the UWS SAC project findings?
- How can we further integrate the collaborative ethos, which was so evident in the SAC project, into how we engage with research more broadly within the Division of Education but also specifically within teacher education.
- What does engaging in this project tell us about how we as teacher educators engage with research, policy and sector leading practice?

1.3 Changed interactions in support of equity-based teaching and learning

Aligned to this ethos and values work are interventions aimed at changing the interactions between the various groups that have a stake in the development of new teachers in the service of improved support for equity-based teaching and learning. The key relationships addressed here between ITE staff, between ITE staff and other stakeholders, for example local authority staff, between ITE staff and students, and between students.

- **Between ITE staff**

The SAC Project work at the University of Aberdeen has provided hints of cultural and structural change in relation to ITE staff interaction. The project provided a relevant and timely opportunity to reinforce the value of a model of evidence-informed course development. The project staff engaged in the design, implementation and analysis of their project are also part of ITE programme teams, thus providing a natural connection between research and practice. The work of this project to share evidence illustrates the reach of project research through dissemination to internal on-line research seminars, national and international events. In Aberdeen, this has encouraged a culture of dialogue whereby research evidence and practice experience are brought together with a view to providing informed support for new teachers, both internally and more widely.

This course development model promotes levels of respect for, and recognition of, the role of empirical evidence in developing practice, and the value of collaborative effort and dialogue in this connection. On-going structural and personnel developments are pointing to wider implementation of this type of model, with a view to underpinning a transparent culture of constructive dialogue strengthening practice-research connections, whilst enhancing research

capacity and scholarly work amongst ITE staff.

Examples of the activities underpinning dialogue include:

- Presentation on Perceptions of poverty for the In Headship ‘Excellence and Equity’ Focus Day, University of Aberdeen, March 2020.
- University of Lapland, University of the Arctic Thematic Network: Teacher Education for Social Justice and Diversity. An Asset-based Approach to Exploring Probationer Teachers’ Lived Experiences of Learning to Enact Inclusive Pedagogy in Schools Located in High Poverty Environments. Online Webinar, October 2020.
- University of Aberdeen School of Education Seminar. An Asset-based Approach to Exploring Induction Year Teachers Enactment of Inclusive Pedagogy in Schools Located in High Poverty Environments. November 2020.

At UWS, the PGDE and undergraduate teaching teams have increased their collaboration, to explore the impact of teaching sessions, beyond the normal Quality Assurance processes. This work is being led by the Head of Division (Dr Stephen Day) through a series of meetings designed to support critical reflection and target setting as part of the Division of Education’s drive to model reflective practice focused on enhancing their students’ experience. It is intended for these discussions to continue as we emerge from the Covid 19 pandemic.

- [Between ITE staff and other stakeholders](#)

At the University of Edinburgh, a number of new courses and modules proposed under the SAC Project work have drawn on interdisciplinary expertise and collaborations across staff from primary and secondary sectors, as well as colleagues from other departments in the University. In addition, they have strengthened collaborations with colleagues from the City of Edinburgh Council, Hidden Giants, Architecture and Design Scotland and the Institute of Ergonomics as well as other professionals. This is seen as contributing to the enrichment of the experience of student teachers and the strength of community-schools partnerships.

- [Between ITE Staff and Students](#)

At Stirling University, a revised placement structure has led to tutors having a more direct and supportive role in relation to students’ practice on placement than previously. There is, for example, a ‘to-ing and fro-ing’ built into the modules where students take up an idea, concept, or theory from the previous week’s campus-based learning and translate it into practice, and for this then to be discussed the following week. This links to the spatially differentiated approach that the project draws upon – with the university space as separate from – and yet connected to – actual situations of practice within schools. There is also now greater discussion between students, where their ongoing situations are shared and analysed.

In UWS, as the project moved forward, there was an increase in the targeted interaction between ITE staff and students on the PGDE Primary and Secondary programmes and with students in the BA (Hons) Education programme. This related to aspects of increasing ITE

students' awareness of data literacy, supporting their understanding of how assessment data can be utilised in different context and for different purposes, facilitating the incorporation of systematic evidence into ITE Students professional reflections and supporting ITE Students knowledge and understanding of data quality and limitations with respect to the principles of assessment relating to summative and formative assessment. These interactions, facilitated by the ITE Staff, focused on how the systematic collection, analysis and interpretation of educationally relevant data could be used to enhance ITE students' awareness of their pupils' attainment, progress and achievement in general. In particular, these interactions were used to bring greater focus to students' reflective practice but expanding their gaze beyond the trivial and often mundane description of classroom events to focus on learning and how they know that learning occurred within their teaching. In addition, students were supported to draw more explicitly on context to support their professional judgements on pedagogy and practice. This required the students to reflect on their school experiences while on placement and to bring in socio-economic factors, as well as other educational factor into their reflections. This was facilitated through the school experience module in two ways. First, students were explicitly asked to reflect on context in their teaching file using a generic issues log. Second, as part of the student and tutors engagement with practice related activities such as support sessions prior to placement and through the one-to-one support of students when on placement. This was focused by staff engaging students more in discussions around their OneNote Teaching File, their ongoing reflection on teaching and other issue that might arise as part of practicum.

- ITE staff/Local Authority/school staff interaction

The University of Dundee, as part of their work on overall values and ethos began focused discussions in two of their local authority ITE partners to discuss SAC, equity and improving learning and attainment. In one authority they held two annual events, leading to a joint agreement to establish a research community which would act as a key learning and support system for students from that Authority. The work ended when key senior and middle management officers from that local authority moved post and funding was no longer available. They held three cycles of discussions with a second local authority partner and more limited involvements with two further local authorities. From these discussions, the Dundee Project Team have been involved in work with a central research group in one local authority and with two different focus groups of headteachers. There was also some individual work with officers from two authority partners while they held seconded posts in those authorities.

At the University of Edinburgh, the project team are working with a dynamic network of primary and secondary schools across Scotland with a focus on designing learning spaces. Each group of teachers is part of an action enquiry case study, with plans to further involve student teachers as Covid 19 restrictions are relaxed. The case study outcomes include digital films as well as reports which can be used as resources in our future ITE programmes. The case studies from this will inform the ITE programmes in the University of Edinburgh and there are plans to to develop and deliver professional learning on spatial literacies and food education linked to school gardens with selected pilot case-study schools - Primary and Secondary - as part of the

Regional Skills Programme.

- Interventions supporting student to student interaction

The University of Glasgow project sought to engage students with practitioner enquiries focused upon literacy, numeracy and health and wellbeing outcomes for the educationally disadvantaged, and, crucially, to consider what benefits can be derived from student teachers sharing and discussing such practitioner enquiries collectively. The particular focus in this development was on the latter ‘sharing’ element – what happens when student teachers share practitioner enquiries with one another. Findings indicate that facilitating the sharing of such practitioner enquiries represents a powerful tool for teacher educators, with students identifying a range of specific pedagogical measures which might work to assist students from disadvantaged backgrounds across the areas of literacy, numeracy and health and wellbeing and which would be transferable across different educational contexts (with the caveat that context always matters and the complexities of the individual classroom are always significant). In this initiative the students were motivated by having ownership and autonomy over individual practitioner enquiries and felt prepared to be independent in decision-making through practitioner enquiry (though at the level appropriate to an early career teacher). Students emphasised the value of sharing both pedagogical and methodological approaches with their peers. The importance of moments of reflection (and shared reflection) was emphasised and this is integral to the idea of practitioner enquiry (and sharing practitioner enquiries).

1.4 Changes to practitioner enquiry

This last culture-oriented category lies at the heart of this project, which in itself responds through research to a policy-initiative. This is reflected in three kinds of changes, first, increased involvement of students in the research, second, the research informing changes in the ITE programmes and thirdly, looking at how students engagement with theory and evidence is mediated in their learning to teach. This last is also a key thematic focus in the project and central to long-standing ambitions within Scottish education to support the development of teachers as practitioner researchers. In this sense, all the participant universities are addressing this category of change and we just highlight three specific interventions here as exemplars.

At the University of Aberdeen, the project has provided internal opportunities to generate and use relevant evidence to inform on-going Programme and course developments, to promote collaborative activity, and to support research capacity building. Additionally, involvement has enabled ITE students to engage with relevant and recent research of direct relevance to their on-going professional learning, coupled with enhancing their awareness of the value of research and enquiry in relation to understanding learners and practice. Results from the project have been internally shared in local publications and presentations. The project has provided a vehicle to promote partnership between the University, schools and the local authority, in turn generating valuable context-specific evidence. Whilst the evidence collected provides local context insights of direct relevance to ITE programmes in Aberdeen, discussions

around the evidence and practice implications have potential to feed into wider national policy discussions and developments across the sector.

The team at Aberdeen were also keen to highlight how the overarching project has provided a supportive frame for colleagues from a range of institutions to share project experiences and findings, to uncover common supports and challenges. The project has consistently enacted a transparent and inclusive culture to the benefit of participants, in turn highlighting the importance of collaboration between researchers in terms of research partnerships and outcomes. Dissemination of project findings through the webinar series has enabled participant researchers to draw together common threads from their projects, and to engage a wider audience in dialogue around key emerging issues.

In the University of Dundee, staff from the Education and Social Work Faculty have been involved in wider research activities related to the SAC and to the impact of equity on teaching strategies, outcomes and issues. The faculty has been heavily involved with both students and local authorities in pursuing this research thread which has also informed and supported developments in ITE, for Early Career Teachers and later Postgraduate stages. The outcomes from this work include:

- Getting student teachers to adopt a research-oriented approach and engage in professional dialogue with those around them appears to enable them to improve children's learning and to reduce the impact of inequity.
- Equipping student (and later career) teachers to understand research and employ it to identify issues relating to equity in learning and attainment does appear to improve their own practice.
- Collated classroom and school research and analysis and the role of the teacher-researcher appear i.e., classroom teachers, to be crucial links in the successful development and implementation of classroom, school and authority wide educational policy and practice.

The University of Edinburgh have introduced new modules been designed by drawing on latest research undertaken by the project team members. Students are aware of the active involvement of the team and have been included as partners in the project. The team have actively promoted a concept of research as 'lived practice', continuously nurtured by the engagement with the students.

The University of Glasgow project sought to engage students with practitioner enquiries focused upon literacy, numeracy and health and wellbeing outcomes for the educationally disadvantaged, but also, specifically, to share these enquiries with each other in a systematic way. This has been seen as enabling students to identify transferable pedagogical measures which might assist them in their work. In relation to research engagement, students appeared motivated through their ownership and autonomy over their individual practitioner enquiries and felt better prepared to act as independent decision makers. They also however emphasised the value of sharing both pedagogical and methodological approaches with their

peers and this bodes well for the development of research-oriented and collaborative cohorts. Under Covid 19, 'desk-based' studies focused on elements of the Attainment Challenge such as 'rapid-evidence reviews' became an important mitigation mode of research for students. This has been taken as a benefit in providing a new set of enquiry approaches that can be usefully shared and analysed to understand the relative benefit of these approaches against the more traditional classroom-based ones.

2. Content-Orientated Changes

Changes to modules and staging

Module-related changes reported covered the addition of new modules, the enhancement of existing modules or changes more focused on the connections between modules as well as around staging over the course of the programme or course. It should be noted that there is not a binary distinction between the culture-oriented changes reported above and the more content-focused changes with all of the module, practicum and mentoring changes involving elements of changed attitudes and ethos towards equitable practice. An overview of these module developments, demonstrates that modules are no longer being developed as isolated and discrete units but as responsive and developing inputs with built in two-way paths of communication and reflection often involving students as well as across staff specialisms and between research and practice.

2.1 Module Changes

The first changes reported in this section relate to general developments in approaching student understanding of inclusive practice. A key finding in RQ1 was that ITE was more focused on this wider concept of approaching equity in education than the more instrumental framing of the SAC around literacy, numeracy and health and well-being. This includes sustaining a close interrogation of the terms inclusion, equity, social justice, as well as of attainment and achievement, and exploration of holistic views of how values might underpin such approaches.

The University of Dundee added a new 'Interdisciplinary Learning' module to the undergraduate ITE course offering a reflective space for consideration of personal, societal and professional values and how they can complement each other. It focuses on key influences on teachers' professional values and actions and thus the areas of improving equity, increasing attainment, teacher/parent/pupil attitudes to these issues and their interactions form a significant part of the learning. Part of the work in the module examines how people in poverty are seen in society and how that has changed during the past 20 years. This development was influenced by the SAC project but also emerging evidence of underlying harsh neo-liberal values regarding poverty from internal University of Dundee research and interviews. This was supported by work carried out with members of ITE staff to assist them in considering their own values and attitudes and the factors which influence these. Throughout the course, students are challenged to consider the key factors which impact on values.

In the University of evidence emerging from the team's SAC project has led to the enhancement of specific courses, spanning the MA and PGDE programmes. Drawing on the principles of inclusive pedagogy, as explained in their own research reporting, has directly influenced the design and development of Masters level 4 courses centred on 'Inclusive learning and teaching with a focus on pupil participation'. The key thread of 'participatory learning' draws on the Framework for Inclusive Practice. These include:

- Planning, Learner Differences and Inclusion
- Inclusive Pedagogy: lessons from research

Evidence from project phases will continue to be shared for dialogic and collaborative engagement within and between ITE teams, with a view to embedding key messages about inclusive pedagogy across course materials. For example, recent phase 3 analysis has highlighted important messages regarding new teachers' awareness of, and response to, learner differences likely to form the basis of dialogue to inform specific on-campus and practicum-related course developments and interventions.

The University of Stirling have undertaken major revisions to the format of the second placement in their undergraduate programmes, a five-week placement in the third year. These changes address the strong need identified in the project that equitable practice is supported by a student's ability to translate theory and evidence into practice. Instead of a five-week placement block at the beginning of semester followed by an intense seven week period of study at university, they introduced an integrated model where students experience three days per week on placement followed by two days undertaking university study and reflection, throughout the semester. The aim of this is to offer greater opportunities for students to think critically about their practice, to consider how theory might be translated into their on-going work, and to better support students through this process of change.

Stirling developed the module 'Promoting Equity' within their SAC project that sits in their M.Sc. in Professional Education and Leadership. This module is designed for experienced teachers and is offered as a context within which to develop critical tools for analysing and to pursue wider notions of equity. Teachers participating in this undertake a project in their school that is designed to promote some issue in relation to pupil equity; the following year, as part of a linked Coaching and Mentoring course, they undertake a mentoring intervention, and reflect upon this in relation to their own, and mentee's changed understandings and practice, together with broader impacts within relevant communities of practice.

The next set of interventions, reported by University of the Highlands and Islands, University of the West of Scotland and by Edinburgh University, respond to more specific aspects of equitable practice drawn from their own contexts but all are aspects that have wider resonance.

The University of the Highlands and Islands' research project has highlighted how national data,

such as the SIMD, do not fully reflect the lived experience of pupils in rural areas, a point acknowledged within the Government's web pages on the data source. The SAC project has helped the research participants, namely Newly Qualified Teachers (NQTs), to enhance their understanding of how poverty and deprivation are measured nationally and has also highlighted the potential of their own role for identifying pupils in need and making necessary accommodations for them. Seeing the benefits of this understanding for NQTs has encouraged the research team to bring related provision into UHI's Initial Teacher Education (ITE) programmes. They have amended some of the content of the University's PGDE programmes to provide student teachers with an enhanced understanding of the nature of the attainment gap at the national level and built up a picture of how socioeconomic deprivation is gauged as part of the Equity and Social Justice provision of the programmes. Student teachers are now becoming familiar with the reporting of attainment relative to SIMD grouping for Literacy and Numeracy on a national level as part of their ITE programme, which in turn is adding to their understanding of how schools and local authorities are feeding into the national picture. The intention is that their student teachers will realise that just because an area is not identified as one of the twenty percent most deprived areas in Scotland, this does not mean that there are not pupils in that area experiencing an equivalent level of deprivation. Indeed, there is evidence of rural poverty that is masked by the existence of more affluent neighbours in more sparsely populated rural areas. The programme refers to this as crypto-poverty and encourages their student teachers to have the confidence to use their professional judgment to identify when learners are in particular positions of need, and to see that these needs are then supported.

The University of the West of Scotland introduced three data literacy specific teaching sessions into their ITE programmes that focused on what educational data looks and feels like, and how these data are converted into evidence which is decision useful at the classroom, department and school level. These three teaching sessions will be adapted and amended over the next academic session. In session 2020/21 these sessions were supplemented with an additional session on engaging with professional scenarios that focus on the use of data in professional contexts. This session was piloted in February 2021 with the PGDE Primary and Secondary cohorts and features in the UWS final SAC project report. They have also enhanced teaching sessions on reflective practice and analysis of teaching to focus specifically on using data to inform reflections and future actions in lessons. These sessions will be further developed in the light of the findings from the overarching SAC research report and from the findings of the UWS SAC project in particular.

The University also introduced three teaching sessions that focus on the critical analysis of national policy, the National Improvement Framework in particular as well as teaching sessions on pedagogies that support reducing the deprivation related attainment gap and critical reflection on research focused on assessment. These teaching sessions are situated within the School Experience and School and Professional Studies modules of the PGDE Primary and Secondary programmes. Similar teaching sessions are situated within the school experience module for fourth year of the BA (Hons) Education programme.

The work at the University of Edinburgh was focused on their linked project work on the co-design with students and pupils of learning spaces and innovations in the use of school gardens and outdoor learning providing innovative and transformative teaching and learning experiences within communities of deprivation. The key concepts of spatial literacies and shared learning spaces have been extensively integrated across PGDE Primary and Secondary Programmes and their masters MSc Transformative Learning and Teaching, building connections across the whole curriculum, and generating a strong response from students across all disciplines. Outdoor Learning, and Spatial literacy are now featured in the Moray House School of Education and Sport Strategic Plan for ITE, with the expectation that this will produce more integrated modules and develop capacity and sustainability.

The team is also continuing and sustaining connections with our students as they begin their professional careers as newly qualified teachers. A network was set up following the online learning design workshops, and in two of our partner schools (situated in areas of multiple deprivation) NQTs who had previously attended our workshops as student teachers are continuing to work with us. They have developed a Learning Space Design Toolkit in collaboration with City of Edinburgh Council and Architecture and Design Scotland. Student teachers on their programmes have engaged and experimented with the Toolkit, and it is being trialled and implemented in their partner schools. In addition, a School Gardens network has extending from Aberdeen, where the gardening –focused work started, into an active network of schools with endorsement by Scottish MSPs. A framework on Food Activism in Schoolyard for schools across Scotland, funded by SUII, has been developed, drawing on the findings and recommendations of their SAC project. Students on the MSc TLT programme have engaged with the framework and experimented with how it can be integrated in their practice. New module proposals relating to the gardening strand of work have also been submitted as part of PGDE Primary and Secondary reaccreditation processes.

2.2 Changes to practicum and mentoring

Practicum, or school placement, and mentoring offer powerful opportunities for the transfer of content, skills and values between experienced and new practitioners. The RQ2 report noted the desirability of a more systemic approach to making use of these opportunities to give students experience within high SIMD communities. The disruption to both these aspects of ITE caused by the pandemic has however been significant. The University of Dundee, for example, reported their intention to refocus on this area when the pandemic conditions allow. The University of Stirling’s work on better integrating the university based and school-based experience was under development with, for example, a ‘to-ing and fro-ing’ built into the modules where students take up an idea, concept, or theory from their university-based learning and then translate this into practice, and for this then to be discussed the following week. Under Covid 19, the placement had to reconfigured back into a discrete block.

At the University of Dundee, the placement has been revised to focus more coherently on Social Justice. The key developments include heightened expectations that students will

explore and document the social demographic of the community that their placement school serves. Students will be encouraged to access SIMD data and to use this as source to help inform their understanding and awareness of equity-based issues that a professional practice placement school and its community can face. Students are also encouraged to explore the Pupil Equity Funding (PEF) for their professional practice placement schools and to develop their understanding and awareness of the PEF strategies and approaches that schools are using to address the Attainment Gap.

The University of Aberdeen project aims to support the preparation of new teachers with the values, knowledge and skills necessary to support inclusive learning for all learners including those living in poverty. Three key principles underpin the approach to inclusion and are drawn from Inclusive pedagogy to address learner differences in the classroom with a focus on achieving positive educational outcomes for all learners. Practising inclusive pedagogy requires a commitment by the teacher to address learner differences without marginalising or stigmatising learners. The empirical evidence collected has provided a vehicle to prepare new teachers for practicum by the provision of recent, concrete examples and insights from practice in relevant local contexts, and at a time of Covid 19. Whilst practicum arrangements have not changed, on-campus practicum preparation sessions have been tailored to provide support. Key messages from project phases focus on awareness of learner difference, enablers and barriers to inclusive pedagogy in schools and communities, and possible responses to difference, including harnessing learner assets, are highlighted in the context of professional expectations and the relevant GTCS standards. Project evidence suggests that whilst programmes of ITE prepare new teachers effectively to develop relationships to establish knowledge of learners of difference, it is important to be able to harness that knowledge to respond to, and tangibly support, learners in particular contexts. The evidence suggests that more needs to be done to help new teachers to make sense of, and operationalise, the knowledge they develop.

At the University of Highlands and Islands, they benefited from on-line delivery being an established mode of connection. Their work offers teachers some key aspects of the practicum and mentoring experience in a different form. They further developed an online community of practice established at the start of their SAC project by inviting former years' participants in to return as discursive group mentors for the NQTs participating in the project in its final year. This was able to go ahead and facilitated cross-generational dialogue between NQTs in their induction year and fully registered teachers in their first or second year of a fully qualified teaching role.

They found that the online space in which this dialogue has taken place facilitated the creation of a safe space for a community of practice, where ideas and teaching practices are discussed without any of the pressures of being in a more hierarchical situation of scrutiny. This eased the free flow of experiences, tips and reflections that may not have occurred in other more formalised settings. What was particularly pleasing was that the meetings were held across local authorities, types of school, stage, and level, meaning that people who would not ordinarily come together found a newly shared space. This transparency made for frank and honest discussions, where successes and key learning events were both shared, giving the

opportunity to identify aspects of best practice, or just tips or resources that might help. Having witnessed the benefits of offering such a space, on the completion of this project UHI are seeking support to research into the benefits of creating such spaces for engagement with peers and mentors across contexts and settings. Such a facility is useful in rural areas, where there may be fewer opportunities to attend staff training events or to take part in cross-school collaborative activities owing to the relative remoteness of the settings. This is particularly pertinent when we realise that it is the more remote schools that suffer in terms of attainment, so anything that facilitates their staff's ability to learn and share guidance and ideas with peers across different local authorities and contexts is beneficial for their personal professional development.

At the University of West of Scotland, the PGDE Secondary and Primary programme teams have been looking further into contextualising Data Literacy, a key focus of their SAC project, by adding an activity to be completed during practicum by students, to help them engage with educationally relevant data as part of their teaching placement. This activity will entail students engaging in collaborative discussions with school-based mentors about what kinds of data are gathered and how that data is used, by whom and for what purposes. This will help them to see what, where and how educationally relevant data is gathered and used. At present, the students experience of what, where and how data is used in schools is patchy, dependent of the school allowing them to see their data and on the timing of placements. In order to make this experience more consistent for students it is important that the University makes this activity part of their teaching file requirements and ask students to reflect on what they have learned from this experience. This activity will be introduced into the school experience modules of the final year of the undergraduate programmes, the PGDE Primary and Secondary programmes in session 2021/22.

Conclusion and next steps

The interventions reported here give a sense of the ongoing commitment within ITE

- to reflect the widely held commitment to equity across Scottish education
- to question and challenge how that commitment is understood, articulated and enacted but also to exemplify and drive that commitment.

These interventions drew on each participant university's own internal research and investigations under this project. Because of the various Covid 19 impacts, there was diminished space to interact in a sustained fashion across all the universities, with stakeholder and the findings of the report on RQ3, the literature review. It is hoped that opportunities for this cross-institution engagement and responsiveness to the material in the literature review will be found as we move forward through this period of transition in Scottish Education.

A number of things are clear however:

- Just as the universities are building their own approaches to integrating their research work and their course development work, they are giving more attention to how students learn to integrate theory and practice and manage the different sources of evidence available to them.
- As a result of the project, participant universities are more informed and alert to how the Scottish Attainment Challenge is being approached by their peers across the ITE sector and value the cross-institution collaborative ethos developed over the course of the project.
- There are powerful moves towards finding new ways for the university-based space for theory and evidence based learning, reflection and challenge to interact and integrate with school-based practice, learning, reflection and challenge. The Scottish Attainment Challenge oriented work under this project has provided a powerful focus through which to develop this.
- The university teams continue to engage with the complex issue of equity in education in a holistic and nuanced way that is not always translatable to the instrumental categories of literacy, numeracy and health and wellbeing⁵.
- Also significant is the collaborative approach of this project which has modelled transparent and inclusive communication between research teams in different institutions about the process of research, especially Covid 19 impacts, as well as its outcomes and extended dialogic exchange with external stakeholders through the SERA Connects webinar series.

⁵ These categories themselves subject to developing research and theory-based analyses and transformative action, for example, in relation to pluriliteracies and in challenging the concept of numeracy as a neutral rather than contested space in social justice terms.

- The success in challenging deficit views of high SIMD communities of disadvantage identified in the RQ2 report continues to develop, for example with innovative approaches such as the learning spaces led work at Edinburgh University and the recognition of ‘crypto-poverty’ at the University of the Highlands and Islands. Both of these attest to the tensions identified in RQ2 between the impacts of simplistically labelling communities and the acknowledging of geographic patterning in attainment outcomes (as understood in the mainstream sense). As with many of the insights offered in the project, these are responses that lift discussion beyond this apparently binary divide to focus on agency and possibility in communities of disadvantage as well as sustaining a sense of the potentially transformative power of reframing schooling.
- It is also clear that ITE providers are acting on the developing realisation that it is not only in relation to communities of deprivation that deficit notions arise – students appear better understood both as arriving with a set of preconceptions that may need to be surfaced and challenged but also ITE providers are better understanding that their expectations of students may not always be fully student-centred, rather than course requirement- centred. The University of Aberdeen, for example, reports developing an asset-based approach to supporting their students on school placement that focused on what they are able to achieve in that context and the exact nature of the challenges they encounter.
- A clear area still to be addressed lies across practicum and mentoring practices. Despite some key changes reported here, Covid 19 has offered very significant disruption to developments in these important aspects of ITE delivery. There is still a lot of potential to develop systemic approaches to experience within high SIMD communities, as recommended in RQ2. The RQ3 literature review findings offer a number of useful sources of possible alternatives, also highlighting important opportunities for mentoring practice to be understood as a means of shared professional development that is as important for mentors as for mentees.

As noted in the introduction, this report does not offer an endpoint for exploring how ITE programmes support the aims of the Scottish Attainment Challenge. In conjunction with the final reports from the eight University Research Teams, the project Theory of Change Report and the earlier cross-project reports on RQ 1, 2 and 3, it aims to provide a framework for ongoing discussion and action and a set of cross-institution connections that can scaffold further progress.

Appendix 1 Changes to ITE programmes

Unless otherwise indicated, all implemented or underway.

Potential ITE Programme Changes	Universities taking action
1. Changed course review processes (whole course)	Dundee
2. Changed course review processes (specific element)	Dundee Strathclyde
3. Overall values and ethos focused changes	Stirling Dundee UWS Strathclyde
4. Additional modules	Stirling Edinburgh Dundee
5. Enhanced modules	Stirling UHI Edinburgh (Planned, Covid 19 impacted) Glasgow Dundee Aberdeen UWS
6. Enhanced connections between modules	Edinburgh Dundee
7. Revisions to practicum arrangements	Dundee Aberdeen UWS
8. Revisions to mentoring arrangements	Stirling UHI Dundee (Covid 19 impacted) Strathclyde
9. Changed ITE staff interaction	Edinburgh Dundee Aberdeen UWS
10. Changed ITE staff/student interaction	Stirling Edinburgh Glasgow UWS (Covid 19 impacted) Strathclyde
11. Changed ITE staff/school staff interaction	Stirling Strathclyde

12. Changed ITE staff/LA/school staff interaction	Stirling Edinburgh (Covid 19 impacted) Dundee
13. Changed engagement with researchers/research	Stirling Edinburgh (Covid 19 impacted) Dundee Aberdeen
14. Specific intervention trialled (locally developed)	Stirling Glasgow Dundee UWS Aberdeen (Covid 19 impacted)
15. Specific intervention trialled (based on external exemplar)	Dundee